



Population Change in Yalova Province

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ABSTRACT

Yalova is the province of Turkey with the smallest area. Yalova became a province in 1995. The Population change in Yalova Province was determined by taking in to account the results of the Population Census (1935-2020) and Address Based Population Registration System (ABPRS) that has been carried out since 2007. Statistical data has been interpreted by converting it into various tables and graphs in a computer environment. The aim of the research is to analyze the population change in Yalova Province with in a spatial framework. The research area receives intense internal and international migration. The population of Yalova Province has continuously increased from 1990 (135.121) until 2020 (276.050). The population of Yalova Province increased by 16.4 times between 1935-2020. It is estimated that it will continue to increase according to population projections. The main factors causing population change are birth, death and migration. It has been determined that international migration and internal migration play an important role in the change of population in Yalova Province. Since the rural population increases are less than the urban population and the ratio of the rural population is decreasing, projects supporting rural development should be increased so that the rural population should be protected and the continuation of agricultural production should be ensured. Population growth has always had a negative impact on area. As the population increases in the research area, agricultural areas are declining, and it is seen that the pressure on agricultural areas will continue.

ÖZ

Anahtar Kelimeler:

Beşeri Coğrafya,
 Nüfus,
 Göç.

Yalova Türkiye'nin en küçük yüzölçümüne sahip ilidir. Yalova 1995 yılında il olmuştur. Yalova İlinde nüfusun değişimi Genel Nüfus Sayımı sonuçları (1935-2000) ile 2007 yılından itibaren gerçekleştirilen Adrese Dayalı Nüfus Kayıt Sistemi sonuçları dikkate alınarak tespit edilmiştir. İstatistik veriler bilgisayar ortamında çeşitli tablo ve grafiklere dönüştürülerek yorumlanmıştır. Araştırmanın amacı, Yalova İlinde nüfusun değişiminin mekânsal çerçeve içerisinde analiz edilmesidir. Araştırma sahası yoğun iç ve dış göç almaktadır. Yalova İli nüfusu 1990 yılından (135.121), 2020 yılına kadar (276.050) sürekli olarak artış göstermiştir. Yalova İli nüfusu 1935-2020 yılları arasında 16,4 kat artış göstermiştir. Nüfus projeksiyonlarına göre de nüfusun artış göstermeye devam edeceği öngörülmektedir. Nüfus değişimine neden olan temel faktörleri doğum, ölüm ve göçler oluşturmaktadır. Yalova İlinde nüfusun değişiminde uluslararası göçler ile iç göçlerin önemli rol oynadığı tespit edilmiştir. Kırsal nüfusun şehir nüfusuna göre daha az artış göstermesi, kırsal nüfus oranının azalış göstermesi nedeniyle kırsal kalkınmayı destekleyici projeler artırılmalı böylece kırsal nüfus korunmalı tarımsal üretimin devamı sağlanmalıdır. Nüfus artışının her zaman mekân üzerine olumsuz etkisi olmuştur. Araştırma sahasında nüfusun artması ile birlikte tarım alanları azalmakta olup, tarım alanları üzerindeki baskının devam edeceği görülmektedir.

1. Introduction

General population; refers to the number of people living in a given timeframe and within a certain area. While population censuses across the world focused only on the number/amount of the populace until the 20th century, subsequently, they were subsequently revamped to include the characteristics of the population, migration, changes in population as these factors became important [1].

The population issue constitutes one of the basic study areas of human geography. The distribution of the population on the earth, the factors that cause this distribution, the movement of the population (migration), births and deaths, changes in the various characteristics of the population according to time and place are discussed in the population geography, which is a branch of human geography [2].

Population is an extremely mobile and volatile phenomenon. The increase or decrease of the population in a certain period of time is parallel to the economic, social and political events experienced [3]. The population is determined through censuses. Countries want to have information about the number and characteristics of human resources in order to use their natural, economic and cultural assets effectively, for which census is applied to ensure this. Census can be defined as "collecting demographic information in a country at a certain time with information that includes all family members and making them ready for processing, organizing and publishing them in a manner suitable for specific purposes" [4].

Yalova Province is located in Northwestern Turkey and is surrounded by the eastern coast of the Sea of Marmara, Izmit and Gemlik gulfs. The Marmara Sea is located in the north of Yalova Province, and it is adjacent to Karamürsel District of Kocaeli, Orhangazi and Gemlik District of Bursa (Figure 1). Yalova, the smallest province in terms of Turkey, has a surface area of 798 Km² and accounts for 0.10% of the surface area of Turkey [5].



Figure 1. The location map of Yalova Province

Armutlu sub-district center of Gemlik District of Bursa Province, Altınova small town of Karamürsel District of Kocaeli Province and Yalova District of İstanbul Province and Çınarcık sub-district Center, Termal town and Çiftlikköy town became Districts and were connected to Yalova Province. In Yalova Province, which consists of six districts

together with the Central District; There are 43 villages and 14 municipalities. The municipalities are central and 5 district municipalities and 8 town municipalities (1 of Central District, 3 of Altınova District, 3 of Çınarcık District and 1 of Çiftlikköy District).

Yalova is located on the northwest coasts of Samanlı Mountains and on the northern coasts of Armutlu Peninsula and has the potential of being an important tourism area of the Marmara Region. Yalova is surrounded by the Marmara Sea to the north and west, Gemlik Bay and Gemlik and Orhangazi Districts of Bursa Province to the south, and Karamürsel District of Kocaeli Province to the east. Apart from the plains formed by the coastal plains and delta plains on the eastern shores of Yalova, it generally has a rugged terrain.

The thermal springs, ornamental plants and flower cultivation are other factors that affect the economy of the city. Yalova is a coastal city and the land conditions are suitable positively and affect the settlement and agricultural economy. The diversity and richness of Yalova can be attributed to the internal migrations from many regions of Turkey to Yalova Province, as well as the presence of Balkan and Caucasian immigrants in the region [6]. In the Province of Yalova, the population has shown a balanced increase in recent years.

Yalova is located in an area where some of Turkey's most important industrial and transport networks are concentrated. With the development of transportation systems day by day, the importance of Yalova is increasing. The fact that it is located on main routes such as Balıkesir, İzmir and Bursa and its proximity to a metropolis like İstanbul has ensured that Yalova's importance has been preserved throughout history. The fact that Yalova is located in an area with suitable settlement and many attractive factors caused the population and settlement movements to increase in this area [6, 7].

The construction of 5 Organized Industrial Zones (OIZs) in a total area of 12,667 decares in Yalova Province continues. It is expected that 6 OIZs will be operational in the Yalova Province by 2023. With the activation of the other 5 OIZs, excluding Yalova Composite and Chemical Specialization OIZ, approximately 57,000 people are expected to be employed [8, 9].

The Turkish Shipbuilders' Association (GISBIR) has 100 members and 6 of the 69 companies are headquartered in Yalova Province. There are 84 active shipyards in Turkey that perform ship and yacht construction and maintenance and repair activities. The largest number of shipyards are located in the Tuzla shipyards region of İstanbul, and the second is located in the Altınova shipyards region of Yalova Province. In 2017, there were 12 thousand employees in the Altınova shipyards region of Yalova Province, reaching 17 thousand in 2019 and 23 thousand in 2020. The number of jobs is expected to reach 40 thousand by 2023 [10-15].

The population of Yalova Province has increased steadily from 1990 (135,121) to 2020 (276,050). The population of Yalova Province increased by 16.4 times between 1935-2020.

2. Material and Method

The aim of the research is to analyze the change of the population in Yalova Province within a spatial framework. With the population growth of Yalova, the population density that intensifies in the city centers in the coming years will further increase the pressures on the place.

A detailed national and international literature review was carried out within the scope of the research. According to the subject of the study, general censuses and the Address Based Population Registration System (ABPRS) statistics produced by the Turkish Statistical Institute (TUIK) were used as second data due to the fact that the population change will be analyzed in the Province of Yalova. Statistical data has been interpreted by converting it in to various tables and graphs in a computer environment.

The observation and analysis of documents determined as qualitative research methods were interpreted descriptively and systematically. In this study, the result was reached from the geographical point of view.

3. Results

3.1. Total Population of Yalova Province

In this chapter; The total population of Yalova Province and the change of population, population growth rate are taken into account.

Due to the fact that Yalova was a province in 1995, detailed information about Yalova Province and its districts can be obtained since the 1990 general population census. Before Yalova became a province, the population of Yalova District increased to 16,840 in 1935, 22,225 in 1950, and 37,090 in 1965. Industrialization and migration from the countryside to the city accelerated this increase. At the same time, the NATO base established in Karamürsel District of Izmit in 1960 contributed to the increase of the population of Yalova District [16]. While the population of Yalova, which is a District of İstanbul Province, was taken into account in the 1985 census, and in the 1990 census, Armutlu sub-district center of Gemlik District of Bursa Province, Altınova small town of Karamürsel District of Kocaeli Province gained the status of the district and was added to the population of Yalova province, the population of Yalova Province in 1985 increased by 50% from 90,228 in 1990 to 135,121. The annual population growth rate of Yalova Province was also realized as 80.8%. In the general population census of 1990, Yalova was actually counted only as a district, and according to the administrative structure in 2000, its population was recalculated by considering other districts. In fact, Yalova's population was found to be 113,417 people in the 1990 general census. When the annual population growth rate is calculated considering this population, it will be seen that this rate is 45.7%. According to the 1997 General Population Count [17], the population of Yalova was 163,916 according to de facto and the population is 162,190 people according to de jure (Table 1). The annual population growth rate compared to 1990 was 27.6% in 1997 and 22.1% in 2000.

Table1. Change of Total Population of Yalova Province by Years (1935-2020)

Year	Population	Period	Increase/Decrease	Annual Growth Rate of Population (‰)
1935	16.840	-	-	-
1940	17.078	1935-1940	238	2.8
1945	20.276	1940-1945	3.198	34.3
1950	22.255	1945-1950	1.979	18.6
1955	26.671	1950-1955	4.416	32.2
1960	33.101	1955-1960	6.430	43.2
1965	37.090	1960-1965	3.989	22.8
1970	42.689	1965-1970	5.559	28.1
1975	55.036	1970-1975	12.347	50.8
1980	75.787	1975-1980	20.751	64.1
1985	90.228	1980-1985	14.441	34.9
1990	135.121	1985-1990	44.893	80.8
1997	163.916	1990-1997	28.795	27.6
2000	168.593	1990-2000	33.472	22.1
2007	181.758	2000-2007	13.165	10.7
2008	197.412	2007-2008	15,654	82.6
2009	202.531	2008-2009	5.119	25.6
2010	203.741	2009-2010	1.210	6.0
2011	206.535	2010-2011	2.794	13.6
2012	211.799	2011-2012	5.264	25.2
2013	220.122	2012-2013	8.323	38.5
2014	226.514	2013-2014	6.392	28.6
2015	233.009	2014-2015	6.495	28.3
2016	241.665	2015-2016	8.656	36.5
2017	251.203	2016-2017	9.538	38.7
2018	262.234	2017-2018	11.031	43.0
2019	270.976	2018-2019	8.742	32.8

2020	276.050	2019-2020	5.074	18.6
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Source: The results of the Population Censuses (1935-2000), the Population Censuses (1965-2000) and Address Based Population Registration System (ABPRS) in Turkish Statistical Institute. Annual population growth rate is calculated by using $(LN(\text{The next census/previous census})/(\text{The time period between the censuses})) * 1000$ [18, 19, 20].

The population growth rate of Yalova Province in 2008 was 82.6‰, and the net migration to be announced in the internal migration section as 10,114 and the net migration rate as 52.6‰ were contributors to the population growth. The population of Yalova Province has increased continuously from 1990 (135,121) until 2020 (276,050). The population of Yalova Province increased 16.4 times between 1935-2020 (Figure 2).

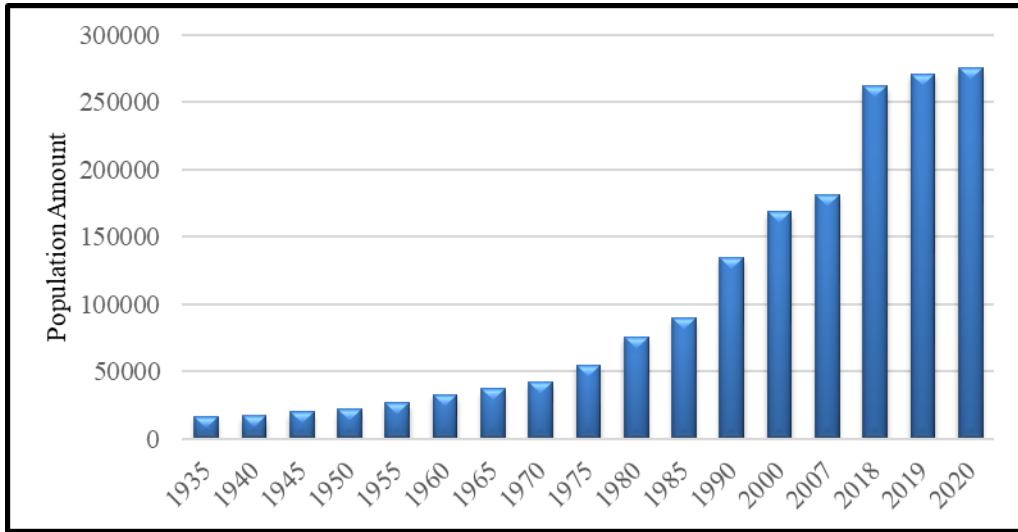


Figure 2. Development of Total Population of Yalova Province by Years (1935-2020)

The total population of Yalova Districts is shown in Table 2. The total population of the districts has been calculated since 1990. The Central District has the highest population, and Çınarcık District, which has the second highest total population, has regressed to the third place since 2009.

Table 2. Change of Total Populations of Yalova Districts by Years (1990-2020)

Year	Central	Altınova	Armutlu	Çınarcık	Çiftlikköy	Termal	Toplam
1990	77.137	15.688	6.016	17.290	14.672	4.318	135.121
2000	86.091	22.801	7.858	21.650	24.789	5.404	168.593
2007	102.871	20.916	7.210	22.085	24.046	4.630	181.758
2008	107.609	23.563	7.821	27.682	25.630	5.107	197.412
2009	114.054	23.235	8.025	25.892	26.239	5.086	202.531
2010	116.471	23.171	7.826	24.488	26.769	5.016	203.741
2011	118.998	22.686	7.823	24.488	27.640	4.900	206.535
2012	121.479	23.148	7.732	25.629	28.854	4.957	211.799
2013	124.018	23.567	8.562	27.384	30.784	5.807	220.122
2014	127.670	24.333	8.619	27.535	32.423	5.934	226.514
2015	132.322	24.140	8.492	28.092	34.094	5.869	233.009
2016	137.007	24.896	8.688	29.417	35.628	6.029	241.665
2017	140.312	26.510	8.848	32.590	36.895	6.048	251.203

2018	144.407	28.232	9.625	34.076	39.110	6.784	262.234
2019	149.068	29.237	9.543	34.343	41.882	6.903	270.976
2020	149.330	30.780	9.901	34.699	44.808	6.532	276.050

Source: The results of the Population Censuses (1965-2000) and Address Based Population Registration System (ABPRS) in Turkish Statistical Institute [19, 20].

The mild climate of Yalova, the availability of tourism opportunities, having important transportation routes, the high rate of education and its cultural diversity, its proximity to important industrial, business and commercial areas such as İstanbul, Bursa, Kocaeli have provided a great advantage in terms of the development of the population of the province [6]. It is also forecasted that this advantage will continue.

3.2. City Population

The first information about the city population of Yalova was described in the 17th century by Evliya Çelebi as a settlement in Yalova with 700 houses, seven mosques, a bath, three khans, forty-fifty shops and the castle were destroyed. It is known that it corresponds to a population of 4000. According to Yalova's census in 1831; there was a total of 3,929 male population, including 918 Islam and 3,011 Reaya [16]. In the 1918 census, which was held for the last time during the Ottoman Empire; The total number of living people, including 795 Muslims, 10,274 Greeks and 3,303 Armenians, was 14,372 [21]. As it is known, Yalova became a province in 1995. For this reason, the change in the city population of the District of Yalova, which was a district between 1935-1995, will be examined first (Table 3, Figure 3). In Turkey, TUIK considers the provincial and district centers as cities and registers the population of the city by administrative arrangement.

Table 3. Change of City Populations of Yalova District by Years (1935-1990)

Year	City Population	Period	Increase/Decrease	Annual Growth Rate of Population (%)
1935	2.635	-	-	-
1940	2.300	1935-1940	-335	-27.14
1945	3.608	1940-1945	1.308	90.10
1950	3.833	1945-1950	225	12.10
1955	6.610	1950-1955	2.777	100.99
1960	11.318	1955-1960	4.708	107.56
1965	14.241	1960-1965	2.899	45.95
1970	17.689	1965-1970	3.472	43.36
1975	27.289	1970-1975	9.600	86.71
1980	41.823	1975-1980	14.534	85.39
1985	53.857	1980-1985	12.034	50.57
1990	65.823	1985-1990	11.966	40.13

Source: The results of the Population Censuses (1935-2020), the Population Censuses (1965-2000) and Address Based Population Registration System (ABPRS) in Turkish Statistical Institute [18, 19, 20].

Yalova shows the characteristics of a small district consisting of 2,635 people according to the 1935 census. It is known that the city of Yalova was consisted of three neighborhoods (Süleymanbey, Rüstempaşa and Merakuyu) and 461 residences in 1939 [16]. In 1940, the city population of Yalova decreased to 2,300 people, in subsequent censuses, its population increased continuously and continued to expand over the area. The reason for the decrease in the 1940s was the environment created by the World War II and the Turkish War of Independence had an ongoing effect. The effect of the Turkish War of Independence reduced the number of male population, the female population ratio was 59.1% in 1935 and was 59.9% in 1940, in these years the number of women, especially in the 25-44 age, exceeded the number of men. In Turkey, the population growth rate was decreased to 17.03‰ between 1935-1940, was decreased to 10.59‰ between 1940-1945 with the effect of the World War II [18].

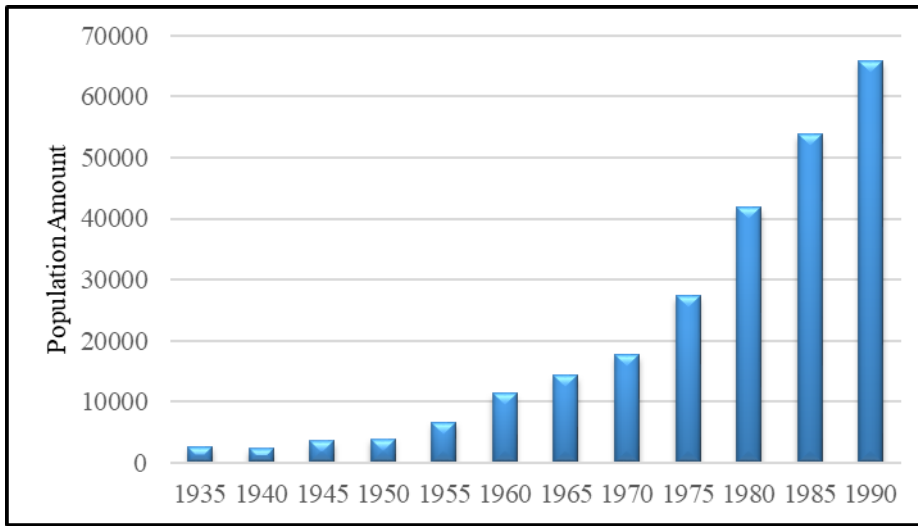


Figure 3. Development of City Population of Yalova District by Years (1935-1990)

In Yalova, the annual population growth rate minus 27.14% between 1935-1940. In the following years, a gradual increase is observed in parallel with the development of Yalova city. The industrialization process which began in Turkey After 1950 and therefore affected Yalova as a District of İstanbul, was the most important of the factors that increased Yalova's population growth. However, the migrations from the countryside to the city and the favorable living conditions of Yalova are other important factors. With these factors, the population of Yalova city increased from 3,833 in 1950 to 6,610 in 1955. In the early 1950s, the city of Yalova experienced the highest annual growth rates between 1950 and 1955, with annual growth rates of 100.99% and 107.56% respectively. The establishment of the NATO base in the east of Yalova in 1952 has been an important factor in the population, economic and social development of the city. For this reason, the population of Yalova city first increased to 11,318 in 1960 and to 14,217 in 1965. The population growth of Yalova has continued since the 1970s, with the acceleration of the industrialization process and the effect of ongoing internal migration. In this period, large industrial facilities started to be established in the east of the city, summer residences increased, floriculture and greenhouse activities developed. Therefore, Yalova city population reached 17,689 in 1970 and 65,823 in 1990. The population growth rate was 86.71% in 1975, 85.39% in 1980, started to decrease in 1985 and became 50.57% and 40.13% in 1990.

The change in the city population of Yalova after it became a province is shown in Table 4, taking into account the total of all district centers together with the the General Population Count made in 1997. The increase in the city population of Yalova continued increasingly until the Marmara earthquake on 17 August 1999. According to the results of the General Population Count made on 30 November 1997, the population of Yalova city was 110,106 according to the location and 109,750 according to the residence [19]. The Yalova city was not affected much by the Düzce earthquake on 12 November 1999 [6]. In the Marmara earthquake, the total loss of life of those living in nine neighborhoods in Yalova city was 1,449, and the most casualties were in Bahçelievler (624) and Kâzımkarabekir (595 dead) neighborhoods [16] With the effect of losses and migration after the Marmara earthquake, the population of Yalova city decreased to 98,661 in 2000. In 2007, the population of Yalova city increased again to 122,075. Between 2007-2020, the population of Yalova city has increased continuously. The highest population growth rate was recorded as 75.12% in 2008. The Turkish Local Administrations Election held on 29 March 2009 is considered to have had an effect on this increase. Due to the effect of population growth in the previous year, the population of Yalova city increased by only 1,204 people in the next year and the population growth rate was 9.11%. Likewise, with the effect of The Turkish Local Administrations Election held on March 31, 2019, the population growth rate increased to 60.30% in 2018, decreased to 40.69% in 2019 and 16.60% in 2020.

Table 4. Change of City Populations of Yalova Province by Years (1997-2020)

Year	Population	Period	Increase/Decrease	Annual Growth Rate of Population (‰)
1997	110.106	-	-	-
2000	98.661	1997-2000	-11.445	-36.59
2007	122.075	2000-2007	23.414	30.42
2008	131.599	2007-2008	9.524	75.12
2009	132.803	2008-2009	1.204	9.11
2010	139.388	2009-2010	6.585	48.39
2011	142.881	2010-2011	3.493	24.75
2012	149.421	2011-2012	6.540	44.76
2013	155.016	2012-2013	5.595	36.76
2014	160.803	2013-2014	5.787	36.65
2015	167.558	2014-2015	6.755	41.15
2016	175.319	2015-2016	7.761	45.28
2017	181.036	2016-2017	5.717	32.09
2018	192.288	2017-2018	11.252	60.30
2019	200.274	2019-2018	7.986	40.69
2020	203.628	2020-2019	3.354	16.60

Source: The results of the Population Censuses (1935-2020), the Population Censuses (1965-2000) and Address Based Population Registration System (ABPRS) in Turkish Statistical Institute [18, 19, 20].

Due to the fact that Yalova was a province in 1995, detailed information about Yalova Province and its districts can be obtained since the 1990 general population census. The change in the total city population of the Central District and other Districts of Yalova in the years 1990, 2000 and 2007 and the city population of Yalova at the district level are shown in Table 5 and Figure 4.

Table 5. Change of City Populations of Yalova Districts (1990-2000-2007)

Districts	1990	2000	2007
Central	65.823	70.118	87.372
Altınova	2.176	3.231	3.429
Armutlu	3.201	4.221	4.633
Çınarcık	7.629	8.953	9.170
Çiftlikköy	5.750	9.622	15.290
Termal	2.453	2.516	2.181
Total	87.032	98.661	122.075

Source: The results of the Population Censuses (1965-2000) and Address Based Population Registration System (ABPRS) in Turkish Statistical Institute [19, 20].

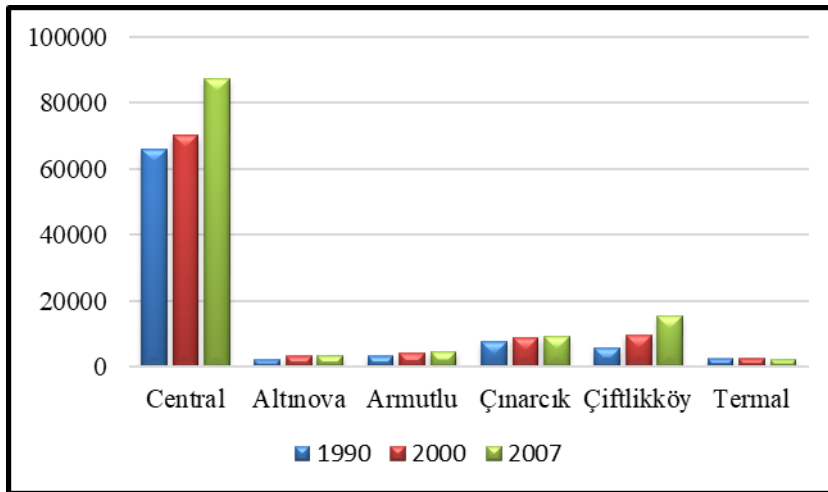


Figure 4. Change of City Populations of Yalova Districts (1990, 2000, 2007)

Except for Termal District of Yalova Province, the city population of other districts has increased, and when the total population amount is compared, Yalova Central District continues to have the highest population.

It is seen that the Central District of Yalova has the highest city population. The concentration of facilities belonging to the service sector such as schools, hospitals, shopping areas, cinemas and theaters in the Central District and the fact that the city is the administrative center of the province constituted the reasons that increased its population [7].

When the annual growth rate of population of Yalova Province between 1990-2000, 2000-2007 was examined (Table 6), Çiftlikköy, Altınova and Armutlu cities were the Districts with the highest annual growth rates of population between 1990 and 2000. The population growth rate of the Central District was low due to the Marmara earthquake. Between 2000 and 2007, Çiftlikköy, Central and Armutlu cities formed the Districts with the highest annual population growth rates.

Table 6. Average Annual Population Growth Rates of City Populations of Yalova Districts (‰) (1990-2000 and 2000-2007)

Place Name	1990-2000	2000-2007
Central	6.32	31.43
Altınova	39.52	8.50
Armutlu	27.65	13.30
Çınarcık	16.00	3.42
Çiftlikköy	51.47	66.16
Termal	2.54	-20.41
Total	12.54	30.42
Turkey	26.81	17.52

Source: The results of the Population Censuses (1965-2000) and Address Based Population Registration System (ABPRS) in Turkish Statistical Institute [19, 20].

Between 1990 and 2000, the annual urban growth rate of population of Yalova in general was 12.54%. The annual urban growth rate of population of Turkey was 26.81%. While the reason for the low annual urban growth rate of population of Yalova in 1999 Marmara after the earthquake (2000 census results) was due to the decrease to 59% of the total city population. When the annual population growth rate of the cities of Yalova Province is examined (Table 6),

Çiftlikköy, Central and Armutlu are the Districts with the highest population increases. Between 2000 and 2007, the urban population growth in general was 30.42%. The annual urban growth rate of population of Turkey was 17.52%.

As can be seen in Table 7, which includes the change in the total city populations of the Central District and other Districts in Yalova in 2007 and 2020, and the city population of Yalova at the District level, the city population of all Districts in Yalova Province has increased and the average annual population growth rate is was performed as 39.36%. Turkey's overall annual growth rate of urban population was found to be 101.27%. When the total city population is compared, the Central District continues to have the highest rural population.

Table 7. Change of City Populations and Average Annual Population Growth Rates of Yalova Districts (2007-2020)

Place Name	2007	2020	Annual Growth Rate of Population (%)
Central	87.372	128.933	29.93
Altınova	3.429	8.217	67.23
Armutlu	4.633	7.265	34.60
Çınarcık	9.170	18.428	53.69
Çiftlikköy	15.290	37.618	69.25
Termal	2.181	3.167	28.69
Total	122.075	203.628	39.36
Turkey	20.838.397	77.736.041	101.27

Source: The results Address Based Population Registration System (ABPRS) in Turkish Statistical Institute [20].

According to the census of 2020, 128,933 people of the total population in Yalova Province live in the city center of Yalova Central District. Apart from the city center of Yalova, the districts with the most crowded city population are respectively Çiftlikköy, Çınarcık and Altınova District. The city population of all Districts of Yalova has increased in 2020 compared to 2007. The reason for this is the effect of natural population growth as well as migration from rural areas and other provinces. The main reasons for the increase in the population of the cities are the tourism opportunities of the Central District, the cultural diversity and the existence of administrative institutions, the effect of thermal spring tourism in Termal District, the effect of spa and sea tourism in Armutlu District, the effect of agricultural activities such as sea tourism, vegetable, fruit, floristry and greenhouse cultivation, and the existence of industrial facilities in Çiftlikköy District, the effect of agricultural activities such as fruit, floristry and greenhouse cultivation and the existence of industrial facilities in Altınova District.

3.3. Rural Population

Due to the fact that Yalova was a province in 1995, detailed information about Yalova Province and its districts could be reached since the general population census of 1990. According to the administrative restructuring in 2000, the population of Yalova Province has been recalculated considering other districts. The rural population of the Central District and other districts and the annual population growth rates were announced in 1990 and 2000. As can be seen in Table 8, which includes the rural population at the district level of Yalova, the rural population has increased in all districts of Yalova Province.

Table 8. Change of Rural Populations and Average Annual Population Growth Rates of Yalova Districts (1990-2000)

Place Name	1990	2000	Annual Growth Rate of Population (%)
Central	11.314	15.973	34.48
Altınova	13.512	19.570	37.03
Armutlu	2.815	3.637	25.61
Çınarcık	9.661	12.697	27.32
Çiftlikköy	8.922	15.167	53.05
Termal	1.865	2.888	43.72
Total	48.089	69.932	37.44

Turkey	23.146.684	23.797.653	4.21
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Source: The results of the Population Censuses (1965-2000) [19].

When the annual growth rate of rural population in Yalova Province between 1990 and 2000 is examined, Çiftlikköy, Termal, Altınova and Central are the Districts with the highest rural population increases. Generally, rural population growth was 37.44%. The annual growth rate of rural population in Turkey was 4.21%, the reason for the high growth rate of rural population in Yalova was due to the migration to the rural areas and the increase of the total rural population to 45% after the earthquake in 1999 Marmara (2000 census results).

As can be seen in Table 9 and Figure 5, which includes the rural population of Yalova at the district level with the change of the total rural populations of the Central District and other Districts in 2000 and 2007 of Yalova, the rural population of other Districts except Çınarcık District in Yalova Province has decreased. When the total population numbers are compared, Yalova Central District continues to have the most population.

Table 9. Change of Rural Populations and Average Annual Population Growth Rates of Yalova Districts (2000-2007)

Place Name	2000	2007	Annual Growth Rate of Population (‰)
Central	15.973	15.499	-4.30
Altınova	19.570	17.487	-16.08
Armutlu	3.637	2.577	-49.22
Çınarcık	12.697	12.915	2.43
Çiftlikköy	15.167	8.756	-78.48
Termal	2.888	2.449	-23.55
Total	69.932	59.683	-22.64
Turkey	23.797.653	20.838.397	-18.97

Source: The results of the Population Censuses (1965-2000) and Address Based Population Registration System (ABPRS) in Turkish Statistical Institute [19, 20].

When the rural annual population growth rate of Yalova Province between 2000 and 2007 was examined (Table 9), Çınarcık was the only District with an increase in rural population growth, and the population growth rates of other Districts remained at negative values. Generally, rural population growth was minus 22.64%. The rural annual population growth rate in Turkey was found to be minus 18.97%. The rural population of the Central District increased in 2000 compared to 1990, and decreased in 2007 compared to 2000. The annual growth rate of the Central District in 2007 compared to 2000 was minus 4.30%.

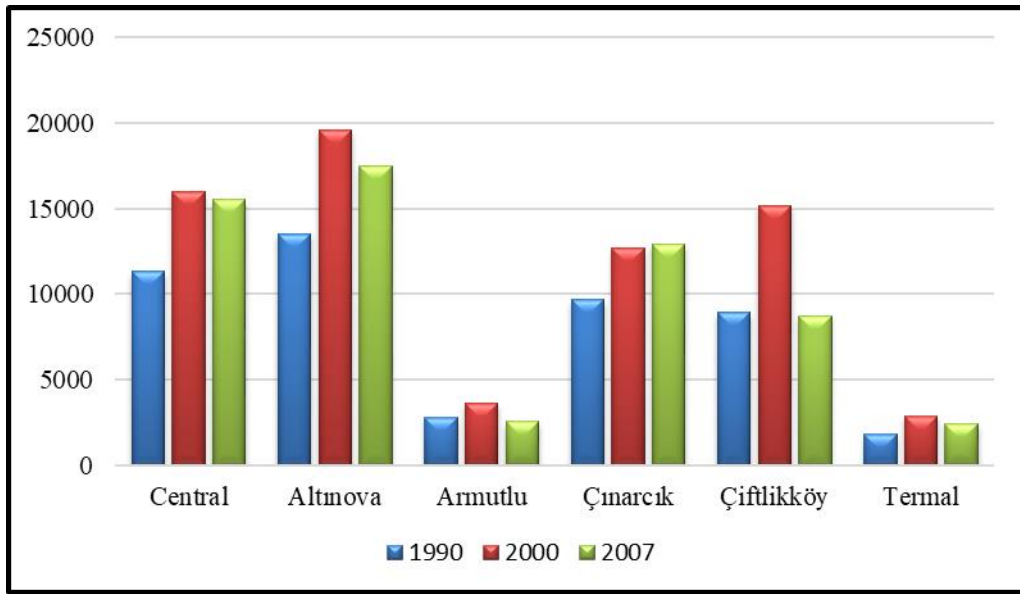


Figure 5. Change of Rural Populations of Yalova Districts (1990, 2000, 2007)

The change of the total rural population of the Central District and other districts in Yalova in 2007 and 2020, as can be seen in Table 10, the rural population of other Districts except Çiftlikköy District in Yalova Province has increased. When the total rural population amounts are compared, Altınova District continues to have the highest rural population.

Table 10. Change of Rural Populations and Average Annual Population Growth Rates of Yalova Districts (2007-2020)

Place Name	2007	2020	Annual Growth Rate of Population (%)
Central	15.499	20.397	21.12
Altınova	17.487	22.563	19.60
Armutlu	2.577	2.636	1.74
Çınarcık	12.915	16.271	17.77
Çiftlikköy	8.756	7.190	-15.16
Termal	2.449	3.365	24.44
Total	59.683	72.422	14.88
Turkey	20.838.397	5.878.321	-97.35

Source: The results of Address Based Population Registration System (ABPRS) in Turkish Statistical Institute [20].

When the annual growth rate of the rural population of Yalova in 2007 and 2020 is examined, it is seen that the districts with the highest rural population increases are Termal, Central and Altınova. In general, rural population growth was 14.88%. The total annual population growth rate of the rural population of Turkey in general was that minus 97.35%, is seen to Yalova has a higher rate of population growth rate than Turkey. The rural population of Yalova has increased in 2020 compared to 2007.

The share of the urban and rural population of Yalova Province in the total population is examined in this section. As can be seen from Table 11, the share of the urban population of Yalova Province in the total population is 16% in 1935, 65% in 1990, 59% in 2000, 68% in 2007 and 74% in 2020. By 1980, the urban population of Yalova exceeded the rural population.

Table 11. Yalova Urban and Rural Population Ratio to Total Population (1935-2020)

Year	Urban	Rural	Total	Urban %	Turkey %	Rural %	Turkey %
1935	2.635	14.205	16.840	16	23.5	84	76.5
1940	2.300	14.778	17.078	14	24.4	86	75.6
1945	3.608	16.668	20.276	18	24.9	82	75.1
1950	3.833	18.422	22.255	17	25.0	83	75.0
1955	6.610	20.061	26.661	25	28.8	75	71.2
1960	11.318	21.783	33.101	34	31.9	66	68.1
1965	14.241	22.849	37.090	38	34.4	62	65.6
1970	17.689	25.000	42.689	41	38.5	59	61.5
1975	27.289	27.747	55.036	49	41.8	51	58.2
1980	41.823	33.964	75.787	55	43.9	45	56.1
1985	53.857	36.371	90.228	60	53.0	40	47.0
1990	87.032	48.089	135.121	64	59.0	36	41.0
2000	98.661	69.932	168.539	59	64.9	41	35.1
2007	122.075	59.683	181.758	68	70.5	32	29.5
2017	181.036	70.167	251.203	72	92.5	28	7.5
2018	192.288	69.946	262.234	73	92.3	27	7.7
2019	200.274	70.702	270.976	74	92.8	26	7.2
2020	276.050	72.422	203.628	74	93	26	7

Source: The results of the Population Censuses (1935-2000), the Population Censuses (1965-2000) and Address Based Population Registration System (ABPRS) in Turkish Statistical Institute [18, 19, 20].

The Metropolitan Municipality Law No. 5216 was enacted on 23 July 2004 in Turkey. With this law, the administrative borders of the province were determined as the borders of the Metropolitan. With the Law No. 6360 on 06 December 2012, the number of metropolitan cities increased to 14. Today, the number of Metropolitan Municipalities has increased to 30. All settlements of metropolitan cities constitute the city population. In Table 11, this is the main reason why Turkey's urban population increased from 70.5% in 2007 to 92.5% in 2017. Since Yalova does not reach a certain population, it is not in the metropolitan status.

3.4. Change in Birth Indicators

As it is known, the main factors that cause population change are birth, death and migration. Births and deaths and migrating population; determines the age and gender distribution of the population. Within the scope of birth indicators; overall fertility rate, crude birth rate, total fertility rate and maternal median age were examined.

The overall fertility rate in Turkey was 83.9‰ in 2001 to 73.3‰ in 2009, fell in 2019 to 57.8‰. While the overall fertility rate in Yalova Province was 60.4‰ in 2009, it decreased to 54.3‰ in 2019. The crude birth rate in Turkey was 20.3‰ in 2001, it decreased to 11.6‰ in 2019. While the crude birth rate in Yalova Province was 14.1‰ in 2009, it decreased to 11.6‰ in 2019. "As the economic and social development increased in the world and in our country, therefore, as the welfare level increased, the birth rate decreased. Increasing the age of becoming a mother also plays an important role in decreasing the birth rates" [22]. While the average age of being a mother in Yalova Province was 27.11 in 2000, this age increased to 29.5 in 2019 (Table 12).

Table 12. Birth Indicators of Yalova Province (2000-2019)

Year	Total Fertility Rate	Overall Fertility Rate (‰)	Crude Birth Rate (‰)	Maternal Median Age
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2000	1.93	-	-	27.11
2009	1.78	60.4	14.1	28.0
2010	1.64	55.4	12.8	28.2
2011	1.62	54.6	12.5	28.4
2012	1.72	57.9	13.1	28.9
2013	1.69	56.3	12.7	28.9
2014	1.81	60.0	13.4	29.2
2015	1.78	59.0	13.1	29.0
2016	1.89	62.3	13.8	29.2
2017	1.82	60.3	13.2	29.4
2018	1.75	57.8	12.5	29.3
2019	1.65	54.3	11.6	29.5

Source:2000 Census of Population: Social and Economic Characteristics of the Population and the results of the Vital Statistics: Births and Deaths Statistics in Turkish Statistical Institute [23, 24].

The total number of children that a woman between the ages of 15-49, that is, a woman of reproductive age, can have, is called the total fertility rate [1]. The total fertility rate in Turkey was 6.3 in 1963, was 4.7 in 1973, while was 4.33 in 1978, to 2.65 in 1993, to 2.23 in 2003, and 1.88 in 2019 [25, 26]. While the total fertility rate of Yalova Province in 2000 was 1.93 as can be seen, it decreased to 1.62 in 2011, then increased to 1.89 in 2016, and decreased again to 1.65 in 2019 (Table 12).

The birth data are published by TURKSTAT between 2001-2008 according to “place of birth” and since 2009 according to “place of residence of the mother” [24]. 2,619 births took place in Yalova Province in 2000, and the total number of births in Yalova is shown in Table 13. The number of births varied between 2001 and 2005, with an increase between 2006 and 2008. Between 2009 and 2019, although the number of births decreased slightly in some years, it increased in general. The crude birth rate (CBR) has been shown since 2009, although the number of births in Yalova has increased, It can be seen in Table 13 that considering the effect of general population growth, the crude birth rates have it decreased.

Table 13. Births and Crude Birth Rates by Gender (2000-2019)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
Male	-	1.149	1.016	1.033	1.077	1.043	1.085	1.127	1.234
Female	-	1.069	984	1.037	1.041	971	1.017	1.131	1.147
Total	2.619	2.218	2.000	2.070	2.118	2.014	2.102	2.258	2.381
Year	2009	2010	2011	2012	2013	2014	2015	2016	2019
Male	1.421	1.366	1.347	1.397	1.381	1.491	1.542	1.670	1.498
Female	1.396	1.234	1.217	1.345	1.358	1.509	1.471	1.601	1.601
Total	2.817	2.600	2.564	2.742	2.739	3.000	3.013	3.271	3.099
CBR	14.1	12.8	12.5	13.1	12.7	13.4	13.1	13.8	11.6

Source: 2000 Census of Population: Social and Economic Characteristics of the Population and the results of the Vital Statistics: Births and Deaths Statistics in Turkish Statistical Institute [23, 24].

20-24 age group was the most fertile group in Turkey before 2006, it increased to 25-29 since 2006 [24]. In Yalova, since 2009, the 25-29 age group has been the age group with the highest number of births in the last ten years. Along

with this age group, the 30-34 age group continues to rise (the ratio which was 21.1% in 2009 increased to 25.8% in 2019). Births under the age of 15 are almost nonexistent. The birth rates in the 15-19 age group are also decreasing (the rate which was 5.5% in 2009 decreased to 2.5% in 2019). This situation can be considered as one of the most important indicators of the socio-cultural change that occurs in the demographic structure with the increase in the general education level, participation of women in active business life at a higher rate and their effect [27]. As in the demographic transformation process of Western Europe, the age group with the highest fertility rate will shift to the 30-34 age group in Yalova in the future. This situation will lead to a decrease in the number of births in the future [28].

3.5. Change in Death Indicators

Another factor that causes population growth or decline is death rates. Improvement in health conditions in Turkey, as a result of prevention of epidemics, the reduction of maternal and infant loss and thus has caused a decline in the crude death rate for the year.

The crude death rate in Turkey was 15.3‰ in 1960-65 [29], this number decreased to 5.2‰ in 2018. When the crude death rates of Yalova Province and the East Marmara provinces (Kocaeli, Sakarya, Düzce, Bolu and Yalova), which includes Yalova, as well as Kocaeli, Bursa and İstanbul, Yalova Province has a higher value.

Table 14. Crude Death Rates (2009-2019)

Census Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Yalova	6.3	6.2	6.3	6.1	5.7	6.5	6.3	6.6	6.7	6.6	5.9
Turkey	5.1	5.0	5.1	5.0	4.9	5.1	5.2	5.3	5.3	5.2	5.3
Eastern Marmara TR42	5.3	5.2	5.2	5.2	5.0	5.2	5.4	5.5	5.4	5.4	5.4
Kocaeli	4.4	4.4	4.2	4.3	4.3	4.3	4.4	4.5	4.5	4.6	4.5
İstanbul	4.2	4.0	4.0	4.0	3.9	4.1	4.1	4.2	4.2	4.2	4.1
Bursa	5.6	5.5	5.5	5.4	5.4	5.5	5.6	5.7	5.7	5.6	5.5

Source: The results of the Vital Statistics: Births and Deaths Statistics in Turkish Statistical Institute [24].

The life expectancy at birth, that is, the average life in Turkey, has increased. In 1970, this number was 55 (57 for women, 53 for men), and in 2017 it increased to 78 (80.8 for women, 75.3 for men). The life expectancy at birth is higher in women than in men, as is the case all over the world. The life expectancy at birth in Yalova is 79.4 in 2013 (82.4 in women, 76.6 in men), 78.6 in 2013-2014 (81.9 in women, 75.6 in men), and 78.6 in 2015-2017 (81.5 in women, 75.9 in men), which is higher than the average in Turkey [30].

The information on deaths in Turkey since 1931 began to be compiled and calculated in all provincial centers until the end of 1949 but was only published data for 25 provinces. Since 1 March 1957, it has been collected from all province and district centers [27]. In 1957-2008, the number of deaths was calculated for all provincial and district centers in Turkey, as well as from 2009, the number of deaths was calculated and published for all settlements.

Although it has been requested by the Turkish Statistical Institute to collect the number of deaths according to all settlements since 1982, it has not occurred due to the fact that the data is incomplete. The number of death in Yalova are calculated as the district center from 1999 to 2009, and the number of deaths in 1999 was very high due to the impact of the Marmara earthquake of August 17, 1999. Since 2000, the number of births has steadily increased. The number of deaths increased by 82% in 2009 compared to 2008, as information on death events obtained from the mernis database was compiled and death events occurring outside the health institution (all settlements) were calculated since 2009 [31]. The numbers of death are shown in Table 15, When the death numbers are compared with the crude death rate (CDR)

between 2009 and 2019, it is seen that the crude death rates have also increased in proportion to the increase in the death numbers from 1,200 to 1,400 since 2014.

Table 15. Deaths and Crude Death Rates by Gender (1999-2019)

Year	1999	2000	2003	2004	2006	2007	2008	2009
Total	1.702	358	406	510	597	684	687	1.252
Male	810	199	230	300	298	397	407	694
Famale	892	159	176	210	299	287	280	558
Year	2010	2013	2014	2015	2016	2017	2018	2019
Total	1.252	1.226	1.447	1.455	1.576	1.641	1.690	1.571
Male	678	703	840	816	890	897	946	884
Famale	574	523	607	639	686	744	744	687
CDR	6.2	5.7	6.5	6.3	6.6	6.7	6.6	5.9

Source: 2008 Death Statistics and the results of the Vital Statistics: Births and Deaths in Turkish Statistical Institute [24, 31].

As it can be seen in Table 16 between 2000 and 2019, as a result of the removal of death numbers from the birth numbers, which are the natural population growth of Yalova Province, it has always been of added value. In summary, it is seen that the population of Yalova naturally increased without taking into account the migrations experienced during this period.

Table 16: Difference in Birth and Death Numbers (1999-2019)

Year	1999	2000	2003	2004	2006	2007	2008	2009
Birth	-	2.619	2.070	2.118	2.102	2.258	2.381	2.817
Death	1.702	358	406	510	597	684	687	1.252
Difference	-	2.261	1.664	1.608	1.505	1.574	1.694	1.565
Year	2010	2013	2014	2015	2016	2017	2018	2019
Birth	2.600	2.739	3.000	3.013	3.271	3.250	3.207	3.099
Death	1.252	1.226	1.447	1.455	1.576	1.641	1.690	1.571
Difference	1.348	1.513	1.553	1.558	1.695	1.609	1.517	1.528

Source: 2008 Death Statistics and the results of the Vital Statistics: Births and Deaths in Turkish Statistical Institute [24, 31].

Since the deaths (all settlements) that occurred outside the health institution since 2009 have been calculated, the effect of births and the Effects of deaths and Births on Yalova's population change in 2009-2019 is shown in Figure 6 and Figure 7.

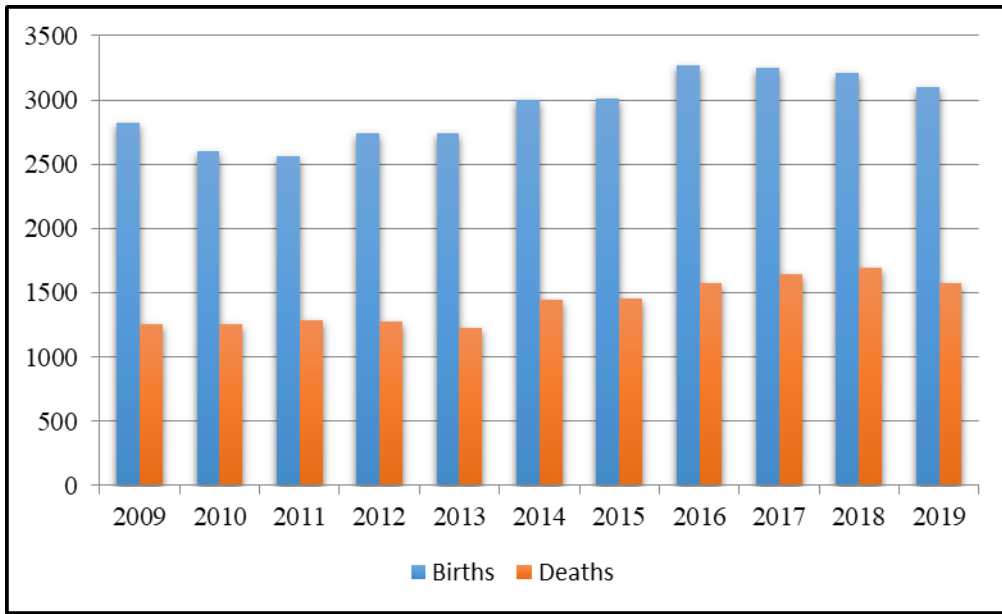


Figure 6. Birth and Death Numbers (2009-2019)

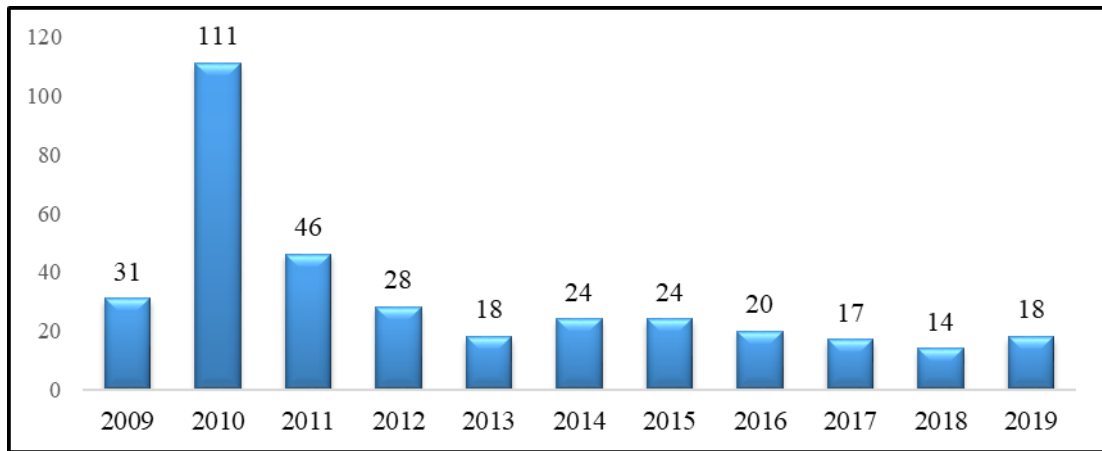


Figure 7. The Effects of Deaths and Births on Yalova's Population Change (%) (2009-2019)

While the population of Yalova was 202,531 in 2009, the population increased continuously and reached 270,976 in 2019, and the general population increased by 68,445 people. Between these years, 16,637 people increased as a result of subtracting the births from the deaths. The effect of births and deaths on population growth was 24.3%.

3.6. Population Movements

3.6.1. Reflections in Yalova of Internal Migration Movements in Turkey

Internal migration from other provinces, is one of the factors causing the population change in Yalova Province, was examined from 1995-2000 until 2020. Because Yalova was a province in 1995. Internal migration in Turkey is evaluated on a provincial basis (Table 17, Figure 8). In fact, Yalova has received internal migration from many provinces of Turkey with internal migrations starting with the 1950s in Turkey. Yalova received more migration than it gave in 1995-2000, and its net migration rate was 3.5% despite the acceleration of its out-migration after the 1999 Marmara earthquake. Yalova has become the 19th province in Turkey to increase the rate of migration. Internal migration in the Address Based Population Registration System (ABPRS); is defined as “permanent residence address changes in certain areas (region, province, district, etc.) within the borders of the country within the last one year” [32]. Yalova received more in-migration than out-migration in 2007-2008 (rate of net migration 52.6%), and the number of

people who came to 8.4% of the population of Yalova Province migrated to Yalova Province. In 2009-2010, Yalova Province gave more out-migration than in-migration (net migration rate minus 2.6%), and in the following years the net migration rate has increased continuously.

Table 17. Migration, Net Migration and Net Migration Rate of Yalova Province (1995-2020)

Period	In-migration	Out-migration	Net Migration	Rate of Net Migration (%)
1995-2000	22.774	22.260	514	3.5
2007-2008	16.656	6.542	10.114	52.6
2008-2009	12.269	10.233	2.036	10.1
2009-2010	10.455	10.984	- 529	-2.6
2010-2011	10.267	9.782	485	2.4
2011-2012	11.353	9.199	2.154	10.2
2012-2013	14.670	9.808	4.862	22.3
2013-2014	14.680	11.064	3.616	16.1
2014-2015	13.834	11.497	2.337	10.1
2015-2016	12.825	10.493	2.332	9.7
2016-2017	15.754	10.719	5.035	20.2
2017-2018	16.232	12.905	3.327	12.8
2018-2019	14.531	12.824	1.707	6.3
2019-2020	14.661	10.281	4.380	16.0

Source: Migration Statistics in Turkish Statistical Institute [32].

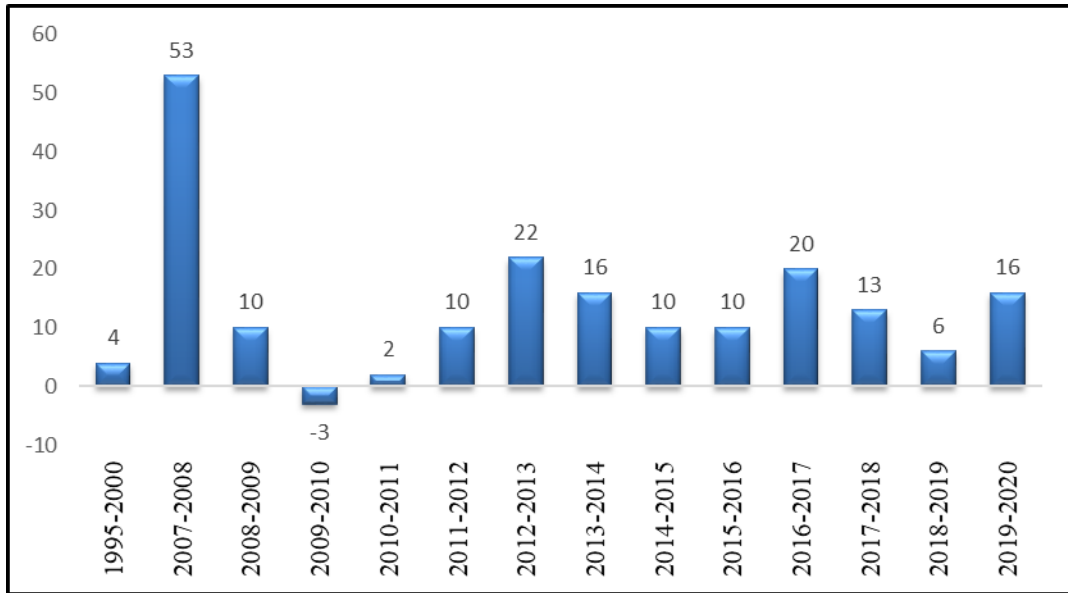


Figure 8. Net Migration Rate of Yalova Province (%) (1995-2020)

According to the results of the 2000 General Population Census, in-migration data received by Yalova Province by places of residence are examined, a total of 29,226 people (15,636 males, 13,590 females) migrated in Yalova, and the highest migration was made from city to city with 14,185 people (7,406 males, 6,779 females). In the second place, 11,717 (6,309 men, 5,408 women) from city to village, in the third place from village to city with 1,738 people (925 men, 813 women), and finally from village to village with 1,586 people (996 men, 590 women). Due to the 17 August 1999 Marmara Earthquake, migrations mostly took place from city to city and from city to village.

According to the results of the Population and Housing Census in 2011, Yalova Province received 10,140 in-migration, gave 8,441 out-migration, and net migration was 1,699 people. The rate of net migration was 8.4%. Similarly, the rate of net migration of Yalova was 10.2% in 2011-2012 [33].

Between 2008 and 2020, Yalova received 178,187 in-migrants and gave 136,331 out-migrants, while the net migration was 41,856. While the population of Yalova was 181,758 in 2007, it has increased continuously and reached 276,050 in 2020. During this period, the population of Yalova has increased by 94,292. The impact of internal migration on population growth between 2008 and 2020 was 44.4% (Figure 9). The rate of those born abroad in Yalova Province increased from 11.5% in 2019 to 11.2% in 2020, the number of foreigners residing in Yalova Province decreased from 23,912 in 2019 to 22,926 in 2020 (Table 22). Since the international migration statistics for 2020 have not been published yet, the effect of international migration on the population could not be calculated. Since it is considered that the effect of international migration on the population growth of Yalova will decrease in 2020, the effect of internal migration on the population in Yalova Province increased by 86% in 2020.

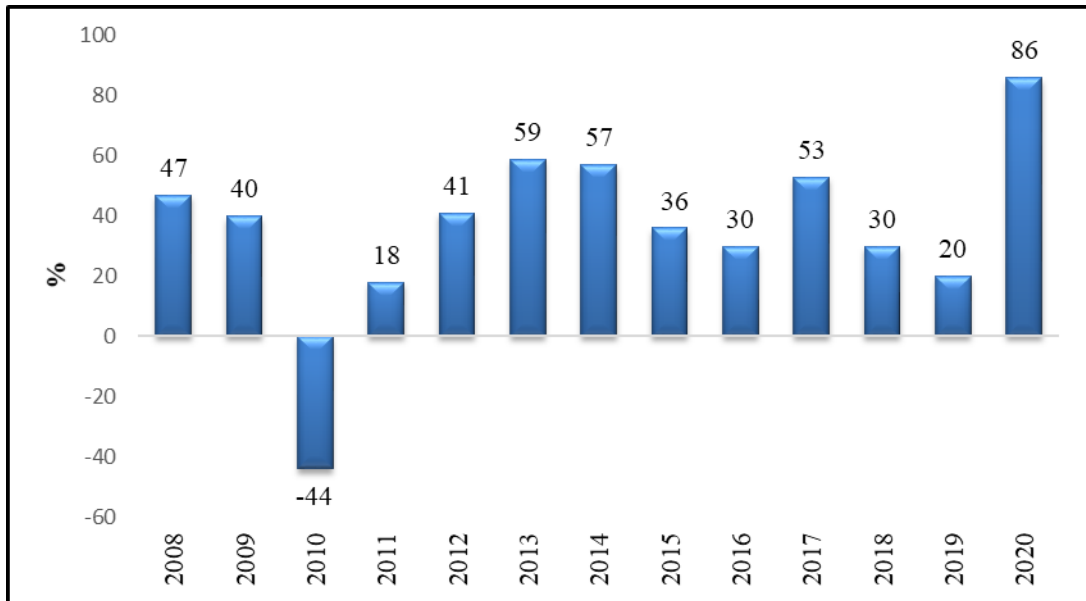


Figure 9. The Effect of Internal Migration on Yalova's Population Change (%) (2008-2020)

Between 2008 and 2020, Yalova received 178,187 in-migrants from 81 provinces, from Kilis with at least 113, and İstanbul with a maximum of 60,332. When the provinces of in-migration are listed from the highest number down; The top ten provinces are İstanbul (60,332), Bursa (14,683), Kocaeli (12,180), Ankara (5,741), Erzurum (4,468), İzmir (4,269), Balıkesir (3,118), Diyarbakır (2,971), Sakarya (2,826) and Şanlıurfa (2,785). The ratio of ten provinces to the total number is 63.6%.

Between 2008 and 2020, Yalova gave 136,331 out-migrants to 81 provinces people, to Kilis with at least 52 people and İstanbul with a maximum of 44,169. When the provinces of out-migration are listed from the highest number down; The top ten provinces are İstanbul (44,169), Bursa (14,987), Kocaeli (13,250), Ankara (5,374), İzmir (4,643), Sakarya (2,794), Balıkesir (2,686), Antalya (2,644), Muğla (1,763) and Eskişehir (1,755). The ratio of ten provinces to the total number is 69%. The net migration of Yalova between 2007 and 2020 was 41,856. In other words, the population of Yalova has increased by 41,856 due to internal migration.

According to the survey results conducted with 200 people corresponding to 2% of those who migrated to Yalova Province in 2011; It was determined that 62% of those who migrated to Yalova Province had relatives and friends in Yalova Province [34]. Considering the migrant networks theory and the result of this research, it is estimated that a similar situation was experienced in previous years. In the coming years, the increasing population growth in the city centers and therefore the population density will further increase the pressures on the area. In a study carried out in 2005, citizens of good financial condition who came from İstanbul to Tevfikiye (Çavuş) village of Altınova District of

Yalova Province and built new houses on the land called "İstanbul Houses" were determined [35]. Migration from cities to villages is called "reverse migration". On the other hand, Tekeli [36] defined these migrations as "return" migrations: "The motives of those who have reached the end of their life cycle and have entered the retirement stage will change. Their migration will be directed to places with good climate and natural conditions rather than places with intense job opportunities. In some cases, return migrations will occur". Although it is considered that some villages of Yalova may be preferred as a place to stay permanently as a result of retirement, projects should also be produced in order to keep the rural population in place.

Population statistics according to the province of residence and place of birth have been produced since 2014 according to ABPRS results. The population rates according to the birthplace of those who live in Yalova between 2014 and 2020 are shown in Table 18 together with the years 1985, 1990 and 2000 in order to compare. According to the General Population Census results of 1985 and 1990, the rate of those born in Yalova District was considered the rate of those born in İstanbul, since Yalova was not a province. While those born in İstanbul in 1985 were 49.48%, it decreased to 44.60% in 1990. The rate of those born in Yalova in 2000 was 34.59%, and when the rate of those born in İstanbul was added to 6.49%, this rate increased to 41.06%.

Table 18. Population by Yalova Province of residence and place of birth status (1985-2020)

Year	Born in İstanbul (%)	Born in a different province (%)	Born abroad (%)	Birthplace unknown (%)
1985	49.48	43.91	6.60	0.004
1990	44.60	47.97	7.38	0.05
Year	Born in Yalova (%)	Born in a different province (%)	Born abroad (%)	Birthplace unknown (%)
2000	34.59	60.17	5.22	0.02
2014	29.9	62.6	4.9	2.7
2015	29.8	61.8	6.0	2.5
2016	29.5	60.6	7.5	2.4
2017	29.1	60.5	8.1	2.3
2018	28.5	59.4	9.8	2.2
2019	28.3	58.1	11.5	2.2
2020	28.7	58.4	11.2	1.7

Source: The results of the Population Censuses (1965-2000) and Address Based Population Registration System (ABPRS) in Turkish Statistical Institute [19, 20].

The foreigners were also taken into account in the calculation of those residing in Yalova, and as the number of foreigners increased, the rate of those born abroad increased continuously. While the number of people born in Yalova was 34.59% in 2000, this number decreased further to 28.3% in 2019. In 2020, the rate of those born in the province they reside in Turkey is the lowest (28.7%) province of Yalova. Yalova is followed by the provinces of Tekirdağ (41.4%), Kocaeli (43%) and İstanbul (46.2%), where the industrial sector is concentrated and at the same time receiving heavy internal migration.

Considering the provinces where Yalova residents are registered in the population registry, the rate of those registered to the population of Yalova Province decreased from 42.5% in 2008 to 33.6% in 2020 by decreasing by 8.9% (Figure 10). This situation shows us the impact of the internal migration of Yalova Province in the last twelve years.

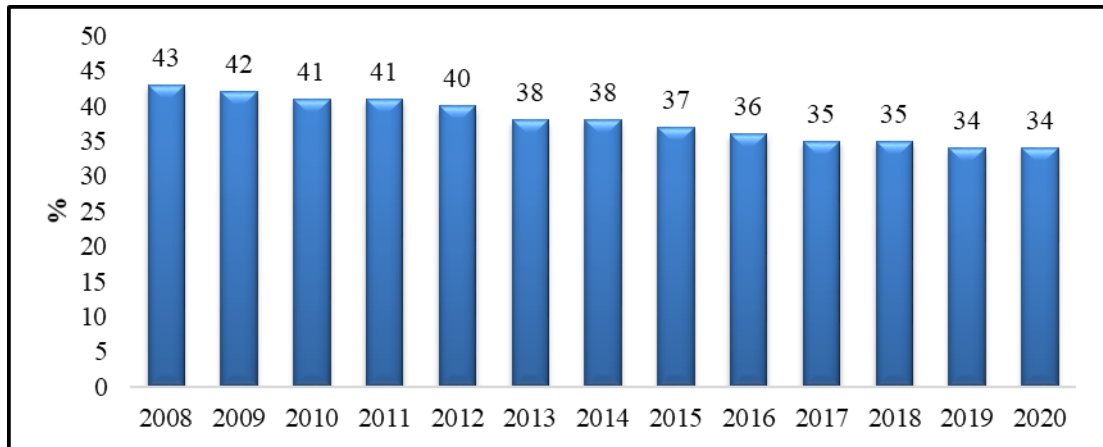


Figure 10. Percentage of Persons Residing and Registered in Yalova Province (%) (2008-2020)

3.6.2. International Migrations

In this section, international migration, one of the factors causing population change in Yalova Province, has been examined. Yalova Province has received massive immigration from both the Balkans and the Caucasus; beginning before the Republic of Turkey and continuing after the Republic. Therefore, Yalova Province has a rich cultural structure where people from many different cultures live.

Before Yalova was a district in the İzmit Sanjak in 1901, it was a town connected to the Karamürsel District. Due to the fact that Yalova is connected to İzmit Sandjak, it is considered that some of the immigrants settled in Yalova as a result of the migrations made to the İzmit Sanjak. Cihan Yalvar explained this in detail in his article titled "Migrations from the Balkans and the Caucasus to Yalova between 1877-1924" [37]. The first international migration to the İzmit region occurred due to the Ottoman-Russian wars between 1806-1812 and 1828-1829. During this period, settlements of Crimea, Dagestan, Nogai and Circassian immigrants were carried out. After the 1877-1878 Ottoman-Russian War, a total of 25,823 immigrants, including 9,425 Batumi, 8,574 Sukhum, 1,527 Rumelia, 377 Tatar-Nogai and 5,920 Circassian immigrants, were settled in İzmit until 1881. With immigrants from the Balkans in 1893, this number increased to 46,463, and with 6,771 immigrants from 1912-1920, to 53,234 [37].

After the Republic of Turkey, some of the immigrants from Bulgaria and Yugoslavia in 1953 were settled in Yalova [16]. Tanoğlu [38] stated that 358 immigrants from Bulgaria were settled in Yalova and its surroundings in 1953.

According to the 2000 General Census results, a total of 1,401 people, 759 men and 642 women, immigrated to Yalova from the previous census in 1990 until 2000. Between 2016 and 2019, international migration statistics started to be produced on the basis of provinces, and the number of immigrants to Yalova from abroad, the number of emigrants from Yalova to abroad and net migration are shown in Table 19. Yalova has increased its population in the last four years (2016-2019) with a net migration of 18,128. The impact of international migration on Yalova's population growth was 47.5% in 2016, 39.7% in 2017, 45.6% in 2018, and 59.4% in 2019.

Table 19. Immigrants and emigrants by citizenship and Yalova Province (2016-2019)

Year	Total Population	Immigrants			Emigrants			Net Migration
		Total	Male	Female	Total	Male	Female	
2016	241.665	5.484	2.911	2.573	1.374	817	557	4.110
2017	251.203	5.805	2.961	2.844	2.014	1.113	901	3.791
2018	262.234	8.122	4.191	3.931	3.091	1.561	1.530	5.031
2019	270.976	9.673	5.006	4.667	4.477	2.309	2.168	5.196

Source: Migration Statistics in Turkish Statistical Institute [32].

The number of immigrants to Yalova from abroad and the number of emigrants from Yalova to abroad in 2016 and 2019, namely the number of international immigrants, are shown in Tables 20 and 21. The immigrants; includes T.R. citizens and foreign nationals. “Foreigners coming from Syria under temporary protection status are not covered in the population” [32].

Table 20. Immigrants by citizenship and Yalova Province (2016-2019)

Year	Total Population			Immigrants		
	Total	Turkish Republic citizens	Foreign nationals	Total	Turkish Republic citizens	Foreign nationals
2016	241.665	230.538	11.127	5.484	372	5.112
2017	251.203	238.043	13.160	5.805	409	5.396
2018	262.234	243.677	18.557	8.122	495	7.627
2019	270.976	247.064	23.912	9.673	333	9.340

Source: Migration Statistics in Turkish Statistical Institute [32].

Yalova received the most of immigrants in 2019 and 2016. 93.9% of immigrants in 2016, 93% in 2017, 93.2% in 2018, and 96.6% in 2019 were foreign nationals.

Table 20. Emigrants by citizenship and Yalova Province (2016-2019)

Year	Total Population			Emigrants		
	Total	Turkish Republic citizens	Foreign nationals	Total	Turkish Republic citizens	Foreign nationals
2016	241.665	230.538	11.127	3.091	388	2.703
2017	251.203	238.043	13.160	2.014	368	1.646
2018	262.234	243.677	18.557	1.274	244	1.130
2019	270.976	247.064	23.912	4 477	281	4 196

Source: Migration Statistics in Turkish Statistical Institute [32].

Yalova also had the most emigrants in 2019. 87.4% of emigrants in 2016, 81.7% in 2017, 88.7% in 2018 and 93.7% in 2019 are foreign nationals. While 9,471 (51.03%) of the total 18,557 foreigners were male and 8,086 (48.97%) of the foreigners were female in 2018, 12,272 (51.32%) of the total 23,912 foreigners were male and 11,640 (48%) of the foreigners were female in 2019. A small proportion of men are more than women.

The numbers and rates of those who live in Yalova and those born abroad are shown in Table 22. While those born abroad were 6.60% in 1985, it increased to 11.5% in 2019. While the number of those born abroad was 5,959 in 1985, this number increased to 8,367 in 1990 and 8,822 in 2000. The nationalities of 908 foreigners residing in Yalova in 2000; 290 (146 men, 144 women) Bulgaria, 331 (182 men, 159 women) Kazakhstan, 79 (20 men, 59 women) Russia, 65 (33 men, 32 women) Greece, 145 other states.

Table 22. Population by Yalova Province of residence and born abroad (1985-2020)

Year	Born abroad	Born abroad (%)	Foreign nationals
1985	5.959	6.60	-

1990	8.367	7.38	-
2000	8.822	5.22	908
2014	11.035	4.9	-
2015	13.934	6.0	-
2016	18.203	7.5	11.127
2017	20.256	8.1	13.160
2018	25.696	9.8	18.557
2019	31.114	11.5	23.912
2020	31.037	11.2	22.926

Source: Migration Statistics in Turkish Statistical Institute [32].

When the number of foreigners (908) is subtracted from those born abroad (8,822) in 2000, the remaining 7,914 people are T.R. citizens and born abroad. The number of foreigners in 2014 and 2015 is not known, and when the number of foreigners in 2016, 2017, 2018, 2019 and 2020 is subtracted from the number of those born abroad, the remaining 7,076 in 2016, 7,096 in 2017, 7,139 in 2018, 7,202 in 2019 and 8,111 in 2020 are T.R. citizens and born abroad. Citizen ones and those born abroad, Evaluating where foreigners were born abroad has been reached that conclusion, though very little when a portion of the foreign born in Turkey can be considered that these numbers can be increased.

In the postgraduate research conducted within the scope of employment of foreign nationals in Yalova Province, a survey was conducted with 105 foreign nationals. 61% of the foreigners were men (64 people) and 39% (41 people) were women. Foreigners are citizens of 22 countries, and citizens of Syria (32), Georgia (9) and Iraq (8) are the most employed foreigners. 95% of the foreigners are in the 15-45 age range, their education level is low (58.1% are high school graduates and below) and the problems they have detected; It has been determined that they are discriminated against by Turkish employees because they are in unqualified, short-term jobs and most of them in an uninsured job. Despite all of these, it has been determined that foreigners are satisfied with living in Turkey and do not want to leave [39].

In 2019, 23,912 (8.8%) of the total population of Yalova Province (270,976) are foreign nationals. This rate was 4.6% in 2016 and the rate of foreigners nationals in Yalova has increased by 4.2% in the last four years (22,926 foreign nationals reside in Yalova in 2020). This is due to the fact that foreigners prefer to live in Yalova, especially those who have good financial means, want to make their investments in Yalova and therefore buy houses. In 2013, 12,181 houses were sold to foreigners in Turkey, and 284 houses were sold in Yalova Province, which ranks seventh. In Yalova, which ranked fifth in 2020, 1,321 houses were sold to foreigners, with an increase of 4.7 times compared to 2013. A total of 9,455 houses were sold to foreigners in Yalova between 2013 and 2020 [40]. In addition, the increasing number of foreign students studying at Yalova University is another important factor. The first five provinces most provinces by the ratio of the total population of the province in which they reside of foreign nationals in Turkey to 2019; Yalova (8.8%), Kırşehir (5.4%), Antalya (4.1%), İstanbul (3.8%) and Karabük (3.8%), for 2020; Yalova (8.3%), Kırşehir (5.6%), Karabük (3.9%), Antalya (3.7%) and Aksaray (3.5%).

3.7. Population Projections

According to the population projection prepared by taking into account the ABPRS results of 2017, the population of Yalova Province and the population growth rates are shown between 2018 and 2025 in Table 23. Although the population of Yalova Province is expected to increase every year, it is predicted that the population growth rate will decrease over the years. It is predicted that the annual average population growth rate of Yalova Province will be 34.1% between 2017-2023 and 33.7% between 2017-2025. The average annual population growth rate between the years of 2017-2023 in Turkey, the highest province of Yalova (34.1%) that is expected, this province is respectively followed by Tekirdag (32.1%) and Kocaeli (27.1%) Province.

Table 23. Population Estimation de Yalova Province par Population Projection (2017-2025)

Year	Total Population	Period	Population Growth Number	Population Growth Rate (‰)
2017	251.203	2016-2017	9.538	38.7
2018	259.871	2017-2018	8.668	33.9
2019	269.072	2018-2019	9.201	34.8
2020	278.499	2019-2020	8.628	34.4
2021	288.172	2020-2021	9.673	34.1
2022	298.084	2021-2022	9.912	33.8
2023	308.249	2022-2023	10.165	33.5
2024	318.557	2023-2024	10.308	32.9
2025	329.001	2024-2025	10.444	32.3

Source: Population Projection Statistics in Turkish Statistical Institute [41].

The population growth rate of Yalova Province in 2018 was higher than expected (33.9‰) according to the population projection (43.0‰), and the population growth rate in 2019 (32.8‰) was lower than expected (34.8‰). Although the population of Yalova Province was predicted to be 269,072 in 2019, 1,904 people increased to 270,976. In 2020, the population growth rate (18.6‰) was less than the projected (34.4‰). In 2020, the population growth rate (18.6‰) was less than the projected (34.4‰). In 2020, the decrease in the number of foreigners residing in Turkey was also observed in Yalova Province. For this reason, the expected increase in the population of Yalova Province in 2020 did not occur. It is considered that the covid-19 pandemic experienced all over the world caused this decrease.

4. Conclusions

While Yalova Province was a District of İstanbul Province, it gained the status of a province in 1995. Even though the 1999 Marmara earthquake had a negative impact on the population of Yalova Province, it overcame the negative effects of the earthquake in a short time and its population increased continuously.

While the population of Yalova was 202,531 in 2009, the population increased continuously and reached 270,976 in 2019, and the general population increased by 68,445 people. The natural population growth between these years has been 16,637 people. The effect of births and deaths on population growth was 24.3%.

Between 2008 and 2020, 178,187 people migrated from other provinces and 136,331 people migrated to other provinces in Yalova, while its net migration was 41,856 people. During this period, the population of Yalova has increased by 94,292 people. Between 2008 and 2020, the effect of internal migration on population growth was 44.4%.

Between 2016 and 2019, international migration statistics started to be produced on a provincial basis. Yalova has increased its population in the last four years (2016-2019) with 18,128 net migrations. The effect of international migration on Yalova's population growth was 47.5% in 2016, 39.7% in 2017, 45.6% in 2018, and 59.4% in 2019.

When the change of the total city populations of the Central district and other districts in Yalova in 2007 and 2020 is examined, the city population of all districts in Yalova Province has increased and the average annual population growth rate has been realized as 39.36%. When the total rural population of the Central District and other districts between the same years is examined, the rural population of other districts except Çiftlikköy has increased. The average annual population growth rate was realized as 14.88%. When the total rural population amounts are compared, Altınova District continues to have the highest rural population.

It is considered that some villages of Yalova can be preferred to stay permanently as a result of retirement. Particularly, some of those living in high-rise villages are migrating to urban centers due to factors such as urbanization, the desire to work in the industrial areas that are formed, and the decline of livestock. Therefore “urban development and industrial areas create pressure on fertile agricultural lands and cause these areas to be lost in time” [42]. Since the rural population increases less than the urban population and the ratio of the rural population is decreasing, projects supporting rural development should be increased so that the rural population should be protected and the continuation of agricultural production should be ensured.

It is seen that the share of the city population of Yalova Province in the total population was 16% in 1935, 65% in 1990, 59% in 2000, 68% in 2007 and 74% in 2020. By 1980, the urban population exceeded the rural population. According to the population projections of Yalova Province, it is predicted that it will increase continuously every year and reach 329,001 people in 2025 and It will increase by 53,000 people in 2025 compared to 2020. Even if at least 74% of this population will live in the city, it is seen that the city population will increase by approximately 39,000 people. With the increase of the city population, the active green areas in the cities are decreasing. The existing green areas in urban areas should be protected and empty spaces should be turned into green spaces [43].

As is known, the main factors causing population change are birth, death and migration. It is seen that international migrations and internal migrations play an important role in the change of population in Yalova Province. Especially in the last decade, the formation of the Shipyards Zone established in Altınova District and companies such as Aksa and Akkim have accelerated the increase of the population in Yalova Province. In addition, with the activation of the OIZs in Yalova, the need for labor to work in these regions will cause the population of Yalova to increase with the effect of internal migration

Competing Interest / Conflict of Interest

The authors declare that they have no competing interests.

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Author contribution

We declare that all Authors equally contribute.

5. References

- [1] Akbaş, Y. (2016). Türkiye'nin Nüfus Coğrafyası. Doğanay, S. ve Alım, M. (Eds.), Türkiye Beşerî ve Ekonomik Coğrafyası kitabı içinde (s. 1-59). 1.Baskı, Ankara: Pegem Akademi
- [2] Şahin, S. (2018). Geçmiş, Günümüz ve Gelecekte Nüfus Gerçeği, 4.Baskı, Ankara: Pegem Akademi. 14.
- [3] Sertkaya Doğan, Ö. (2009). Nüfus Coğrafyası Açısından Bir İnceleme: Silivri. Marmara Coğrafya Dergisi, 20, 1-19. <https://dergipark.org.tr/tr/pub/marucog/issue/467/3766>
- [4] Tandoğan, A. (1998). Demografik Temel Kavramlar ve Türkiye Nüfusu. Trabzon: Eser Ofset.
- [5] T.C. Millî Savunma Bakanlığı Harita Genel Müdürlüğü (2021). İl ve İlçe Yüzölçümleri. <https://www.harita.gov.tr/urun/il-ve-ilce-yuzolcumleri/176>.
- [6] Kazel, E. (2014). Yalova Şehir Coğrafyası.Yüksek Lisans Tezi. İstanbul Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.
- [7] Doğan, M. (2009). Socio-Economic Structure of The Population in Yalova. Management and Education Academic Journal, Vol.5, No: 2, Bulgaria, 76-84. http://www.conference-burgas.com/maevolumes/vol5_2009/BOOK2/B2_REP10.pdf.
- [8] Yalova Chamber of Commerce and Industry (2021). Investment Opportunities in Yalova. <https://www.ytso.org.tr/bilgi-bankasi/yalovada-yatirim-olanaklari>.
- [9] <https://www.haberler.com/yalova-da-osb-ler-52-bin-kisilik-istihdam-12084309-haberi/>.

- [10] The Turkish Shipbuilders' Association (GİSBİR) (2021a). Sektör Raporu 2017-2018. https://www.gisbir.org/tr/istatistikler/sector_raporu_.
- [11] The Turkish Shipbuilders' Association (GİSBİR) (2021b). Members. <https://www.gisbir.org/en/members/>
- [12] T.C. Altınova Kaymakamlığı (2021). Tersaneler. <http://www.altinova.gov.tr/tersaneler>.
- [13] T.C. Ulaştırma ve Altyapı Bakanlığı (2021). Tersane Sayısı. <https://tkygmistatistikleri.uab.gov.tr/tersane-sayisi>.
- [14] <http://altinovatersane.com.tr/?s94/biz-kimiz>.
- [15] <https://www.hurriyet.com.tr/ekonomi/yalovada-tersaneler-2022ye-kadar-dolu-41389997>.
- [16] Ceylan, M. A. (2003). Marmara Depreminin [17 Ağustos 1999] Yalova Şehrine Etkileri. Ankara: Gündüz Eğitim ve Yayıncılık.
- [17] The State Institute of Statistics (SIS) (1999). The General Population Count 1997. Ankara: Published by State Institute of Statistics Prime Ministry Republic of Turkey.
- [18] The State Institute of Statistics (SIS) (1935-2000). The results of Censuses Population in Turkey, population of Turkey. Ankara: Published by State Institute of Statistics Prime Ministry Republic of Turkey.
- [19] Turkish Statistical Institute. (2021a). General Population Censuses. <https://data.tuik.gov.tr/Kategori/GetKategori?p=nufus-ve-demografi-109&dil=1>.
- [20] Turkish Statistical Institute. (2021b). Address Based Population Registration System (ABPRS) <https://data.tuik.gov.tr/Kategori/GetKategori?p=nufus-ve-demografi-109&dil=1>.
- [21] Salman Günalp, Ö. (2015). Yalova Benim Kentim. İstanbul: Dönence Basım ve Yayım Hizmetleri. <http://www.yalova.bel.tr/Content/media/aturk-ve-yalova.pdf>.
- [22] Bostan, H. ve Sertkaya Doğan, Ö. (2019). Türkiye'nin Demografik Dönüşümü ve Nüfus Projeksiyonlarına Göre Fırsatlar. Doğu Coğrafya Dergisi, 24 (41), 61-90.
- [23] The State Institute of Statistics (SIS) (2003). 2000 Census of Population in Turkey, Social and Economic Characteristics of Population, Ankara: Published by State Institute of Statistics Prime Ministry Republic of Turkey, Publication Number: 2759. ISBN 975-19-3339-2.
- [24] Turkish Statistical Institute. (2021c). Vital Statistics. Birth ve Death Statistics. <https://data.tuik.gov.tr/Kategori/GetKategori?p=nufus-ve-demografi-109&dil=1>.
- [25] 2003 Türkiye Nüfus ve Sağlık Araştırması (2004). Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü, Ankara, 50. <http://www.hips.hacettepe.edu.tr/pdf/TNSA2003-AnaRapor.pdf>
- [26] Özgür, E.M. (2004). Türkiye'de Toplam Doğurganlık Hızının Mekansal Dağılışı. Coğrafi Bilimler Dergisi, Cilt: 2 Sayı: 2, 3. DOI: 10.1501/Cogbil_0000000047, 21.03.2021.
- [27] Sertkaya Doğan, Ö. (2018). Türkiye'ye 2040 ve 2060 Nüfus Projeksiyonlarına Göre Demografik Fırsatlar. TİDSAD, 5 (18), 26-42. <https://doi.org/10.16989/TİDSAD.1578>, 21.03.2021.
- [28] Koç, İ, Eryurt, M.A., Adalı, T., Seçkiner, P. (2010). Türkiye'nin Demografik Dönüşümü, Ankara: Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü.56. http://www.hips.hacettepe.edu.tr/TurkiyeninDemografikDonusumu_220410.pdf.
- [29] Atalay, İ. (1994). Türkiye Coğrafyası. 4.Baskı, İzmir: Ege Üniversitesi Basımevi. 258.
- [30] Turkish Statistical Institute. (2021ç). Life Tables. <https://data.tuik.gov.tr/Kategori/GetKategori?p=nufus-ve-demografi-109&dil=1>.
- [31] Turkish Statistical Institute. (2009). Death Statistics: Province and District Centers 2008. <https://biruni.tuik.gov.tr/yayin/views/visitorPages/english/index.zul>

- [32] Turkish Statistical Institute. (2021d). Migration Statistics. <https://data.tuik.gov.tr/Kategori/GetKategori?p=nufus-ve-demografi-109&dil=1>.
- [33] Turkish Statistical Institute. (2013). Population and Housing Census 2011. <https://biruni.tuik.gov.tr/yayin/views/visitorPages/english/index.zul>
- [34] Akpunar, F. (2012). Kente Göçle Gelenlerin Sosyo-Ekonomik Yapısı: Yalova İli Örneği. Yüksek Lisans Tezi. Yalova Üniversitesi Sosyal Bilimler Enstitüsü, Yalova. 67.
- [35] Bostan, H. (2005). Yalova İli Altınova İlçesindeki ÇerkesTevkifiye Köyünde Kültürel Değişim. Yüksek Lisans Tezi. Yeditepe Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul. 181.
- [36] Tekeli, İ. (1998). Türkiye’de İçgöç Sorunsalı Yeniden Tanımlanma Aşamasına Geldi. Ahmet İçduygu (Ed.), Türkiye’de İçgöç, Bolu-Gerede, 6-8 Haziran 1997 kitabı içinde (s. 7-21). İstanbul: Tarih Vakfı Yayınları. 15.
- [37] Yalvar, C. (2019). 1877-1924 yılları arasında Balkanlar’dan ve Kafkasya’dan Yalova’ya yapılan göçler. Ahmet Taşağıl (Ed.), Geçmişten Günümüze Yalova kitabı içinde (s. 75-106). 1.Basım, İstanbul.
- [38] Tanoğlu, A. (1955). The Recent Emigration of the Bulgarian Turks. Review of the Geographical Institute of the The University of the İstanbul, Number 2, 2-35, İstanbul.
- [39] Şahin, E. (2019). Türkiye’de Yabancıların İstihdamı: Yalova İli Örneği. Yüksek Lisans Tezi. Yalova Üniversitesi Sosyal Bilimler Enstitüsü, Yalova. 78-79.
- [40] Turkish Statistical Institute. (2021e). House Sales Statistics. <https://data.tuik.gov.tr/Kategori/GetKategori?p=insaat-ve-konut-116&dil=1>.
- [41] Turkish Statistical Institute. (2021f). Population Projections. <https://data.tuik.gov.tr/Kategori/GetKategori?p=nufus-ve-demografi-109&dil=1>.
- [42] Sandal, E., Adıgüzel, F., Karademir, N. (2020). Changes In Land Use Between The Years Of 1990-2018 In Mersin Province Based On CORINE (Coordination Of Information On The Environment) System. Kastamonu University Journal of Engineering and Sciences, 6 (1). 9.
- [43] Adıgüzel, F., Doğan, M. (2020). Analysis of Sufficiency and Accessibility of Active Green Areas in Cukurova. Kastamonu University Journal of Engineering and Sciences, 6 (2). 1