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Concentration Analysis of Türkiye's Light Commercial Vehicle Sector: A Strategic Approach to Market Dominance

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Türkiye'de Hafif Ticari Araç Sektöründe Yoğunlaşma Analizi: Pazar Hakimiyetine Stratejik Bir Yaklaşım

Abstract

Light commercial vehicles (LCVs) hold considerable potential to significantly influence various aspects of the economy, including trade, production, and services. This study examines the competition within Türkiye's light commercial vehicle market from a strategic management perspective. The analysis reveals high concentration, indicating a limited competition landscape dominated by a few companies. The results suggest that firms must develop strategic flexibility to adapt to this concentrated environment. This study contributes to the literature by emphasising the need for adaptability and flexibility in maintaining competitiveness within Türkiye's LCV sector.

Keywords : Turkish Automobile Market, Strategic Management, Concentration, Herfindahl-Hirschman Analysis, Entropy Index.

JEL Classification Codes : L10, L13, L16, L22.

Öz

Hafif ticari araçlar, ticaret, üretim ve hizmetler dahil olmak üzere ekonominin çeşitli yönlerini önemli ölçüde etkileme potansiyelleri nedeniyle büyük önem taşımaktadır. Bu çalışma, Türkiye hafif ticari araç pazarındaki rekabeti stratejik yönetim perspektifinden incelemektedir. Analizler, birkaç şirketin hakim olduğu sınırlı bir rekabet ortamını gösteren yüksek bir yoğunlaşmayı ortaya koymaktadır. Sonuçlar, firmaların bu yoğunlaşmış ortama uyum sağlamak için stratejik esneklik geliştirmesi gerektiğini öne sürmektedir. Bu çalışma, Türkiye'nin hafif ticari araç sektöründe rekabetçiliği sürdürmede uyum sağlama ve esnekliğin önemini vurgulayarak literatüre katkı sağlamaktadır.

Anahtar Sözcükler : Türkiye Otomobil Piyasası, Stratejik Yönetim, Yoğunlaşma, Herfindahl-Hirschman Analizi, Entropi Endeksi.

1. Introduction

The automotive industry is one of the most critical sectors in developed economies. In 2023, over 93 million automobiles were produced worldwide, and the number of manufactured vehicles has consistently increased yearly (ODMB, 2024). The significance of the automotive industry stems from two main factors. First, it is a buyer and supplier for many other industries. For instance, it sources inputs from the iron-steel and petrochemical sectors, essential for automobile production. Additionally, the industry supplies vehicles for tourism, logistics, and agriculture sectors. Consequently, changes in the automotive industry can significantly impact the broader economy. Second, the industry has a long-term growth trend (Saberi, 2018). The increasing global population and rising purchasing power in developing countries continue to drive higher automobile production and sales.

The industry is also significant for Türkiye, as motor vehicles have become the country's largest export category in the 21st century (TUIK, 2024a). Additionally, the number of automobiles owned by individuals in Türkiye has steadily increased, surpassing 29 million as of February 2024 (TUIK, 2024b). The introduction of the Turkish-made TOGG automobile in 2023, which has garnered significant attention, has further enhanced the appeal of the Turkish automotive market (TOGG, 2024).

Strategic management has been conceptualised in various ways by numerous pioneers in the field. Chandler (1962: 225-268) defines it as determining an organisation's fundamental long-term goals and objectives, adopting the necessary action plans, and allocating resources to achieve them. The common view frames strategic management as a decision-making process that involves the formulation and implementation of strategies (Mintzberg, 1987: 66-75), the leadership responsibilities of general management in shaping organisational identity and long-term direction (Andrews, 1987: 93), and the capacity to systematically adapt to environmental dynamics (Ansoff, 1965: 137-138). Subsequently, strategic management is a multidimensional process requiring strategic foresight, organisational alignment, and contextual responsiveness.

Concentration ratios are key indicators used to describe the state of competition among firms in a market (Dilek, 2018: 51-60). In monopolistic markets, concentration is high, whereas it is low in perfectly competitive markets. According to the Structure-Conduct-Performance (SCP) paradigm, the market structure influences firm behaviour, affecting both market and firm performance. In concentrated monopoly or oligopoly markets, firms can reduce production, increase prices, and thus raise their profit margins (Bain, 1956). However, the Chicago school, which critiques the SCP paradigm developed by the Harvard school, argues that there isn't always a direct relationship between market concentration and firm profitability. Even when such a relationship exists, it could be attributed to firms using efficient production technologies (Dilek, 2020: 537-539). In summary, there is no consensus in the economic literature regarding the outcomes of market concentration.

Light commercial vehicles (LCVs) represent a category of vehicles primarily used for commercial purposes, including goods transportation and service delivery, such as vans, panel vans, pickups, and minibuses. Due to their efficiency, these vehicles play a crucial role in trade, logistics, and e-commerce sectors. The significance of studying LCVs arises from their potential to influence the economy. In this line, fluctuations in LCV demand are usually regarded as indicators of the economy due to their central role in business operations and supply chains (Kaynak & Ari, 2011: 39-58; Kayakuş et al., 2023: 100-112). Moreover, this segment is still a significant source of greenhouse gas (GHG) emissions, accounting for about 2.5% of total emissions in Europe (Pipicelli et al., 2023), despite the progress of transitioning to electric LCVs to reduce GHG emissions (Lal et al., 2023). Additionally, global events such as the COVID-19 pandemic and the war in Ukraine exposed vulnerabilities in the energy supply (Zehir et al., 2023). Finally, the developments in e-commerce and the growing expectations for efficient last-mile delivery have changed the market dynamics (Tsakalidis et al., 2020). Subsequently, the strategic importance of LCVs is obvious in supporting sustainable economic growth.

This study aims to analyse the state of competition in Türkiye's LCV segment using concentration analysis, including concentration ratios, Herfindahl-Hirschman, and entropy indices. Previous studies examined the concentration and structure in other markets (Dilek & Konak, 2022: 1-16; Tatlı, 2018: 64-84), and some studies focused on the Turkish automobile market (Ildırar & Kıral, 2018: 93-117; Kaynak & Ari, 2011: 39-58; İğdeli, 2021: 305-320). For instance, Ildırar & Kıral (2018: 93-117) utilised the four-firm concentration ratio (CR4), eight-firm concentration ratio (CR8), and Herfindahl-Hirschman Index (HHI) by grouping vehicles under domestic/import, passenger/LCV between 2004 and 2017. Moreover, Kaynak & Ari (2011: 39-58) examined these metrics for 2003-2010. Finally, using structural break unit root tests, İğdeli (2021: 305-320) investigated the stationarity of concentration ratios in the Turkish automobile market.

This paper distinguishes from the studies of Ildırar & Kıral (2018: 93-117) and Kaynak & Ari (2011: 39-58) in three significant ways. First, it covers a broader and more recent time frame, including the post-COVID-19 pandemic period, covering the pandemic's impact on the Turkish automobile market. Second, instead of analysing the concentration between domestic and imported automobiles, this study separately focuses on the concentration in the light commercial vehicle market, considering its economic impact. Third, in addition to the Herfindahl-Hirschman Index and concentration ratios, the paper also analyses entropy indices.

The first section of the research outlines the conceptual framework for market concentration and market structure and discusses the perspectives from the Harvard and Chicago schools. Subsequent sections analyse the concentration in Türkiye's light commercial vehicle market using four-firm and eight-firm concentration ratios and the Herfindahl-Hirschman and entropy indices. The findings are then evaluated from a strategic management perspective.

2. Light Commercial Vehicle (LCV) Segment

The Turkish automobile market is categorised into two main segments: passenger cars and light commercial vehicles. Each segment has its unique characteristics that require a separate examination. First, unlike passenger cars, LCVs are commonly used for commercial purposes, particularly in trade, production, and services, which are the key sectors of the country's economy. (Kayakuş et al., 2023: 100-112). Also, the LCV segment includes vehicles, such as vans, panel vans, pickups, and minibuses, which have distinct features and purposes from passenger cars. LGVs are extensively utilised across industries that offer a broad range of crucial support services (Browne et al., 2007). Moreover, the segment plays a vital role in the logistics chain, particularly in urban areas, enabling last-mile delivery of a wide range of goods. The size, versatility, and flexibility make the vehicles in this segment appealing to small and medium-sized enterprises as valuable business tools (Scorrano et al., 2021). On the other hand, households widely use passenger cars, and many factors are influential, like aesthetic appeal, comfort, performance, and brand image, apart from practical and economical needs (Sasu, 2011). Notably, it has been particularly noted that the larger fluctuations in passenger car sales are not reflected to the same degree in light commercial vehicle sales, as these two markets responded differently to global and economic events (Kayakuş et al., 2023: 100-112).

3. Market Concentration

Market concentration refers to the number of firms in a market and the extent to which a certain number of firms account for the total production or sales within that market (Dilek, 2018: 51). It provides researchers with insights into the market structure. Concentration is high in monopolistic markets where a single firm controls all production and sales. In contrast, concentration is low in perfectly competitive markets, where many firms share production and sales. In oligopoly and monopolistic competition markets, concentration levels are moderate. Economists regard perfectly competitive markets as the ideal market type due to their high efficiency, high output, and low prices. As a result, efforts are made to model markets as closely as possible to perfect competition while avoiding monopolistic market structures. Until the early 1900s, economic studies focused on perfect competition and monopoly markets. However, from the 1920s onwards, under the leadership of economists such as Sraffa, Chamberlin, and Robinson, research began to increasingly focus on monopolistic competition and oligopoly markets (Ildırar & Kıral, 2018: 95).

The number of firms in a market and their shares in activities such as production and sales are crucial elements of market structure. Economists from the Harvard School, including Mason, Bain, and Chamberlin, developed the Structure-Conduct-Performance (SCP) analysis (Dilek & Kesgingöz, 2020: 973). According to this analysis, market structure influences firm behaviour, affecting performance. In concentrated markets, such as monopolies or oligopolies, firms make production decisions independently or in collaboration with competitors. In oligopoly markets, it is relatively easy for a few firms to form agreements and cooperate (Çelik & Kaplan, 2007: 73). Consequently, in concentrated

markets, production is often restricted, prices are raised, and firms earn higher profits (Yolaç, 2004: 215-216; Dilek, 2020: 537-538). In short, firms gain more market power as market concentration increases, but their competitive behaviour and efficiency decrease (Dilek & Kesgingöz, 2020: 974). Despite the decline in efficiency, profitability tends to rise (Demirel & Hatırlı, 2014: 95). One of the key reasons for market concentration is barriers to entry. While there are various definitions of entry barriers in the literature, common themes include the ability of established firms to earn high profits without the threat of new entrants and the unique costs that potential entrants face, which established firms do not encounter (Dilek & Çolakoğlu, 2013: 543). Studies in the literature have shown that entry barriers enable firms to achieve high profits and returns (Bain, 1956; Orr, 1974).

Until the 1970s, the SCP paradigm was dominant, but it faced criticism from the Chicago school. The first criticism is that there is not always a direct correlation between market concentration and firm profitability. In concentrated markets, firms might keep prices low to deter potential entrants, leading to lower profits. Moreover, even if a relationship between market concentration and profitability is observed, it could be spurious (Smirnock, 1985: 70-71; Çelik & Kaplan, 2010: 11). The second criticism is that even if firms in concentrated markets earn excessive profits, this may be due to their use of efficient production techniques (Barca & Esen, 2010: 310; Demsetz, 1973: 5). These views from the Chicago school are discussed in the literature under the "efficient structure hypothesis" (Dilek, 2018: 31-32). While the SCP paradigm argues that high concentration results from low competition, the efficient structure hypothesis suggests that it is due to one or a few firms having lower costs and more efficient production techniques (Simbanegavi et al., 2015: 3; Günalp & Çelik, 2004: 32). Firms that produce at lower costs can reduce prices, thereby increasing market share and profitability, meaning that, contrary to the SCP paradigm, firm performance will determine market structure (Peltzman, 1977: 262).

The Harvard and Chicago schools hold differing views on regulation. The Harvard school advocates for regulation in response to market structure inefficiencies, whereas the Chicago school opposes. According to the Chicago school, market concentration is not coincidental; some firms succeed by employing more efficient production techniques than their competitors. The market rewards these successful firms and penalises those that fail. When unsuccessful firms exit the market, concentration occurs, and firms that utilise efficient techniques increase their profitability. The Chicago school argues that it is inappropriate for the government to penalise firms that use efficient production techniques through regulation (Dilek, 2020: 538-539; İnançlı et al., 2020: 143).

Subsequently, while the Harvard and Chicago schools have differing views on market structure and concentration, the economic significance of market concentration is widely acknowledged. Various methods are employed to measure market concentration, including N-firm Concentration Ratios, the Herfindahl-Hirschman Index, the Gini Coefficient, the Hannah and Kay Index, and the Entropy Index (Dilek, 2018: 55-58; OECD, 2018).

N-Firm Concentration Ratios: These ratios focus on the cumulative market share of the top N firms that lead in sales, production, or other key activities within a market. The most commonly used ratios are CR4 (four-firm concentration ratio) and CR8 (eight-firm concentration ratio). A high concentration ratio indicates that a small number of firms dominate the market. The formula for calculating these ratios is as follows (Ildırar & Kıral, 2018: 97-98):

$$CR_N = \sum_{i=1}^{N} S_i = S_1 + S_2 + \cdots \ldots S_N \quad (1)$$

Where CR_N represents the N-firm concentration ratio, and S_i denotes the market share of the i'th firm. For CR4 values, a score below 0.3 indicates low concentration, while a score between 0.3 and 0.5 is interpreted as moderate concentration. CR4 values above 0.5 suggest high concentration, indicating that competition is undesirable. Moreover, CR4 values exceeding 0.7 signal that the market is approaching a monopolistic structure (Sarıdoğan, 2021: 70; Yaşar et al., 2023: 26). The CR_N approach, which focuses on the top 4 or 8 firms, has been criticised for ignoring the rest of the market (Dilek & Konak, 2022: 6).

Herfindahl-Hirschman Index: The HHI is the sum of the squares of the market shares of all firms in the market. It is considered more advantageous than the N-firm concentration ratio because it accounts for the market shares of all firms. However, firms with less than 1% market share are typically excluded. The formula is as follows:

$$HHI = \sum_{i=1}^{N} S_i^2 = S_1^2 + S_2^2 + \cdots \ldots S_N^2 \quad (2)$$

Where S_i represents the market share of firm i, and N is the total number of firms in the market. An HHI below 1000 indicates a market close to perfect competition, whereas an HHI between 1000 and 1800 suggests a monopolistic competition market. Also, an HHI above 1800 signifies an oligopolistic market. In the extreme case of a monopoly, where a single firm holds 100% of the market share, the HHI would be 10,000 (Dilek, 2018: 57). Various studies on concentration ratios across different markets also exist in the literature (Tatlı, 2018: 64-84; Yaşar & Dilek, 2023; Simbanegavi et al., 2015). The HHI index measures market concentration by considering the market shares of all firms and the inequalities in those shares, making it a more accurate and effective measure than the concentration ratio (Kostakoğlu, 2015: 133).

Entropi Index (EI): The Entropy Index is a measure that accounts for the market shares of all firms, including those with very low market shares (below 1%). The formula is as follows:

$$EI = \sum_{i=1}^{n} S_i log \frac{1}{S_i} \quad (3)$$

Where S_i represents the market share of firm i, and n is the total number of firms in the market. The EI values range from 0 to Log_n. If the EI value is zero, it indicates a monopoly, where one firm controls the entire market. Conversely, if the EI value equals

Log_n, it suggests a perfectly competitive market with many firms of equal size (Dilek, 2018: 58; Ildırar & Kıral, 2018: 101). Compared to the HHI, EI is more sensitive to the relative sizes of firms. (Kostakoğlu, 2015: 133).

In this study, the competition within the light commercial vehicle segment has also been evaluated from a strategic management perspective. Strategic management is a critical element that enables organisations to achieve their goals and secure a competitive advantage. At the firm or national level, organisations systematically combine human and material resources to achieve specific objectives. These structures have a broad impact range, from managing internal operations at the firm level to contributing to the national economy (Bayighomog-Likoum et al., 2020; Matthyssens et al., 2005: 547). This process systematically analyses internal and external factors to capitalise on opportunities and mitigate risks. For instance, the degree of market concentration in a sector where a few firms dominate production and pricing can have significant economic implications both at the micro level (firm) and macro level (national economy) (Kaynak & Ari, 2011: 39-58).

4. Methodology

The data for this study were obtained from the Turkish Automotive Distributors and Mobility Association (ODMD) website (ODMD, 2024). The concentration ratios within the light commercial vehicle segment were analysed using these reports. The analysis did not distinguish between imported and domestic light commercial vehicles due to the high substitutability between domestic and imported cars. The ODMD website provides annual data starting from 2004. The concentration ratios for four and eight firms (CR4 and CR8), the Herfindahl-Hirschman Index (HHI), and entropy indices were calculated using these annual data.

5. Findings

The automotive industry in Türkiye has made significant advancements and has become the country's leading export sector (TUIK, 2024a). However, a large proportion of the vehicles sold in Türkiye are imported. In 2023, 32.18% of the automobiles and 46.19% of the light commercial vehicles sold in Türkiye were domestically produced (ODMD, 2024). The overall landscape of the automobile and light commercial vehicle segments is presented in Table 1.

Table: 1
Total Sales in the Turkish Automotive Market by Year

Year	Automobile	LCV	Total
2004	451,209	236,561	687,770
2005	438,597	285,257	723,854
2006	373,219	249,122	622,341
2007	357,465	237,297	594,762
2008	305,998	188,025	494,023
2009	369,819	187,307	557,126
2010	509,784	251,129	760,913
2011	593,519	270,920	864,439
2012	556,280	221,481	777,761
2013	664,655	188,723	853,378
2014	587,331	180,350	767,681
2015	725,596	242,421	968,017
2016	756,938	226,782	983,720
2017	722,759	233,435	956,194
2018	486,321	134,616	620,937
2019	387,256	91,804	479,060
2020	610,109	162,679	772,788
2021	561,853	175,497	737,350
2022	592,660	190,623	783,283
2023	967,341	265,294	1,232,635

Reference: ODMB, 2024.

As seen in Table 1, automobile sales dominate the market. Over the past 20 years, the average annual automobile sales in Türkiye have been 550,935, while the average yearly sales of light commercial vehicles have been 210,966. These figures highlight the significant size of the Turkish market. The lowest automobile sales occurred in 2008, with only 305,998 units sold, while the weakest sales for light commercial vehicles were recorded in 2019, with just 91,804 units sold. 2008 and 2019 stand out as years when sales were below the 20-year average. In 2023, automobile sales nearly reached 1 million units, totalling 967,341. This surge is believed to be driven by interest rates significantly lower than the inflation rate in 2023. In the light commercial vehicle segment, the highest sales were recorded in 2005, with 285,257 units. Automobile sales exceeded 500,000 units for the first time in 2010, and except for two years (2018 and 2019), they remained above this threshold thereafter. In the light commercial vehicle segment, sales did not fall below 160,000 units, except in 2018 and 2019. Table 2 presents the concentration ratios for the light commercial vehicle sector.

Table: 2
Concentration Analysis of the Light Commercial Vehicle Market

Year	CR_4	CR_8	HHI	EI
2004	65,72	88,99	1422,687	0,8495
2005	64,26	84,99	1342,734	1,0284
2006	66,38	84,33	1395,849	1,0268
2007	67,64	82,36	1459,43	1,0209
2008	63,74	81,29	1303,497	1,0611
2009	72,92	86,54	1820,545	0,9459
2010	70,56	89,56	1625,226	0,9543
2011	72,74	90,76	1732,797	0,9271
2012	72,08	91,63	1718,512	0,9205
2013	70,15	90,91	1640,913	0,9364
2014	73,10	89,58	1795,799	0,9110
2015	74,61	90,84	1818,947	0,8985
2016	74,88	89,09	1789,402	0,9187
2017	74,76	89,34	1826,143	0,9088
2018	71,36	87,40	1700,775	0,9381
2019	71,86	88,27	1841,741	0,9267
2020	79,28	91,53	2476,580	0,8094
2021	71,81	86,74	1859,680	0,9159
2022	72,55	89,98	2037,816	0,8779
2023	67,07	90,41	1651,176	0,9269

Reference: Calculated by the authors based on data from ODMB, 2024.

Table 2 displays the concentration metrics, such as the CR4 and CR8 ratios, Herfindahl-Hirschman Index (HHI), and entropy indices for the light commercial vehicle market over the 2004-2023 period. Due to fewer firms in this segment, the CR4 and CR8 values are notably high. The average CR4 for the period was 70.84, while the average CR8 was 88.23, indicating that a large proportion of production/sales in the light commercial vehicle segment is controlled by a few firms. The HHI values remained above 1000 throughout the entire period. In 2004, 2005, 2006, 2007, 2008, 2010, 2011, 2012, 2013, 2014, 2016, 2018, and 2023, the HHI index ranged between 1000 and 1800, characteristic of a monopolistic competition market. However, in 2009, 2015, 2017, 2019, 2020, 2021, and 2022, the HHI exceeded 1800, indicating an oligopolistic market. Notably, in 2020 and 2022, the HHI surpassed 2000. The entropy index was also mostly below 1. To understand which firms contribute to the concentration in the light commercial vehicle segment, as indicated by the concentration ratios in Table 2, it is essential to examine Table 3.

Table: 3
Top 8 Brands by Sales in the Light Commercial Vehicle Market

Year	Top 8 Brands by Sales
2004	1. Ford (26,91%), 2. Fiat (15,66%), 3. Renault (11,90%), 4. Volkswagen (11,25%), 5. Hyundai (10,26%), 6. Peugeot (7,76%), 7. Mercedes (2,86%), 8. Kia (2,39%)
2005	1. Ford (26,26%), 2. Fiat (15,50%), 3. Volkswagen (11,48%), 4. Renault (11,02%), 5. Hyundai (9,49%), 6. Peugeot (5,48%), 7. Opel (3,20%), 8. Mitsubishi (2,56%)
2006	1. Ford (27,50%), 2. Fiat (15,91%), 3. Volkswagen (12,69%), 4. Renault (10,28%), 5. Hyundai (7,81%), 6. Peugeot (4,18%), 7. Mitsubishi (3,24%), 8. Opel (2,72%)
2007	1. Ford (29,04%), 2. Fiat (17,09%), 3. Volkswagen (11,90%), 4. Renault (9,60%), 5. Hyundai (5,21%), 6. Mitsubishi (4,02%), 7. Peugeot (3,10%), 8. İsuzu (2,40%)
2008	1. Ford (25,62%), 2. Fiat (18,32%), 3. Volkswagen (10,18%), 4. Renault (9,62%), 5. Peugeot (5,52%), 6. Mitsubishi (5,36%), 7. Citroen (3,56%), 8. İsuzu (3,10%)
2009	1. Ford (29,48%), 2. Fiat (27,37%), 3. Peugeot (8,89%), 4. Renault (7,18%), 5. Volkswagen (5,66%), 6. Citroen (3,66%), 7. Mitsubishi (2,21%), 8. Dacia (2,09%)
2010	1. Fiat (25,77%), 2. Ford (25,45%), 3. Peugeot (9,77%), 4. Volkswagen (9,57%), 5. Renault (7,61%), 6. Citroen (6,93%), 7. Dacia (2,36%), 8. Mercedes (2,10%)
2011	1. Ford (27,49%), 2. Fiat (26,25%), 3. Volkswagen (9,73%), 4. Renault (9,27%), 5. Peugeot (7,17%), 6. Citroen (5,89%), 7. Mercedes (3,10%), 8. Mitsubishi (1,86%)
2012	1. Ford (26,70%), 2. Fiat (26,25%), 3. Volkswagen (11,76%), 4. Renault (7,37%), 5. Citroen (7,15%), 6. Peugeot (6,79%), 7. Mercedes (4,17%), 8. Mitsubishi (1,44%)
2013	1. Ford (26,36%), 2. Fiat (25,08%), 3. Volkswagen (12,59%), 4. Renault (6,12%), 5. Peugeot (5,81%), 6. Mercedes (5,52%), 7. Citroen (5,46%), 8. Dacia (3,97%)
2014	1. Fiat (27,49%), 2. Ford (27,47%), 3. Volkswagen (13,31%), 4. Renault (4,83%), 5. Mercedes (4,45%), 6. Citroen (4,45%), 7. Peugeot (3,94%), 8. Dacia (3,64%)
2015	1. Ford (29,48%), 2. Fiat (25,63%), 3. Volkswagen (13,05%), 4. Renault (6,44%), 5. Citroen (4,85%), 6. Peugeot (4,78%), 7. Mercedes (3,49%), 8. Dacia (3,12%)
2016	1. Ford (30,09%), 2. Fiat (23,69%), 3. Volkswagen (14,45%), 4. Renault (6,65%), 5. Peugeot (4,46%), 6. Citroen (3,69%), 7. Mercedes (3,57%), 8. Toyota (2,49%)
2017	1. Ford (30,51%), 2. Fiat (25,14%), 3. Volkswagen (11,91%), 4. Renault (7,21%), 5. Peugeot (4,50%), 6. Mercedes (3,86%), 7. Citroen (3,44%), 8. Dacia (2,77%)
2018	1. Ford (30,96%), 2. Fiat (21,09%), 3. Volkswagen (12,69%), 4. Renault (6,62%), 5. Mercedes (5,94%), 6. Peugeot (3,90%), 7. Citroen (3,44%), 8. Dacia (2,77%)
2019	1. Ford (34,21%), 2. Fiat (20,79%), 3. Volkswagen (10,54%), 4. Peugeot (6,32%), 5. Mercedes (5,53%), 6. Renault (4,69%), 7. Citroen (3,49%), 8. Dacia (2,69%)
2020	1. Ford (39,89%), 2. Fiat (27,64%), 3. Volkswagen (7,40%), 4. Peugeot (4,35%), 5. Citroen (3,21%), 6. Mercedes (3,18%), 7. Dacia (3,01%), 8. Mitsubishi (2,85%)
2021	1. Ford (30,32%), 2. Fiat (27,45%), 3. Volkswagen (8,36%), 4. Peugeot (5,68%), 5. Dacia (4,10%), 6. Toyota (3,81%), 7. Citroen (3,54%), 8. Mercedes (3,48%)
2022	1. Ford (34,69%), 2. Fiat (25,75%), 3. Toyota (6,11%), 4. Renault (6%), 5. Volkswagen (5,58%), 6. Peugeot (4,89%), 7. Citroen (3,63%), 8. Opel (3,33%)
2023	1. Ford (26,93%), 2. Fiat (25,74%), 3. Peugeot (7,57%), 4. Renault (6,84%), 5. Citroen (6,69%), 6. Volkswagen (6,67%), 7. Toyota (5,15%), 8. Opel (4,83%)

Reference: ODMB, 2024.

Throughout the period, Ford and Fiat consistently held the top two positions in market share. Fiat's increased market share since 2009 explains the sharp rise in concentration ratios after that year. The brands occupying the subsequent positions have varied each year.

6. A Strategic Perspective on Competition in the Light Commercial Vehicle Segment

Strategic management requires analysing internal and external environments to sustain competitive advantage and to develop core competencies that shape future competitive positions (Barney, 1991; Prahalad & Hamel, 1990). Drucker (1954: 98) stresses the formulation, implementation, and control of broad plans aimed at achieving organisational objectives, and Rumelt (2012: 170) emphasises the importance of addressing the key issues that shape an organisation's long-term direction. The strategies should be

continuously evaluated and adjusted based on internal and external environments (Aaker, 1992: 299).

The traditional, rigid "Taylorist work organisation" and "Fordist mass production technology" are becoming increasingly difficult to maintain in today's global markets. The application of microelectronic technology in production has led to the emergence of entirely new "flexible production systems" (Göral, 2009: 8). Strategic plans should not only ensure long-term competitiveness but also maintain the firm's flexibility, which allows firms to renew their products, structure, and processes and adapt to changing market conditions (Şağbanşua, 2006: 1-14). In this context, strategic flexibility becomes prominent, and an organisation's ability to be proactive and responsive to changing business conditions through various internal and external options enhances innovation and improves performance (Sanchez, 1995: 135-159).

Strategic flexibility becomes necessary in concentrated markets, such as Türkiye's LCV segment, where high CR4, CR8, and HHI values indicate an oligopolistic structure. Firms in such environments must adapt to significant external shifts like technological advancements, regulatory changes, and economic fluctuations (Lin et al., 2018: 997-1007; Sugiharti et al., 2023: 49-62). Therefore, being flexible is critical for organisational competency since it strengthens the adaptability of companies against uncertainty and rapid and significant environmental changes (Awais et al., 2023: 1-17).

Beraha et al. (2018: 129-140) emphasise that strategic flexibility encompasses production, marketing, and human resource flexibility. Sanchez (1995: 135-195) divides strategic flexibility into two dimensions: resource flexibility, which refers to the adaptability of organisational resources, and coordination flexibility, which involves the effective management and utilisation of these resources. Furthermore, flexibility in planning refers to the capacity to adjust an organisation's strategic plan or approach in response to new opportunities or threats caused by environmental changes (Barringer & Bluedorn, 1999: 421-444; Dibrell et al., 2014: 2000-2007), and flexibility in resources, processes, and strategic options (Pauwels & Matthyssens, 2004: 496-510) are also recognised as critical aspects of strategic flexibility.

In the automotive sector, Hoeft (2022: 1728-1740) asserts that strategic flexibility takes place in production, processes, and customer dimensions. For instance, China's Nio is building its factory, where its next model will be assembled, and preparing to export to Europe, demonstrating production flexibility. Similarly, automakers like Ford and General Motors (GM) have turned to in-house software development instead of outsourcing, showing process flexibility. Furthermore, GM is experimenting with a marketing strategy with customer flexibility through its new car ownership method, allowing customers to switch between different models multiple times a year (Teece, 2018: 501-512). In this line, the mentioned dimensions of strategic flexibility (production, process, customer) are crucial for the companies participating in Türkiye's highly concentrated LCV market.

Subsequently, strategic flexibility allows firms to respond quickly to technological advancements, regulatory changes, and economic fluctuations, which can characterise the market, such as the transition to electric LCVs or the impact of a global pandemic. The CR4, CR8, and HHI analyses indicated high concentration levels in the Turkish LCV market. The market structure requires existing firms to adapt to frequent changes to sustain their competitive edge continually. The same applies to firms seeking to enter this highly concentrated market, as entry barriers are substantial. Therefore, developing capabilities for strategic flexibility by considering its wide range of dimensions, particularly production, process, and customer flexibility in the Turkish LCV market, is not just a theoretical but also a practical necessity.

7. Discussion and Conclusion

This study analysed the competition within Türkiye's LCV market from a strategic management perspective. The research utilised concentration measures such as CR4, CR8, the Herfindahl-Hirschman Index (HHI), and entropy indices to evaluate the intensity of competition within the market. The findings suggest that the Turkish LCV market is highly concentrated, as indicated by consistently high HHI and CR values over the study period from 2004 to 2023. The high concentration shows that the LCV market in Türkiye exhibits oligopoly characteristics, with high barriers to entry, rapidly changing external conditions and limited players that dominate and shape the competitive behaviour (Porter, 1998: 237-253).

The findings are consistent with previous studies, such as Kaynak & Ari (2011: 39-58), which concluded that there was a high concentration in the LCV market from 2003 to 2010, dominated by Ford and Fiat. Similarly, Ildırar & Kıral (2018: 93-117) reported a higher concentration in the LCV segment than in the passenger car segment. This study extends previous findings by demonstrating that the high concentration has persisted until 2023, with CR4, CR8, and HHI values. Furthermore, İğdeli (2021: 305-320) concluded that the automobile market had a significant reduction in concentration, a weak oligopoly structure according to CR4 values, and HHI indicated monopolistic competition. On the other hand, this study focuses on the LCV segment. It concludes that the LCV market remains consistently concentrated at oligopolistic levels, and no significant reduction is observed in the market concentration, as demonstrated in Table 2. This contrast between the passenger car and LCV segments reflects that the LCV market operates under higher concentration levels, supporting Kayakuş et al. (2023: 100-112), who considered the two segments separate markets.

From a strategic management standpoint, the study underscores the importance of strategic flexibility for firms operating in concentrated markets. In today's rapidly changing business environment, where technological innovations, regulatory changes, and global events can disrupt traditional market dynamics, firms must be able to adapt quickly to maintain competitiveness. Strategic flexibility encompasses various dimensions, particularly production, process, and customer expectations, which require flexible resource

allocation, technological adaptation, and marketing strategies. The research also emphasises barriers to entry in the LCV market in Türkiye, making it difficult for new firms to enter and compete effectively against well-established players like Ford and Fiat. On the other side, the concentrated nature of the market presents both opportunities and threats for the existing firms. As an opportunity, the existing firms can strengthen their market power to achieve higher profit margins and establish strong brand loyalty. However, it also exposes a threat that failure to innovate and continuously diversify their offerings will result in more agile competitors outperforming them. In this case, the transition to electric vehicles, the continuous rise of e-commerce, and the increasing emphasis on sustainability bring both opportunities and threats as the key external factors that require flexibility in the Turkish LCV market. Therefore, the firms participating in this market should shape their strategies by focusing on the key external factors, including the incorporation of production lines and supply chains, optimisation of costs, product differentiation, and attractive customer solutions for the following years.

In conclusion, this study reveals that the Turkish LCV market remains highly concentrated, with Ford and Fiat maintaining their dominant positions. The market's oligopolistic structure, characterised by high barriers to entry and limited competition, offers both opportunities and threats for the firms. The market structure requires strategic flexibility in resource allocation, technological innovation, and customer engagement to sustain competitiveness, especially with the growing emphasis on electric vehicles and e-commerce.

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