ABAD / JABS
ANADOLU VE BALKAN ARAŞTIRMALARI DERGİSİ
JOURNAL OF ANATOLIA AND BALKAN STUDIES

ABAD, 2025; 8(15): 3-17 **abad@nku.edu.tr**
ISSN: 2618-6004 **DOI**: 10.32953/abad.1648628
e-ISSN: 2636-8188

THE INFLUENCE OF FIRM REALLOCATION ON CITIES: THE CASE OF TEKIRDAĞ PROVINCE OF TÜRKİYE

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Abstract: Firm reallocation refers to the process of altering a company's geographic distribution. The drivers of this relocation can be divided into two main categories: internal push factors and external pull factors. Push factors are internal pressures that motivate a firm to leave its current location, while pull factors are external conditions that attract it to a new one. While large-scale firm relocation can bring considerable advantages to the cities where these businesses establish themselves, it may also present certain challenges. This study explores the factors that make Tekirdağ Province in Türkiye an attractive destination for firm relocation, as well as the broader impact of this relocation on the region. The findings reveal that both internal push factors and external pull factors have significantly contributed to Tekirdağ's emergence as a preferred location for firm relocation. Furthermore, the study identifies both positive and negative effects of firm relocation on the province.

Key Words: Industrialization, Environment, Firm Reallocation, Tekirdağ.

FİRMALARIN YENİDEN YERLEŞİMİNİN ŞEHİRLERE ETKİSİ: TEKİRDAĞ İLİ ÖRNEĞİ

Öz: Firma yeniden yerleşimi, bir şirketin coğrafi dağılımının değiştirilmesi sürecini ifade eder. Bu yer değiştirme sürecinin nedenleri itici ve çekici faktörler olmak üzere iki ana kategoriye ayrılabilir. İtici faktörler, bir firmanın mevcut konumunu terk etmeye motive eden içsel baskılardır; çekici faktörler ise firmanın yeni bir yere taşınmasını cazip kılan dışsal koşullardır. Büyük ölçekli firma yer değişiklikleri, işletmelerin yerleştikleri şehirlere önemli avantajlar sağlayabilirken, bazı zorlukları da beraberinde getirebilir. Bu çalışma, Türkiye'nin Tekirdağ ilini firma yeniden yerleşimi için cazip bir destinasyon haline getiren faktörleri ve bu yerleşimin bölge üzerindeki etkilerini incelemektedir. Araştırmanın bulguları hem içsel itici faktörlerin hem de dışsal çekici faktörlerin, Tekirdağ'ın firma yeniden yerleşimi için tercih edilen bir konum olarak ortaya çıkmasında önemli bir rol oynadığını ortaya koymaktadır. Ayrıca, çalışma, firma yeniden yerleşiminin Tekirdağ üzerindeki hem olumlu hem de olumsuz etkilerini tespit etmektedir.

Anahtar Kelimeler: Sanayileşme, Çevre, Firmaların Yeniden Yerleşimi, Tekirdağ.

Introduction

The alteration of a company's spatial distribution can be defined as firm reallocation. This change in the firm's geographical presence can be either complete or partial. In the case of complete reallocation, the entire firm, including headquarters, departments, physical operations, and employees, is moved from its current location to another. Conversely, in the case of partial reallocation, only significant components of the firm, such as certain departments, specific operations, or groups of employees, are moved to a new location[1].

Drivers of firm reallocation can be categorized into two main classes: internal push factors and external pull factors. Push factors are internal elements that create a compelling reason for a firm to leave its current location, while pull factors are external influences that attract the firm to a new location[2]. Commercial property challenges, labor market issues, logistics difficulties, infrastructural

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[1] Aleid E. Brouwer, Ilaria Mariotti, and Jos N. van Ommeren, 2004, "The Firm Relocation Decision: An Empirical Investigation", Annals of Regional Science, vol. 2, no. 38 (2004), p. 335.

[2] Camila Balbontin and David A. Hensher, "Firm-specific and Location-Specific Drivers of Business Location and Relocation Decisions", Transport Reviews, vol. 39, no.5 (2018), p. 588.

Başvuru/Submitted: 28.02.2025 Kabul/Accepted: 30.05.2025

problems, and environmental concerns are considered as the main internal push factors for firm reallocation.

One of the main internal push factors behind firm reallocation is commercial property issues, such as lack of space and high property and lease prices at the current location. Another significant reason is labor market challenges, including labor shortages, high labor costs, and high cost of living. Logistic difficulties, such as transportation of goods and employees, also drive firms to relocate. Additionally, infrastructural problems, such as congested roads, parking shortages, and lack of business services, act as internal push factors. Firms that produce significant pollution may also choose to relocate to minimize their environmental impact and reduce the precautionary costs associated with their environmental effects[3].

Government initiatives/supports, tax differences, and industry agglomeration are regarded as the main external pull factors for firm allocation. One of the primary external pull factors driving firm reallocation is government initiatives and support. Governments may offer incentives such as lower taxes or tax exemptions, reduced land prices or free industrial parcels, and wage subsidies to stimulate development in certain cities or regions. Tax differences also play a significant role in motivating firms to relocate; a substantial increase in corporate taxes in one state, or the availability of lower taxes in another, can attract firms to move from one state to another. Additionally, industry agglomeration, or industry clustering, serves as a strong external pull factor. When large firms or entire industries relocate to a different region or city, their suppliers and associated businesses often follow suit[4].

Internal push factors and external pull factors drive firms to relocate from their current regions and cities to more advantageous locations. Rising wages, cost of living, land prices, lease rates, logistics expenses, operating costs, and precautionary costs associated with environmental impacts compel firms to leave less favorable cities for more favorable ones. Industry agglomeration and government incentives also encourage firms to change the cities in which they operate. Firms tend to move to cities where land, labor, and living costs are cheaper, taxes, operating expenses, and logistics costs are lower, the economic burden of their environmental externalities is minimized, and government incentives and support are more substantial.

Large-scale firm relocation can bring significant benefits to the cities where these firms settle, but it may also lead to certain challenges. Firm relocation brings significant benefits to the cities where these firms settle and gives a strong boost to the city's socio-economic development. It helps increase the city's share of national income and the city's per capita income. As firms relocate, the rising land and property values in these areas lead to an increase in the land rents and wealth of local residents. By creating new job opportunities, it boosts employment levels, which not only reduces unemployment but also encourages workforce participation and raises local income levels. The increase in income and consumption associated with higher employment allows existing businesses to expand and revitalizes the trade and consumer-oriented sectors. Furthermore, it contributes to the economic and technological advancement of surrounding rural areas. It encourages existing firms to modernize their production processes, enhance efficiency, and improve product quality. Moreover, it attracts new investments to the city and the innovative business models and technological infrastructure introduced by these companies enhance the city's competitive advantage, fostering sustainable economic growth in the long term. As the city's trade volume expands, tax revenues also increase, allowing for

[3] Devlet Planlama Teşkilatı, İllerin ve Bölgelerin Sosyo-Ekonomik Gelişmişlik Sıralaması Araştırması-2003, Devlet Planlama Teşkilatı Yayınları Yayın No DPT 2671, Ankara 2003, p. 112; Yoonsoo Lee, "Geographic Redistribution of US Manufacturing and the Role of State Development Policy", Journal of Urban Economics, vol. 64, no. 2, (2008), p. 436; Department for Business, Energy and Industrial Strategy, Drivers of Firm Relocation, BEIS Research Paper Number 2019/002, London 2018, p. 6; Yanying Wang and Qingyang Wu, "Robots, Firm Relocation, and Air Pollution: Unveiling the Unintended Spatial Spillover Effects of Emerging Technology", Humanities and Social Sciences Communications, vol. 11 (2024), p. 17.

[4] Devlet Planlama Teşkilatı, ibid, p. 112; Department for Business, Energy and Industrial Strategy, ibid, p. 7; Biyue Lin, Shoukat Iqbal Khattak and Bei Zhao, "To Relocate Or Not to Relocate: A Logit Regression Model of Factors Influencing Corporate Headquarter Relocation Decision in China", Sage Open, vol. 11, no. 3 (2021), p. 13; Charles Swenson, "City Business Taxes and Retail Firm Relocation Decisions", Applied Economics and Finance, vol. 10, no. 1 (2022), pp. 9.

improvements in public services. This development contributes to the enhancement of infrastructure, transportation, healthcare, education, cultural activities, and overall living conditions within the city[5].

On the other hand, if firm relocation is not conducted within the framework of a comprehensive macro plan, it can exacerbate social, cultural, structural, and environmental issues in the cities where these firms settle. The relocation of firms and the associated employment potential often trigger both rural-to-urban migration within the city and intercity migration, leading to a rapid increase in the city's population. This sudden population growth can lead to unplanned urbanization, strain on infrastructure, disruptions in essential services such as healthcare, education, and transportation, and social conflicts arising from cultural differences. Additionally, one of the significant challenges posed by firm relocation is the environmental degradation caused by unregulated industrial activities in the host city. Uncontrolled industrial waste, coupled with the rise in domestic waste due to increased migration, negatively impacts the natural environment and soil, contributing to water, air, and noise pollution[6].

This study investigates the impact of firm reallocation to Tekirdağ province of Turkey. The rest of the study is organized as follows.

1. Factors Influencing Tekirdağ as a Destination for Firm Relocation

Until 1980, Turkey pursued an import substitution development strategy; however, after 1980, the country shifted its focus to an export-oriented development strategy. This shift significantly influenced the spatial distribution of economic activities and industry across Turkey. Initially, industry began to spread from traditional regional centers and metropolises such as Istanbul, Izmir, Adana, and Ankara to surrounding provinces. As a result, industrial activity began to concentrate in neighboring provinces, or hinterlands, surrounding these traditional regional centers. These areas experienced an influx of industry spreading out from the central cities[7].

Istanbul is the industrial capital of Turkey. Although there were plans in the early years of the Turkish Republic to spread industrialization across Anatolia, Istanbul's dominant role in economic activities, bolstered by its strategic transportation networks, attracted the majority of industrial investments to the city. However, during Istanbul's planning process, the city's administrative, cultural, and commercial functions were emphasized (as outlined in the 1958 Piccinato Plan), and efforts were made to shift industrial activities to the Eastern Marmara and Thrace subregions (as seen in the 1966 Industrial Master Plan and the 1980 Metropolitan Master Plan). As a result, the idea of relocating industrial activities from within the metropolitan area to surrounding provinces through organized industrial zones and planned industrial areas was brought to the forefront[8].

In this context, Tekirdağ is one of the provinces most significantly affected by the process of industrial decentralization from Istanbul. Tekirdağ has undergone a distinct developmental trajectory due to its surrounding position of the Istanbul metropolitan area (Sönmez, 2016). Following Kocaeli and Bursa, which are considered the primary development axes of Istanbul-centric industry, Tekirdağ is situated on the second axis of growth and expansion, which includes Tekirdağ, Yalova, Kırklareli, Edirne, and Sakarya[9].

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[5] Piet H. Pellenbarg, Leo JG Van Wissen and Jouke Van Dijk, Firm Relocation: State of the Art and Research Prospects. University of Groningen, SOM Research School, Groningen 2002, p. 3; Department for Business, Energy and Industrial Strategy, ibid, p. 7.

[6] Karen C. Seto, "Exploring the Dynamics of Migration to Mega-Delta Cities in Asia and Africa: Contemporary Drivers and Future Scenarios, Global Environmental Change, vol. 21, no. 1 (2011), p. 94; Douglas Gollin, Remi Jedwab and Dietrich Vollrath, "Urbanization With and Without İndustrialization, Journal of Economic Growth, vol. 21 (2016), p. 35; Ying Peng, Hongyun Zhu and Jian Cui, "Changes in Environmental Performance With Firm Relocation and İts İnfluencing Mechanism: An Evidence of Chemical İndustry in Jiangsu, China", Journal of Environmental Management, vol. 336 (2023), p. 15.

[7] Devlet Planlama Teşkilatı, ibid, p. 16.

[8] Ayşe Nur Albayrak, "Kocaeli'de Sanayinin Gelişimi ve Sanayide Mekânsal Değişim", Artitera (2017), p. 1.

[9] Devlet Planlama Teşkilatı, ibid, p. 16.

As suggested by the theory of firm relocation, both internal push factors and external pull factors have contributed to establishing Tekirdağ as a relocation destination. The search for a new location to decentralize Istanbul's industry, the designation of Çerkezköy/ Tekirdağ as a priority development region in 1971, and the establishment of the Organized Industrial Zone in Çerkezköy, Tekirdağ in 1973 are identified as significant external pull factors that collectively sparked the province's industrialization process[10].

Increasing wages, cost of living, land prices, lease rates, logistics expenses, operational costs, and precautionary expenses related to environmental impacts are recognized as internal push factors driving firms in Istanbul to relocate. In response, the abundance of available land, attractive land prices, access to surface and groundwater resources, favorable wind conditions, proximity to Istanbul and major European export markets, a plentiful and low-cost labor force, regional security, and the province's strategic location at the intersection of air, road, and sea transport routes are key factors driving industrialization in Tekirdağ.

2. The Impact of Firm Allocation on Tekirdağ

This section of the study examines the positive and negative impacts of firm relocation on Tekirdağ, identifying both the benefits and drawbacks affecting the region.

2.1. The Positive Impacts of Firm Allocation on Tekirdağ

The positive effects of firm relocation on Tekirdağ have been identified as increases in GDP and GDP per capita, improvements in labor force indicators, socio-economic development, provincial competitiveness, and innovation capacity.

2.1.1. Increase in GDP and GDP per Capita

One of the positive effects of firm relocation on Tekirdağ is reflected in the city's GDP and per capita GDP, which have shown a greater increase compared to other provinces. As of 2023, Tekirdağ's GDP reached 463.8 billion TL, accounting for 1.7% of Turkey's GDP. On the other hand, Tekirdağ's per capita GDP reached 401,683 TL as of 2023, which is significantly higher than Turkey's average of 311,109 TL (see Table 1). In 2022, per capita GDP in thirteen provinces exceeded the national average. In the ranking of per capita GDP among provinces in Turkey, Tekirdağ ranked 4th, following Kocaeli, Istanbul and Ankara.

Table 1: Gross Domestic Product and Gross Domestic Product per Capita

	Gross Domestic Product (1000 TL)		Gross Domestic Product per capita (TL)	
	Türkiye	Tekirdağ	Türkiye	Tekirdağ
2004	582852799	8.655.570	8622	13.305
2005	680275847	9918080	9940	14.754
2006	795757109	11438479	11484	16.471
2007	887714414	12991091	12653	18.118
2008	1002756496	14663363	14113	19.562
2009	1006372482	14362706	13970	18.484
2010	1167664479	16893627	15964	21.365
2011	1404927615	20915741	18928	25.695
2012	1581479251	23264759	21037	27.660

[10] Murat Özyavuz and Elif Ebru Şişman, "Büyükşehir: Tekirdağ Metropolitan City: Tekirdağ", Adnan Menderes Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, vol. 1, special issue (2014), p. 194.

2013	1823427315	26949679	23946	31.214
2014	2054897828	31100745	26624	34.921
2015	2350941343	35892654	30056	38.916
2016	2626559710	41610605	33131	43.553
2017	3133704267	52032178	39019	52.602
2018	3761165557	64122209	46202	63.007
2019	4317809824	73169653	52287	70.175
2020	5048567945	90474235	60546	84.695
2021	7256141737	146504155	86231	133.522
2022	15.011.777.598	285.930.395	176.651	253.501
2023	26.545.721.797	463.845.453	311.109	401.683

Source: TÜİK, Ulusal Hesaplar İstatistikleri, https://cip.tuik.gov.tr/

2.1.2. Improvement in Labor Force Indicators

Another positive effect of the firm relocation to Tekirdağ is its impact on labor force indicators. According to data published by TÜİK after 2013, key labor force indicators are provided at the TR21 regional level (Tekirdağ, Kırklareli, and Edirne). As of 2023, the labor force participation rate in the Tekirdağ is 60.6%, the employment rate is 56.2%, and the unemployment rate is 7.3% (see Table 2). In 2023, while the labor force participation and employment rates in the TR21 region were above the national average, the unemployment rate was below the national average. When comparing Turkey's averages with Tekirdağ, Tekirdağ stands out with a high labor force participation and employment rate, coupled with a low unemployment rate.

Table 2: Labor Force Indicators

	Labor Force Participation (%)	**Employment Rate (%)**	**Unemployment Rate (%)**
2008/ Tekirdağ	57,3	52,1	9,1
2009/ Tekirdağ	56,2	49,5	11,9
2010/ Tekirdağ	55,1	49,8	9,6
2015/ TR21	57,4	53,2	7,5
2020/ TR21	55,9	50,9	9,0
2023/ TR21	59,0	54,5	7,6
2023/ Tekirdağ	60,6	56,2	7,3
2023/ Türkiye	53,3	47,1	10,9

Source: TÜİK, İstihdam ve İşsizlik İstatistikleri, https://cip.tuik.gov.tr/

2.1.3. Enhancement in Socio-Economic Development

Since the 1960s, socio-economic development index (SEDI) studies have been conducted in Turkey to provide input for policy, strategy, and public initiatives. These studies assess the development levels and trends of districts, provinces, and regions across the country. Through statistical techniques, the SEDI research analyzes and ranks the socio-economic development levels of these administrative units, offering a clear picture of their relative progress and status within the nation. The first SEDI

study at the provincial level was conducted in 1963. To date, nine SEDI studies have been conducted at the provincial level and seven at the district level. The most recent SEDI research at the provincial level, conducted by the Ministry of Industry and Technology, is SEDI-2017.

In the SEDI-2017 study, which included all 81 provinces, 52 variables were used to measure socio-economic development. Based on the analysis, the index scores and rankings of the provinces were determined and the provinces were grouped into six levels of development. As a result of the analysis, nine provinces (Istanbul, Ankara, Izmir, Kocaeli, Antalya, Bursa, Eskişehir, Muğla, and Tekirdağ) with index values exceeding 1 are classified within the highest level of development. These provinces, which rank highest in many of the variables used in the study, stand out as Turkey's key centers of industry, production, exports, education, and tourism[11].

SEDI studies have consistently highlighted the socio-economic development of Tekirdağ since the 1960s. In 1963, Tekirdağ ranked 29th, but by 1967, it had climbed to 21st place. However, between 1967 and 1980, the province experienced a decline, dropping to 34th place by 1980. In 1985, Tekirdağ made a significant leap, soaring to 11th place in the socio-economic rankings of provinces. The province continued its upward trajectory, reaching as high as 7th place in the 1991 and 2003 studies. In the 2017 rankings, Tekirdağ secured the 9th position, firmly establishing itself within the highest level of development (see Table 3)[12].

Table 3: Rank, Index Score and Development Level of Tekirdağ according to SEDI Studies

Year	Rank	Index Score	Development Level
1963	29	76.4	-
1964	26	84.7	-
1965	25	93.7	-
1966	22	102.8	-
1967	21	116.1	-
1968	22	131	-
1969	23	139.8	-
1970	25	148.6	-
1980	34	-0.217	-
1985	11	0.7212	-
1991	7	4.67861	-
1996	8	0.91211	-
2003	7	1.05893	2
2011	9	0.9154	2
2017	9	1.014	1

[11] T.C. Sanayi ve Teknoloji Bakanlığı Kalkınma Ajansları Genel Müdürlüğü, İllerin ve Bölgelerin Sosyo-Ekonomik Gelişmişlik Sıralaması Araştırması SEGE-2017. Kalkınma Ajansları Genel Müdürlüğü Yayınları, Ankara 2019, p. 5.

[12] Devlet Planlama Teşkilatı, ibid, p. 6.

2.1.4. Increase in the Provincial Competitiveness

In Turkey, two key studies stand out in the research on provincial competitiveness rankings: the "Interprovincial Competitiveness Index" prepared by URAK (International Competitiveness Research Institute) and the "Interprovincial Competition Index" conducted by the Urban Policy Application and Research Center at Istanbul University (İstanbul Üniversitesi Şehir Politikaları Uygulama ve Araştırma Merkezi). These studies are recognized for their comprehensive analysis of the competitive positioning of provinces across the country.

The "Interprovincial Competitiveness Index" study prepared by URAK consists of one main index and four sub-indices. The "Interprovincial Competitiveness Index" study by URAK focuses exclusively on variables related to economic factors. The first competitiveness index study by URAK was conducted during the 2007-2008 period, with the most recent study covering the 2016-2017 period. Tekirdağ, which ranked 8th in the initial study, slipped to 11th place in the most recent period. Notably, Tekirdağ climbed to 7th place in the 2009-2010 period but then fell to 9th place in 2012-2013 and further to 11th place in the 2013-2014 period (see Table 4)[13].

Table 4: Rank and Index of Tekirdağ According to the URAK Interprovincial Competitiveness Index Study

Year	Rank	Index Score
2007-2008	8	27.25
2008-2009	8	29.49
2009-2010	7	29.71
2012-2013	9	18.57
2013-2014	11	17.85
2014-2015	11	17.74
2015-2016	11	18.21
2016-2017	11	19.10

The “Interprovincial Competition Index” study conducted by Istanbul University's Urban Policy Application and Research Center (ŞPAM) is structured around one main index and 15 sub-indices. These sub-indices cover a wide range of factors, including demography, infrastructure, transportation, healthcare, education, social life, macroeconomics, foreign trade and industry, financial markets, tourism, agriculture, innovation, entrepreneurship, higher education, and technological infrastructure[14].

The first “Interprovincial Competition Index” study was conducted in 2009, with the latest study published in 2022. In the most recent index, calculated using 2021-2022 data, Tekirdağ ranked 11th. In the 2009 study, Tekirdağ was also ranked 11th, but it dropped to 13th place in the 2011 study. By 2018, the province had risen to 8th place, before returning to 11th place in the 2022 study (see Table 5)[15].

Table 5: Rank of Tekirdağ According to the ŞPAM Interprovincial Competition Index Study

Year	2009	2011	2018	2022
Rank	11	13	8	11

[13] Uluslararası Rekabet Araştırmaları Kurumu/URAK, İllerarası Rekabetçilik Endeksi-2018, İstanbul 2018, p. 3.

[14] Murat Şeker, Arif Saldanlı and Hakan Bektaş, İller Arası Rekabet Endeksi: 2021 – 2022, İÜ Şehir Politikaları Uygulama ve Araştırma Merkezi Şehir Araştırma Notları 6, İstanbul 2023, p. 9.

[15] Şeker, Saldanlı and Bektaş, ibid, p. 13.

2.1.5. The Enhancement of Tekirdağ's Innovation Capacity

Another benefit of the firm relocation to Tekirdağ is the enhancement of the city's innovation capacity. The number of R&D centers in Tekirdağ has increased following the firm relocation. These R&D centers contribute to the development of an industrial infrastructure that produces high-value, innovative products and creates qualified employment opportunities. As of 2024, Tekirdağ is home to 53 of the 1,330 R&D centers operating in Turkey. This places Tekirdağ 6th among all provinces in terms of the number of R&D centers (see Table 6)[16].

Table 6: The Number of R&D centers (2024)

Rank	Province	The Number of R&D Centers
1	İstanbul	426
2	Ankara	152
3	Kocaeli	138
4	Bursa	135
5	İzmir	103
6	Tekirdağ	53
7	Manisa	34
8	Sakarya	25
9	Konya	21
10	Eskişehir	20

2.2. The Negative Impacts of Firm Allocation on Tekirdağ

The negative effects of firm relocation on Tekirdağ have been identified as excessive population growth and migration, challenges in education and healthcare services, low rankings in the well-being index, and environmental degradation.

2.2.1. Excessive Population Growth and Migration

Following the firm relocation and the subsequent rapid industrialization that began in the 1980s, Tekirdağ's population entered a period of significant growth. By 2020, the city's population had surpassed one million. While Turkey's population increased by approximately 171% between 1965 and 2023, Tekirdağ's population tripled, rising from 287,331 to 1,167,059 (see Table 7). In 1965, the population distribution across the provinces in the TR21 region (Tekirdağ, Kırklareli and Edirne) in Thrace ranged between 30% and 36% per province, but Tekirdağ's share of the region's population has consistently grown in subsequent years. As of 2023, Tekirdağ accounts for 59.4% of the TR21 region's population. As of 2023, 1.37% of Turkey's total population resides in Tekirdağ. Tekirdağ has become the 18th most populous province in Turkey.

Table 7: Population Change

Year	Türkiye	TR21 Region	Tekirdağ	Edirne	Kırklareli
1965	31.391.421	849.001	287.381	303.234	258.386
1980	44.736.957	1.007.436	360.742	363.286	283.408

[16] Sanayi ve Teknoloji Bakanlığı, Ar-Ge Merkezleri İstatistikleri, Ankara 2024, p.4.

1990	56.473.035	1.182.953	468.842	404.599	309.512
2000	67.803.927	1.354.658	623 591	402 606	328 461
2010	73.722.988	1.521.328	798.109	390.428	332.791
2015	78.741.053	1.687.420	937.910	402.537	346.973
2020	83.614.362	1.850.565	1.081.065	407.763	361.737
2023	85.372.377	1.964.128	1.167.059	419.913	377.156

Source: TÜİK, Nüfus ve Demografi İstatistikleri, https://cip.tuik.gov.tr/

Tekirdağ ranks 12th among provinces in Turkey in terms of population growth rate. As of 2023, the population growth rate is 2.15%, with 184 people per square kilometer (see Table 8).

Table 8: Population Growth Rate and Population Density (Tekirdağ)

Year	Population	Population Growth Rate	Population Density
1980	360.742	-	57/ km2
1990	468.842	-	74/ km2
2000	623 591	-	98/ km2
2010	798.109	1,89	126/ km2
2015	937.910	3,44	148/ km2
2020	1.081.065	2,43	171/ km2
2023	1.167.059	2.15	184 /km2

Kaynak: TÜİK, Nüfus ve Demografi İstatistikleri, https://cip.tuik.gov.tr/

Tekirdağ is a city that experiences net in-migration. In 2023, Tekirdağ received 63,230 new residents while 45,182 people left the city (see Table 9). In other words, Tekirdağ gains a population equivalent to that of a medium-sized district each year. In 2023, Tekirdağ received the most migrants from Istanbul (23,476) and, conversely, sent the most migrants to Istanbul (11,677).

Table 9: Tekirdağ's Migration Status

Year	**In-migration**	**Outmigration**	**Net Migration**
2008	47.534	22.373	25.161
2010	41.307	29.433	11.874
2015	54.482	33.937	20.545
2020	50.764	28.468	22.296
2023	63.230	45.182	18.048

Source: TÜİK, Nüfus ve Demografi İstatistikleri, https://cip.tuik.gov.tr/

2.2.2. Challenges in Education and Healthcare Services

Migration brings with it challenges in education and healthcare services. In 2023, the student-to-teacher ratio in Tekirdağ was 20 in primary schools and 17 in middle schools, compared to the national averages of 18 and 14, respectively. Throughout all recorded years, the student-to-teacher ratio in Tekirdağ has consistently been higher than the national average at every educational level (see Table 10).

Table 10: Number of Students per Teacher

		Tekirdağ	Türkiye
2012	Primary School	21	20
	Lower Secondary School	24	19
2013	Primary School	21	19
	Lower Secondary School	21	18
2014	Primary School	19	18
	Lower Secondary School	20	17
2015	Primary School	19	18
	Lower Secondary School	18	15
2016	Primary School	18	17
	Lower Secondary School	18	17
2017	Primary School	18	17
	Lower Secondary School	18	16
2018	Primary School	20	18
	Lower Secondary School	19	15
2019	Primary School	19	17
	Lower Secondary School	17	15
2020	Primary School	20	17
	Lower Secondary School	17	14
2021	Primary School	19	18
	Lower Secondary School	16	14
2022	Primary School	20	18
	Lower Secondary School	17	14
2023	Primary School	20	18
	Lower Secondary School	17	14

Source: TÜİK, Eğitim ve Kültür İstatistikleri, https://cip.tuik.gov.tr/

In 2023, the student-to-classroom ratio in primary and middle schools in Tekirdağ was 30, while the national average was 23. A review of the data shows that from 2012 to 2023, the student-to-classroom ratio in Tekirdağ has consistently remained above the national average. Additionally, while the national average decreased from 30 students per classroom in 2012 to 23 in 2023, the ratio in Tekirdağ's primary and middle schools has slightly increased during this period (see Table 11).

Table 11: Number of Students per Classroom (Primary and Lower Secondary Schools)

Year	Tekirdağ	Türkiye
2012	28	30
2013	29	29

2014	28	27
2015	27	25
2016	26	24
2017	27	24
2018	27	24
2019	26	24
2020	26	23
2021	27	23
2022	28	22
2023	30	23

Source: Source: TÜİK, Eğitim ve Kültür İstatistikleri, https://cip.tuik.gov.tr/

In 2022, the total number of hospital beds per one hundred thousand people in Tekirdağ was 282, compared to the national average of 307 (see Table 12). A review of the data reveals that from 2007 to 2022, Tekirdağ has consistently had a lower number of hospital beds per one hundred thousand people compared to the national average.

Table 12: The Total Number of Hospital Beds per One Hundred Thousand People

	Tekirdağ	Türkiye
2007	244	252
2008	231	256
2009	221	260
2010	228	272
2011	207	260
2012	213	265
2013	214	264
2014	222	266
2015	220	266
2016	264	273
2017	273	279
2018	259	283
2019	260	286
2020	280	300
2021	289	301
2022	282	307

Source: TÜİK, Sağlık ve Sosyal Koruma İstatistikleri, https://cip.tuik.gov.tr/

2.2.3. Low Ranking in Well Being Index

One of the negative impacts of firm relocation in Tekirdağ is the low ranking on well-being indices, largely due to excessive population growth and migration. Studies conducted in recent years on

measuring social progress, which is a concept covering other life dimensions besides the economic aspect, has been intensified. In this new measure that brings individuals into focus, objective criteria are used along with individuals' subjective perceptions. One such study is the Well-Being Index for Provinces, conducted by the Turkish Statistical Institute. Well-being index for provinces covers 11 dimensions of life; housing, work life, income and wealth, health, education, environment, safety, civic engagement, access to infrastructure services, life satisfaction and presents these dimensions which are represented with 41 indicators, in a single composite index. The index value is measured between 0 and 1, and values approximating to 1 state a better level of well-being[17].

According to TÜİK's Well-Being Index for Provinces in 2015[18], Tekirdağ ranked 30th overall. When looking at the sub-indices, although Tekirdağ ranked 5th in Income and Wealth and 6th in Working Life, Tekirdağ ranked 61th in Life Satisfaction, 55th in Security, 53rd in Health, 46th in Education (see Table 13). The sub-indices of the latest Interprovincial Competition Index (Şeker et al., 2023) also reveal similar results. While Tekirdağ ranked 5th in Macroeconomics, 5th in Transportation, 8th in Foreign Trade, and 10th in Financial Markets, it ranked much lower in other areas, placing 68th in Education, 53rd in Higher Education, and 27th in both Healthcare and Social Life.

The differences in Tekirdağ's rankings across various sub-indices can be attributed to the uneven distribution of development in different aspects of life. Economic prosperity, driven by industrialization and firm relocation, boosts income levels and job availability, explaining the high rankings in economic-related indices. However, rapid industrial growth can strain public services and social systems, leading to challenges in healthcare, education, and overall well-being. For example, rapid population growth due to firm relocation can overwhelm healthcare services and schools, while also contributing to issues like overcrowding, which affects life satisfaction. Similarly, while economic opportunities have improved, concerns about security and community well-being may not have advanced at the same pace, contributing to lower rankings in these areas.

Table 13: Well-Being Index for Provinces, Tekirdağ, 2015

Index	Rank
Well-Being Index	30
Sub-Indices	
Housing	22
Working Life	6
Income and Wealth	5
Health	53
Education	46
Environment	24
Security	55
Civic Engagement	35
Access to Infrastructure Services	17
Social Life	20
Life Satisfaction	61

[17] Türkiye İstatistik Kurumu/TÜİK, İllerde Yaşam Endeksi 2015, Ankara 2016.

[18] Türkiye İstatistik Kurumu, ibid.

2.2.4 Environmental Degradation

One of the negative impacts of firm relocation in Tekirdağ is environmental degradation resulting from unregulated industrial activities and unplanned industrialization. Industrial enterprises in Tekirdağ province are predominantly centered in the districts of Çorlu, Çerkezköy, and Muratlı, strategically positioned along the tributaries of the Ergene River. The Ergene River, stretching 283 kilometers with seven tributaries of varying sizes, serves as the most crucial water source in the East Thrace Region's ecosystem. The Ergene River Basin is home to approximately 1.5 million people and is a hub for intensive agricultural production, yielding crops like sunflower, wheat, and rice. The improper discharge of untreated industrial wastewater has significantly contributed to the degradation of surface water quality in the Ergene River Basin. Furthermore, the industry's heavy reliance on groundwater from the Ergene River Basin for water consumption has led to a significant depletion of groundwater resources, causing a drop in the dynamic water levels across the Basin[19].

Moreover, the increase in domestic waste due to heightened migration has further exacerbated the deterioration of surface water quality in the Ergene River Basin. The rapid industrial growth in Tekirdağ province has spurred both internal and regional migration within the Thrace Sub-Region, leading to a sharp population increase in various districts. This population surge has resulted in unplanned urbanization and a rise in the discharge of untreated domestic waste, further exacerbating the already severe decline in surface water quality within the Ergene River Basin. Over time, the water quality of the Ergene River has deteriorated to the point of being classified as 4th Class, meaning it is highly polluted and unsuitable for any form of use[20].

Conclusion

Firm reallocation refers to the process of shifting a company's geographic location. The motivations behind such relocations can be categorized into two main groups: internal push factors and external pull factors. Push factors are internal pressures that encourage a company to leave its current location, while pull factors are external conditions that attract the company to a new area. Although large-scale firm relocations can bring significant benefits to the cities where these companies settle, they can also present certain challenges.

This study explores the factors that make Tekirdağ a favorable destination for firm relocation and examines the impact of these relocations on the province of Tekirdağ in Turkey. Both internal push factors and external pull factors have played a role in establishing Tekirdağ as a relocation destination. The designation of Çerkezköy/Tekirdağ as a priority development region in 1971 and the creation of the Organized Industrial Zone in Çerkezköy, Tekirdağ in 1973 are considered key external pull factors. Rising wages, cost of living, land prices, lease rates, logistics expenses, operating costs, and precautionary measures related to environmental impacts are identified as internal push factors prompting firms in Istanbul to relocate. In contrast, Tekirdağ's appeal lies in its abundant available land, competitive land prices, access to surface and groundwater resources, favorable wind conditions, proximity to Istanbul and major European export markets, a large and affordable labor force, regional security, and its strategic position at the crossroads of air, road, and sea transport routes—making it a prime destination for industrialization.

The impact of firm relocation on Tekirdağ Province has been both positive and negative. Positive effects include increased GDP and GDP per capita, improved labor market conditions, greater socio-economic development, enhanced provincial competitiveness, and a rise in innovation capacity. On

[19] Fatih Konukçu, Selçuk Albut and Bahadır Altürk, "Land Use/Land Cover Change Modelling of Ergene River Basin in Western Turkey Using CORINE Land Use/Land Cover Data", Agronomy Research, vol. 15, no.2 (2017), p. 435; Ahmet Cihan Kahraman and Mustafa Özkul, Ergene Havzası Koruma Eylem Planı Durum Değerlendirme Raporu, Marmara Belediyeler Birliği Yayını, İstanbul 2018, p. 4.

[20] Ayşe Handan Dökmeci, "Evaluation of Heavy Metal Pollution in the Ergene River Basin from a Public Health Perspective", Turkish Journal of Public Health, vol. 15, no. 3 (2017), pp. 212; Zeynep Akdogan, Basak Guven and Ahmet E. Kideys, "Microplastic Distribution in the Surface Water and Sediment of the Ergene River", Environmental Research, Vol. 234 (2023), pp. 11.

the other hand, negative effects include rapid population growth and migration, pressure on education and healthcare services, low rankings on well-being indices, and environmental degradation.

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