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# Evaluation of Investment Performance of Central Anatolian Provinces Using the TOPSIS Method

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***Abstract***
*This study aims to evaluate the investment attractiveness of provinces in the Central Anatolia Region of Türkiye using the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), one of the most widely applied multi-criteria decision-making (MCDM) methods. In order to reflect the multidimensional structure of regional economic development, six key indicators were selected: population, housing sales, export value, motor vehicle ownership, gross domestic product (GDP), and agricultural production. These variables collectively represent both urban-industrial and rural-agricultural dimensions of regional performance, enabling a more comprehensive assessment of investment potential.*
*The analysis reveals that Ankara ranks as the most attractive province for investment, owing to its strong administrative capacity, industrial concentration, and advanced service sector structure. Konya and Kayseri emerge as secondary investment hubs, supported by a balanced combination of industrial productivity and substantial agricultural output. In contrast, provinces such as Kırşehir and Kırıkkale exhibit lower investment attractiveness due to their relatively limited economic scale and weaker performance across multiple criteria.*
*A major contribution of this study lies in the inclusion of agricultural production as a decision criterion, which significantly improves the explanatory power and realism of the evaluation model. The findings suggest that incorporating agricultural performance reduces the excessive dominance of metropolitan provinces and generates a more balanced and policy-relevant regional ranking structure. This emphasizes the necessity of integrating both industrial and agricultural indicators into regional investment planning and development strategies.*
*The results provide practical implications for policymakers, regional planners, and private investors by offering a systematic, transparent, and data-driven framework for investment location prioritization across provinces.*

***Keywords:*** *TOPSIS, multi-criteria decision making, investment analysis, regional development*

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## I. Introduction

Investment location selection is one of the most critical strategic decisions affecting both private investors and public policymakers in regional economic development. The selection of an appropriate investment location directly influences production efficiency, logistics costs, labor accessibility, market opportunities, and long-term sustainability of economic activities (Porter, 1998). Especially in developing economies such as Türkiye, regional investment decisions play a crucial role in reducing interregional disparities and promoting balanced economic growth.

Regional competitiveness is shaped by multiple demographic, economic, industrial, and agricultural factors. Traditional investment location studies often focus primarily on urban and industrial indicators such as gross domestic product (GDP), export capacity, infrastructure development, and population density (Krugman, 1991). However, in regions where agriculture remains an essential component of the local economy, agricultural production should also be considered as a significant determinant of investment attractiveness. Ignoring agricultural productivity may lead to incomplete assessments, particularly in regions such as Central Anatolia where agricultural activities contribute substantially to provincial economic performance.

The Central Anatolia Region of Türkiye represents one of the country's most strategically important economic zones due to its geographical location, industrial production capacity, transportation networks, and extensive agricultural lands. Provinces such as Ankara, Konya, and Kayseri function as major economic centers, while smaller provinces maintain strong agricultural production and regional trade potential. Therefore, evaluating investment attractiveness in this region requires a multidimensional framework that integrates both urban-industrial and rural-agricultural indicators.

Multi-Criteria Decision-Making (MCDM) methods have been widely used in regional investment analysis because investment decisions inherently involve multiple conflicting criteria. Among these methods, the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), developed by Hwang and Yoon (1981), is one of the most commonly applied approaches due to its simplicity, computational efficiency, and strong theoretical foundation. TOPSIS enables decision-makers to rank alternatives by measuring their relative closeness to the ideal solution and distance from the negative ideal solution. Previous studies have successfully applied TOPSIS in areas such as supplier selection, financial performance evaluation, energy planning, logistics optimization, and regional development assessment (Chen & Hwang, 1992; Bhutia & Phipon, 2012).

In Türkiye, several studies have investigated provincial competitiveness and investment attractiveness using MCDM techniques. However, most of these studies mainly emphasize industrial and financial indicators while giving limited attention to agricultural production. This creates an important research gap, particularly for regions like Central Anatolia where agricultural output constitutes a substantial share of regional economic structure. Incorporating agricultural production into investment location analysis may generate more realistic and policy-relevant results.

Agriculture has historically been one of the fundamental pillars of the Turkish economy, not only ensuring food security but also contributing significantly to employment and regional development. Despite the ongoing structural transformation toward industrialization, agriculture continues to play a critical role, particularly in regions such as Central Anatolia, where primary production constitutes a substantial share of economic activity (Çakmak & Dudu, 2018; Turkish Statistical Institute (TSI, 2023).

In parallel with regional development policies, a growing body of literature has focused on evaluating provincial competitiveness and investment attractiveness in Türkiye using multi-criteria decision-making (MCDM) techniques. These methods, including Analytic Hierarchy Process (AHP), Technique for Order Preference by Similarity to Ideal Solution, and VIKOR, have been widely applied due to their ability to integrate multiple and often conflicting criteria into a unified decision framework. For example, provincial development levels have been assessed using hybrid MCDM approaches that emphasize economic growth, industrial capacity, infrastructure, and financial indicators (Yorulmaz et al., 2021). Similarly, logistics center location selection and regional investment planning studies have relied heavily on trade volume, accessibility, and industrial clustering variables (Paçacı et al., 2026).

Moreover, MCDM techniques have been extensively employed in energy investment planning in Türkiye, where criteria such as cost efficiency, environmental sustainability, and technological feasibility are prioritized (Büyüközkan & Güleryüz, 2017). While these studies provide valuable insights into strategic decision-making processes, they predominantly reflect industrial and financial dimensions of development.

However, the role of agricultural production has received comparatively limited attention within this framework. This omission represents a significant research gap, particularly in regions where agriculture remains a dominant economic sector. Ignoring agricultural indicators may lead to incomplete or biased assessments of regional investment potential, especially in agrarian economies where productivity, land use, and crop diversity directly influence economic performance (Çakmak & Dudu, 2018).

The main objective of this study is to evaluate the investment attractiveness of provinces in the Central Anatolia Region using the TOPSIS method based on six criteria: population, housing sales, export value, motor vehicle ownership, GDP, and agricultural production. Unlike many previous studies, this research explicitly integrates agricultural production into the decision-making framework to provide a more comprehensive assessment of regional investment potential. The study aims to identify the most attractive provinces for investment and to examine how agricultural productivity influences provincial rankings.

The findings are expected to provide practical implications for policymakers, regional planners, and private investors by offering a systematic and data-driven framework for regional investment prioritization. In addition, the study contributes to the literature by demonstrating the importance of combining industrial and agricultural indicators within a single multi-criteria decision-making model for regional development analysis.

## II. Materials and Methods

### Study Area and Data Source

This study focuses on the provinces of the Central Anatolia Region of Türkiye, which is one of the country's most important economic and agricultural regions. The region includes thirteen provinces: Aksaray, Ankara, Çankırı, Eskişehir, Karaman, Kayseri, Kırıkkale, Kırşehir, Konya, Nevşehir, Niğde, Sivas, and Yozgat. These provinces differ considerably in terms of demographic structure, industrial capacity, export performance, and agricultural productivity, making the region suitable for comparative investment location analysis.

The data used in this study were obtained from the Turkish Statistical Institute (TSI) for the year 2024. Official provincial statistics were collected from the TSI regional indicators database (https://biruni.tuik.gov.tr/ilgosterge/?locale=tr) and the foreign trade statistics database (https://bi.tuik.gov.tr/extensions/tuik-mashup/index.html#/report). The use of official statistical data ensures

consistency, reliability, and comparability across provinces.

**Selection of Criteria**

Investment attractiveness was evaluated using six key indicators that reflect both urban-industrial and rural-agricultural dimensions of regional development:

1. Population
2. Housing sales
3. Export value (USD)
4. Motor vehicle ownership
5. Gross Domestic Product (GDP)
6. Agricultural production (tons)

Population reflects labor force availability and market size, while housing sales indicate urban economic activity and construction sector vitality. Export value represents industrial competitiveness and external market integration. Motor vehicle ownership serves as an indirect indicator of economic development and transportation infrastructure. GDP reflects the overall economic strength of each province. Agricultural production was included to capture rural productivity and agro-economic potential, which is particularly important in the Central Anatolia Region.

Unlike many previous studies that focus mainly on industrial indicators, this study incorporates agricultural production to provide a more comprehensive and realistic assessment of regional investment potential.

**Methodological Framework**

The Technique for Order Preference by Similarity to Ideal Solution (TOPSIS), one of the most widely used Multi-Criteria Decision-Making (MCDM) methods, was employed to rank provinces according to investment attractiveness. TOPSIS was originally developed by Hwang and Yoon (1981) and is based on the principle that the best alternative should have the shortest distance from the positive ideal solution and the farthest distance from the negative ideal solution.

The TOPSIS concept allows for the search for the best options for each criterion, which is expressed in a simple mathematical form. Furthermore, importance weights are included in the comparison procedures (Zeleny, 1982). The TOPSIS process is carried out using the following steps (Bhutia and Phipon, 2012). To obtain efficiency and productivity scores according to the TOPSIS method, the following steps are followed (Ustasüleyman, 2009).

**Step 1: Construction of the Decision Matrix**

The initial decision matrix (A) consists of m alternatives (provinces) and n criteria (evaluation indicators), expressed as:

$A = [a_{ij}]$

where

$i = 1, 2, \ldots, m$

$j = 1, 2, \ldots, n$

In this study, m = 13 provinces and n = 6 criteria.

**Step 2: Normalization of the Decision Matrix**

To eliminate the effects of different measurement units and ensure comparability among criteria, vector normalization was applied using the following equation:

$$r_{ij} = \frac{a_{ij}}{\sqrt{\sum_{i=1}^{m} a_{ij}^2}}$$

where $r_{ij}$ represents the normalized value of criterion j for alternative i.

**Step 3: Construction of the Weighted Normalized Matrix**

Since all criteria were considered equally important for investment evaluation, equal weights were assigned to each criterion:

$$w_j = \frac{1}{6}$$

The weighted normalized matrix (V) was obtained as:

$$v_{ij} = w_j \times r_{ij}$$

This approach ensures an unbiased evaluation without prioritizing any single criterion.

**Step 4: Determination of Positive and Negative Ideal Solutions**
Since all criteria were treated as benefit criteria, the positive ideal solution ($A^+$) consists of the maximum values, while the negative ideal solution ($A^-$) consists of the minimum values for each criterion:

$$A^+ = \{max\ (v_{ij})\}$$
$$A^- = \{min\ (v_{ij})\}$$

The positive ideal solution represents the theoretically best investment alternative, whereas the negative ideal solution represents the worst-case scenario.

**Step 5: Calculation of Separation Measures**
The Euclidean distances of each province from the positive ideal and negative ideal solutions were calculated as follows:

$$S_i^+ = \sqrt{\sum_{j=1}^{n} (v_{ij} - A_j^+)^2}$$
$$S_i^- = \sqrt{\sum_{j=1}^{n} (v_{ij} - A_j^-)^2}$$

where $S_i^+$ indicates the distance from the ideal solution and $S_i^-$ indicates the distance from the negative ideal solution.

**Step 6: Calculation of Relative Closeness Coefficient**
The final investment performance score for each province was calculated using the relative closeness coefficient:

$$C_i^* = \frac{S_i^-}{S_i^+ + S_i^-}$$

where

$$0 \leq C_i^* \leq 1$$

A higher $C_i^*$ value indicates stronger investment attractiveness and higher regional competitiveness.

**Data Analysis**
All TOPSIS calculations, including normalization, weighting, distance measurement, and final ranking, were performed using Microsoft Excel software. The final ranking of provinces was obtained according to the closeness coefficient values, allowing the identification of the most suitable investment locations in the Central Anatolia Region.
This methodological framework provides a transparent, systematic, and data-driven approach for regional investment evaluation and offers practical implications for both policymakers and private investors.

## III. Results and Discussion

The investment attractiveness of provinces located in the Central Anatolia Region of Türkiye was evaluated using the TOPSIS method based on six equally weighted criteria: population, housing sales, export value, motor vehicle ownership, gross domestic product (GDP), and agricultural production. Since all criteria were considered benefit-type variables, higher values indicate stronger investment potential.

The decision matrix constructed from the 2024 dataset obtained from the Turkish Statistical Institute (TSI) showed substantial variation among provinces in terms of demographic and economic capacity. Particularly, Ankara, Konya, Kayseri, and Eskişehir demonstrated considerably higher values across multiple indicators compared to smaller provinces such as Kırşehir, Kırıkkale, and Çankırı. The decision matrix is given in Table 1.

**Table 1.** Decision matrix

| Provinces | Population | Housing sales | Exports (USD) | Number of vehicles | GDP (1000 TR) | Agriculture (tons) |
|---|---|---|---|---|---|---|
| Aksaray | 439474 | 11516 | 985065 | 168296 | 178948 | 5249280 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Ankara | 5864049 | 135395 | 11033608 | 2783571 | 4672844 | 3410891 |
| Çankırı | 199981 | 2754 | 880261 | 69400 | 87488 | 570835 |
| Eskişehir | 921630 | 22741 | 4056930 | 366049 | 491228 | 3595763 |
| Karaman | 262791 | 4001 | 616189 | 111930 | 124666 | 2447522 |
| Kayseri | 1452458 | 34439 | 3635412 | 484322 | 618478 | 4791065 |
| Kırıkkale | 283053 | 7021 | 274974 | 80943 | 124762 | 548471 |
| Kırşehir | 244546 | 5182 | 328403 | 83991 | 85772 | 1051259 |
| Konya | 2330024 | 40430 | 3944148 | 928837 | 951585 | 17330093 |
| Nevşehir | 317952 | 5190 | 115541 | 160819 | 120488 | 1643374 |
| Niğde | 372708 | 6416 | 260732 | 139846 | 137941 | 2278080 |
| Sivas | 637007 | 8624 | 272879 | 201888 | 227042 | 3279263 |
| Yozgat | 413161 | 7238 | 146944 | 128999 | 127945 | 2691942 |

Table 1 presents the decision matrix used in the analysis, including six key indicators: population, housing sales, exports, number of vehicles, gross domestic product (GDP), and agricultural production for selected provinces in Türkiye. These variables collectively represent demographic size, economic activity, market dynamism, and agricultural capacity, thereby providing a multidimensional basis for evaluating investment attractiveness.

A preliminary examination of the data reveals substantial variation across provinces. For instance, Ankara stands out with the highest values in population, exports, number of vehicles, and GDP, reflecting its dominant economic and administrative role. Similarly, Konya exhibits exceptionally high agricultural production, indicating its strong agrarian structure and significant contribution to national agricultural output.

In contrast, provinces such as Çankırı and Kırıkkale display relatively lower values across most indicators, suggesting more limited economic scale and investment capacity. Meanwhile, provinces like Kayseri and Eskişehir present a more balanced structure, with moderate-to-high values across both industrial and economic indicators.

The normalization process of the decision matrix is shown in Table 2.

Table 2. Normalization of the Decision Matrix

| **Provinces** | **Population** | **Housing sales** | **Exports** | **Number of vehicles** | **GDP** | **Agriculture** |
|---|---|---|---|---|---|---|
| Aksaray | 193137396676 | 132618256 | 970352232935 | 28323543616 | 32022428220 | 27554940518400 |
| Ankara | 34387070674401 | 18331806025 | 121740496188392 | 7748267512041 | 21835471562349 | 11634177413881 |
| Çankırı | 39992400361 | 7584516 | 774860301627 | 4816360000 | 7654154693 | 325852597225 |
| Eskişehir | 849401856900 | 517153081 | 16458683186181 | 133991870401 | 241304949949 | 12929511552169 |
| Karaman | 69059109681 | 16008001 | 379688799853 | 12528324900 | 15541556454 | 5990363940484 |
| Kayseri | 2109634241764 | 1186044721 | 13216218791959 | 234567799684 | 382514627052 | 22954303834225 |
| Kırıkkale | 80119000809 | 49294441 | 75610911028 | 6551769249 | 15565558890 | 300820437841 |
| Kırşehir | 59802746116 | 26853124 | 107848712828 | 7054488081 | 7356770111 | 1105145485081 |
| Konya | 5429011840576 | 1634584900 | 15556299561432 | 862738172569 | 905514301507 | 300332123388649 |
| Nevşehir | 101093474304 | 26936100 | 13349786425 | 25862750761 | 14517306816 | 2700678103876 |
| Niğde | 138911253264 | 41165056 | 67981314925 | 19556903716 | 19027779899 | 5189648486400 |
| Sivas | 405777918049 | 74373376 | 74462787150 | 40758764544 | 51548202357 | 10753565823169 |
| Yozgat | 170702011921 | 52388644 | 21592611819 | 16640742001 | 16369967038 | 7246551731364 |
| $\sqrt{\sum_{i=1}^{n} a_{ij}^2}$ | **6635790.377** | **148649.9588** | **13017582.16** | **3023517.654** | **4852258.151** | **20224185.6** |

Table 2 presents the normalized decision matrix obtained using vector normalization, a widely applied procedure in Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). This normalization process eliminates the scale differences among criteria and enables comparability across provinces with heterogeneous magnitudes.

The normalization procedure is based on the following formulation:

$$r_{ij} = \frac{a_{ij}}{\sqrt{\sum_{i=1}^{n} a_{ij}^2}}$$

where $a_{ij}$ represents the original value of alternative $i$under criterion $j$, and $r_{ij}$denotes the normalized value.

Following normalization, all criteria are transformed into dimensionless values, ensuring that no single indicator dominates the analysis due to its numerical scale. This step is particularly important in the present study, as variables such as population, GDP, and agricultural production differ substantially in magnitude.

A closer examination of the normalized matrix indicates that provinces such as Ankara and Konya maintain relatively strong positions across several criteria even after normalization. However, the dominance observed in the raw data is moderated, allowing other provinces to become more comparable within the decision framework.

The normalized matrix is shown in Table 3.

Table 3. Normalized matrix

| Provinces | Population | Housing sales | Exports | Number of vehicles | GDP | Agriculture |
|---|---|---|---|---|---|---|
| Aksaray | 0.0662 | 0.0775 | 0.0757 | 0.0557 | 0.0369 | 0.2596 |
| Ankara | 0.8837 | 0.9108 | 0.8476 | 0.9206 | 0.9630 | 0.1687 |
| Çankırı | 0.0301 | 0.0185 | 0.0676 | 0.0230 | 0.0180 | 0.0282 |
| Eskişehir | 0.1389 | 0.1530 | 0.3117 | 0.1211 | 0.1012 | 0.1778 |
| Karaman | 0.0396 | 0.0269 | 0.0473 | 0.0370 | 0.0257 | 0.1210 |
| Kayseri | 0.2189 | 0.2317 | 0.2793 | 0.1602 | 0.1275 | 0.2369 |
| Kırıkkale | 0.0427 | 0.0472 | 0.0211 | 0.0268 | 0.0257 | 0.0271 |
| Kırşehir | 0.0369 | 0.0349 | 0.0252 | 0.0278 | 0.0177 | 0.0520 |
| Konya | 0.3511 | 0.2720 | 0.3030 | 0.3072 | 0.1961 | 0.8569 |
| Nevşehir | 0.0479 | 0.0349 | 0.0089 | 0.0532 | 0.0248 | 0.0813 |
| Niğde | 0.0562 | 0.0432 | 0.0200 | 0.0463 | 0.0284 | 0.1126 |
| Sivas | 0.0960 | 0.0580 | 0.0210 | 0.0668 | 0.0468 | 0.1621 |
| Yozgat | 0.0623 | 0.0487 | 0.0113 | 0.0427 | 0.0264 | 0.1331 |

Table 3 presents the normalized decision matrix obtained through vector normalization within the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) framework. The normalization process transforms all criteria into comparable, dimensionless values ranging between 0 and 1, thereby eliminating the influence of differing measurement scales across variables.

The results indicate that Ankara exhibits the highest normalized values in population (0.8837), housing sales (0.9108), number of vehicles (0.9206), and GDP (0.9630), confirming its dominant economic and demographic position. However, its relatively lower value in agricultural production (0.1687) suggests a limited role of agriculture within its economic structure.

In contrast, Konya stands out with an exceptionally high normalized value in agricultural production (0.8569), far exceeding all other provinces. This finding highlights Konya's strong agrarian capacity and suggests that agricultural indicators may significantly influence overall investment attractiveness when incorporated into the evaluation framework.

Provinces such as Kayseri and Eskişehir display relatively balanced performance across most criteria, with moderate-to-high normalized values in both economic and agricultural indicators. This balanced structure may provide a comparative advantage in multi-criteria evaluation models.

On the other hand, provinces including Çankırı, Kırıkkale, and Kırşehir show consistently low normalized values across most indicators, indicating relatively weaker economic and agricultural performance.

**Obtaining the Weighted Normalized Matrix**

The normalized values (Table 3) are multiplied by 1/6 for each column variable to obtain the weighted normalized matrix (Table 4). This is because the importance of the variables selected for investment is equal, and since there are 6 variables, a weighting of 1/6 was used.

Table 4. Weighted normalized matrix

| Provinces | Population | Housing sales | Exports | Number of vehicles | GDP | Agriculture |
|---|---|---|---|---|---|---|
| Aksaray | 0.0110 | 0.0129 | 0.0126 | 0.0093 | 0.0061 | 0.0433 |
| Ankara | 0.1473 | 0.1518 | 0.1413 | 0.1534 | 0.1605 | 0.0281 |
| Çankırı | 0.0050 | 0.0031 | 0.0113 | 0.0038 | 0.0030 | 0.0047 |
| Eskişehir | 0.0231 | 0.0255 | 0.0519 | 0.0202 | 0.0169 | 0.0296 |
| Karaman | 0.0066 | 0.0045 | 0.0079 | 0.0062 | 0.0043 | 0.0202 |
| Kayseri | 0.0365 | 0.0386 | 0.0465 | 0.0267 | 0.0212 | 0.0395 |
| Kırıkkale | 0.0071 | 0.0079 | 0.0035 | 0.0045 | 0.0043 | 0.0045 |
| Kırşehir | 0.0061 | 0.0058 | 0.0042 | 0.0046 | 0.0029 | 0.0087 |
| Konya | 0.0585 | 0.0453 | 0.0505 | 0.0512 | 0.0327 | 0.1428 |
| Nevşehir | 0.0080 | 0.0058 | 0.0015 | 0.0089 | 0.0041 | 0.0135 |
| Niğde | 0.0094 | 0.0072 | 0.0033 | 0.0077 | 0.0047 | 0.0188 |
| Sivas | 0.0160 | 0.0097 | 0.0035 | 0.0111 | 0.0078 | 0.0270 |
| Yozgat | 0.0104 | 0.0081 | 0.0019 | 0.0071 | 0.0044 | 0.0222 |

Table 4 presents the weighted normalized decision matrix obtained by multiplying the normalized values in Table 3 by equal weights (1/6) assigned to each criterion. The use of equal weighting reflects the assumption that all selected indicators population, housing sales, exports, number of vehicles, GDP, and agricultural production contribute equally to the evaluation of investment attractiveness.

Within the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) framework, this step ensures that the relative importance of each criterion is explicitly incorporated into the decision-making process while maintaining neutrality among indicators.

The results show that Ankara retains strong performance across most economic indicators, particularly GDP (0.1605), number of vehicles (0.1534), and housing sales (0.1518), confirming its dominant economic structure. However, its relatively low weighted value in agricultural production (0.0281) indicates that its overall performance may be moderated when agricultural capacity is taken into account.

In contrast, Konya exhibits a remarkably high weighted value in agricultural production (0.1428), significantly exceeding all other provinces. This highlights the strong influence of agricultural production on the overall evaluation and suggests that provinces with high agrarian capacity may gain a competitive advantage when agricultural indicators are incorporated.

Provinces such as Kayseri and Eskişehir demonstrate relatively balanced weighted values across multiple criteria, indicating a diversified economic structure. This balance is expected to positively influence their ranking in subsequent TOPSIS analysis.

**Obtaining Ideal and Negative Ideal Solution Values**

For ideal solution values, the maximum values for each column are considered, while for negative ideal solution values, the minimum values for each column are considered. Ideal solution values are given in Table 5, and negative ideal solution values are given in Table 6.

Table 5. Ideal solution values

| | Population | Housing sales | Exports | Number of vehicles | GDP | Agriculture |
|---|---|---|---|---|---|---|
| **Ideal solution** | 0.1473 | 0.1518 | 0.1413 | 0.1534 | 0.1605 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **values** | | | | | | 0.1428 |

Table 5 presents the positive ideal solution (A*) derived from the weighted normalized decision matrix. In the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) framework, the positive ideal solution represents a hypothetical province that exhibits the best performance across all evaluation criteria.

The positive ideal solution is defined as follows:

$$A^* = (0.1473, 0.1518, 0.1413, 0.1534, 0.1605, 0.1428)$$

Each component of A* corresponds to the maximum weighted normalized value observed among all provinces for each criterion, including population, housing sales, exports, vehicle ownership, GDP, and agricultural production.

The results indicate that the highest economic and demographic performance is associated with Ankara, while the highest agricultural performance is observed in provinces such as Konya. This confirms that the ideal solution is not represented by a single province, but rather a composite benchmark constructed from the best-performing values across all regions.

Table 6. Negative ideal solution values

| | **Population** | **Housing sales** | **Exports** | **Number of vehicles** | **GDP** | **Agriculture** |
|---|---|---|---|---|---|---|
| Negative ideal solution values | 0.005 | 0.0031 | 0.0015 | 0.0038 | 0.0029 | 0.0045 |

Table 6 presents the negative ideal solution ($A^-$), which represents the worst observed performance values among all provinces for each criterion within the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) framework. The negative ideal solution serves as a reference point indicating the least desirable investment conditions.

The negative ideal solution is defined as:

$$A^- = (0.005, 0.0031, 0.0015, 0.0038, 0.0029, 0.0045)$$

Each component corresponds to the minimum weighted normalized value across all provinces for the respective criteria, including population, housing sales, exports, vehicle ownership, GDP, and agricultural production.

The results indicate that provinces such as Çankırı and Kırıkkale are closer to the negative ideal solution in several indicators, reflecting relatively lower levels of economic and agricultural development compared to other provinces. This highlights significant regional disparities within the dataset.

**Calculating Distance Values to Ideal and Non-Ideal Points**

To find ideal distances, the values under each column in the weighted normalized matrix (Table 4) are subtracted from the ideal solution value for that column (from the ideal values given in Table 5). This value is then squared. This creates the table of ideal distances (Table 7).

**Table 7.** Table of Ideal Distances. Squared Deviation Matrix

| **Provinces** | **Population** | **Housing sales** | **Exports** | **Number of vehicles** | **GDP** | **Agriculture** |
|---|---|---|---|---|---|---|
| Aksaray | 0.0186 | 0.0193 | 0.0166 | 0.0208 | 0.0238 | 0.0099 |
| Ankara | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0132 |
| Çankırı | 0.0202 | 0.0221 | 0.0169 | 0.0224 | 0.0248 | 0.0191 |
| Eskişehir | 0.0154 | 0.0160 | 0.0080 | 0.0177 | 0.0206 | 0.0128 |
| Karaman | 0.0198 | 0.0217 | 0.0178 | 0.0217 | 0.0244 | 0.0150 |
| Kayseri | 0.0123 | 0.0128 | 0.0090 | 0.0161 | 0.0194 | 0.0107 |
| Kırıkkale | 0.0197 | 0.0207 | 0.0190 | 0.0222 | 0.0244 | 0.0191 |
| Kırşehir | 0.0199 | 0.0213 | 0.0188 | 0.0221 | 0.0248 | 0.0180 |
| Konya | 0.0079 | 0.0113 | 0.0082 | 0.0104 | 0.0163 | 0.0000 |
| Nevşehir | 0.0194 | 0.0213 | 0.0195 | 0.0209 | 0.0244 | 0.0167 |
| Niğde | 0.0190 | 0.0209 | 0.0190 | 0.0212 | 0.0243 | 0.0154 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Sivas | 0.0172 | 0.0202 | 0.0190 | 0.0202 | 0.0233 | 0.0134 |
| Yozgat | 0.0187 | 0.0206 | 0.0194 | 0.0214 | 0.0244 | 0.0145 |

Table 7 presents the squared deviations between the weighted normalized decision matrix and the positive ideal solution within the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) framework. Each value represents the squared difference between an alternative's performance and the corresponding ideal criterion value.

Mathematically, this step is defined as:

$$\left(v_{ij} - v_j^*\right)^2$$

where $v_{ij}$ is the weighted normalized value and $v_j^*$ is the positive ideal value.

The results indicate that Ankara has zero deviation across all economic and demographic indicators, confirming that it represents the ideal benchmark for these criteria. However, it still exhibits a deviation in agricultural production (0.0132), reflecting its relatively weaker agricultural performance compared to leading agricultural provinces.

In contrast, Konya shows a zero deviation in agricultural production, indicating that it achieves the maximum performance level in this criterion. However, it deviates from the ideal solution in economic and industrial indicators, reflecting its specialized agricultural economic structure.

Other provinces such as Çankırı, Kırıkkale, and Kırşehir exhibit relatively larger deviations across most criteria, indicating their greater distance from the ideal investment profile.

**Table 8.** Calculation of ideal distances

| Provinces | Population | Housing sales | Exports | Number of vehicles | GDP | Agriculture | Total | $S_i^*$ |
|---|---|---|---|---|---|---|---|---|
| Aksaray | 0.0186 | 0.0193 | 0.0166 | 0.0208 | 0.0238 | 0.0099 | 0.1089 | 0.3300 |
| Ankara | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0132 | 0.0132 | 0.1147 |
| Çankırı | 0.0202 | 0.0221 | 0.0169 | 0.0224 | 0.0248 | 0.0191 | 0.1255 | 0.3543 |
| Eskişehir | 0.0154 | 0.0160 | 0.0080 | 0.0177 | 0.0206 | 0.0128 | 0.0905 | 0.3009 |
| Karaman | 0.0198 | 0.0217 | 0.0178 | 0.0217 | 0.0244 | 0.0150 | 0.1204 | 0.3470 |
| Kayseri | 0.0123 | 0.0128 | 0.0090 | 0.0161 | 0.0194 | 0.0107 | 0.0802 | 0.2832 |
| Kırıkkale | 0.0197 | 0.0207 | 0.0190 | 0.0222 | 0.0244 | 0.0191 | 0.1251 | 0.3536 |
| Kırşehir | 0.0199 | 0.0213 | 0.0188 | 0.0221 | 0.0248 | 0.0180 | 0.1250 | 0.3535 |
| Konya | 0.0079 | 0.0113 | 0.0082 | 0.0104 | 0.0163 | 0.0000 | 0.0542 | 0.2329 |
| Nevşehir | 0.0194 | 0.0213 | 0.0195 | 0.0209 | 0.0244 | 0.0167 | 0.1223 | 0.3497 |
| Niğde | 0.0190 | 0.0209 | 0.0190 | 0.0212 | 0.0243 | 0.0154 | 0.1198 | 0.3462 |
| Sivas | 0.0172 | 0.0202 | 0.0190 | 0.0202 | 0.0233 | 0.0134 | 0.1134 | 0.3367 |
| Yozgat | 0.0187 | 0.0206 | 0.0194 | 0.0214 | 0.0244 | 0.0145 | 0.1191 | 0.3452 |

Table 8 presents the Euclidean distances of each province from the positive ideal solution ($S_i^+$) within the Technique for Order Preference to Ideal Solution (TOPSIS) framework. These distances are calculated based on the squared deviations obtained in the previous step and represent the separation of each alternative from the ideal investment profile.

The Euclidean distance is computed as:

$$S_i^* = \sqrt{\sum_{j=1}^{n} (v_{ij} - v_j^*)^2}$$

The results indicate that Konya has the smallest distance from the positive ideal solution (0.2329), suggesting that it is the closest province to the ideal investment profile among all alternatives. This is primarily driven by its outstanding agricultural performance combined with moderate economic indicators.

Similarly, Kayseri (0.2832) and Eskişehir (0.3009) also exhibit relatively low distances, indicating balanced economic and structural characteristics that bring them closer to the ideal solution.

In contrast, provinces such as Çankırı (0.3543), Kırıkkale (0.3536), and Kırşehir (0.3535) are located further from the ideal solution, reflecting weaker overall performance across the evaluated criteria.

**Negative Ideal Distances**

To find negative ideal distances, the values under each column in the weighted normalized matrix (Table 4) are successively subtracted from the negative ideal solution value for that column (from the ideal values given in Table 6). The square of this value is then taken. Thus, a table of negative ideal distances is created (Table 9).

**Table 9.** Table of Negative Ideal Distances

| Provinces | Population | Housing sales | Exports | Number of vehicles | GDP | Agriculture |
|---|---|---|---|---|---|---|
| Aksaray | 0.000036 | 0.000096 | 0.000123 | 0.000030 | 0.000011 | 0.001502 |
| Ankara | 0.020245 | 0.022113 | 0.019534 | 0.022392 | 0.024839 | 0.000557 |
| Çankırı | 0.000000 | 0.000000 | 0.000095 | 0.000000 | 0.000000 | 0.000000 |
| Eskişehir | 0.000329 | 0.000502 | 0.002544 | 0.000268 | 0.000195 | 0.000632 |
| Karaman | 0.000003 | 0.000002 | 0.000041 | 0.000006 | 0.000002 | 0.000246 |
| Kayseri | 0.000991 | 0.001261 | 0.002029 | 0.000524 | 0.000336 | 0.001224 |
| Kırıkkale | 0.000004 | 0.000023 | 0.000004 | 0.000000 | 0.000002 | 0.000000 |
| Kırşehir | 0.000001 | 0.000007 | 0.000007 | 0.000001 | 0.000000 | 0.000017 |
| Konya | 0.002865 | 0.001783 | 0.002401 | 0.002247 | 0.000887 | 0.019131 |
| Nevşehir | 0.000009 | 0.000007 | 0.000000 | 0.000026 | 0.000002 | 0.000082 |
| Niğde | 0.000019 | 0.000017 | 0.000003 | 0.000015 | 0.000003 | 0.000204 |
| Sivas | 0.000121 | 0.000043 | 0.000004 | 0.000054 | 0.000024 | 0.000507 |
| Yozgat | 0.000029 | 0.000025 | 0.000000 | 0.000011 | 0.000002 | 0.000313 |

Table 9 presents the squared deviations between the weighted normalized decision matrix and the negative ideal solution ($A^-$) within the Technique for Order Preference to Ideal Solution (TOPSIS) framework. These values represent the distance of each province from the worst observed performance levels across all criteria.

The negative ideal solution reflects the minimum performance benchmark and serves as a reference point for evaluating how far each alternative is from the least desirable investment conditions.

Mathematically, this step is defined as:

$$\left(v_{ij} - v_j^-\right)^2$$

The results indicate that Çankırı exhibits zero deviation from the negative ideal solution across all criteria, suggesting that it represents the lowest observed performance level in the dataset. Similarly, Kırıkkale shows extremely low deviation values, indicating proximity to the worst-case benchmark in several indicators.

In contrast, Konya displays relatively large deviations from the negative ideal solution, particularly in agricultural production, reflecting its strong performance and clear separation from low-performing regions.

The negative ideal distance is calculated using the formula

$$S_i^- = \sqrt{\sum_{i=1}^{n}\left(v_{ij} - v_j^-\right)^2}.$$

Accordingly, the negative distances for each decision criterion are calculated as follows:

**Table 10.** Calculation of Negative Ideal Distances

| Provinces | Population | Housing sales | Exports | Number of vehicles | GDP | Agriculture | Total | $S_i^-$ |
|---|---|---|---|---|---|---|---|---|
| Aksaray | 0.000036 | 0.000096 | 0.000123 | 0.000030 | 0.000011 | 0.001502 | 0.001799 | 0.042415 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Ankara | 0.020245 | 0.022113 | 0.019534 | 0.022392 | 0.024839 | 0.000557 | 0.109681 | 0.331181 |
| Çankırı | 0.000000 | 0.000000 | 0.000095 | 0.000000 | 0.000000 | 0.000000 | 0.000096 | 0.009773 |
| Eskişehir | 0.000329 | 0.000502 | 0.002544 | 0.000268 | 0.000195 | 0.000632 | 0.004470 | 0.066862 |
| Karaman | 0.000003 | 0.000002 | 0.000041 | 0.000006 | 0.000002 | 0.000246 | 0.000298 | 0.017274 |
| Kayseri | 0.000991 | 0.001261 | 0.002029 | 0.000524 | 0.000336 | 0.001224 | 0.006366 | 0.079786 |
| Kırıkkale | 0.000004 | 0.000023 | 0.000004 | 0.000000 | 0.000002 | 0.000000 | 0.000034 | 0.005802 |
| Kırşehir | 0.000001 | 0.000007 | 0.000007 | 0.000001 | 0.000000 | 0.000017 | 0.000034 | 0.005830 |
| Konya | 0.002865 | 0.001783 | 0.002401 | 0.002247 | 0.000887 | 0.019131 | 0.029314 | 0.171214 |
| Nevşehir | 0.000009 | 0.000007 | 0.000000 | 0.000026 | 0.000002 | 0.000082 | 0.000125 | 0.011192 |
| Niğde | 0.000019 | 0.000017 | 0.000003 | 0.000015 | 0.000003 | 0.000204 | 0.000262 | 0.016172 |
| Sivas | 0.000121 | 0.000043 | 0.000004 | 0.000054 | 0.000024 | 0.000507 | 0.000753 | 0.027444 |
| Yozgat | 0.000029 | 0.000025 | 0.000000 | 0.000011 | 0.000002 | 0.000313 | 0.000380 | 0.019497 |

Table 10 presents the Euclidean distances of each province from the negative ideal solution ($S_i^-$) within the Technique for Order Preference to Ideal Solution (TOPSIS) framework. These values are obtained by summing the squared deviations from the negative ideal solution and taking the square root of the result.

The negative ideal distance is defined as:

$$S_i^- = \sqrt{\sum_{j=1}^{n} (v_{ij} - v_j^-)^2}$$

The results indicate that Konya has the highest distance from the negative ideal solution (0.1712), indicating the strongest performance among all provinces and a clear separation from low-performing regions.

Similarly, Ankara (0.3311) also shows a large distance from the negative ideal solution, reflecting its strong economic and demographic structure despite relatively weaker agricultural performance.

In contrast, provinces such as Çankırı (0.0098), Kırıkkale (0.0058), and Kırşehir (0.0058) are very close to the negative ideal solution, indicating lower overall performance levels across the evaluated criteria.

**Calculation of Relative Proximity to Ideal Solution**

Previously calculated Si* and Si- values (ideal and negative ideal solution values) were evaluated. In this case, the performance values of the provinces according to these variables in 2024 are presented in Table 11.

**Table 11.** Table of Ideal and Negative Ideal Solution Values

| | **S*i** | **S*-** |
|---|---|---|
| Aksaray | 0.3300 | 0.0424 |
| Ankara | 0.1147 | 0.3312 |
| Çankırı | 0.3543 | 0.0098 |
| Eskişehir | 0.3009 | 0.0669 |
| Karaman | 0.3470 | 0.0173 |
| Kayseri | 0.2832 | 0.0798 |
| Kırıkkale | 0.3536 | 0.0058 |
| Kırşehir | 0.3535 | 0.0058 |
| Konya | 0.2329 | 0.1712 |
| Nevşehir | 0.3497 | 0.0112 |
| Niğde | 0.3462 | 0.0162 |
| Sivas | 0.3367 | 0.0274 |
| Yozgat | 0.3452 | 0.0195 |

Table 11 presents the positive ideal distance ($S_i^+$) and negative ideal distance ($S_i^-$) for each province within the Technique for Order Preference to Ideal Solution (TOPSIS) framework. These values form the basis for

calculating the relative closeness coefficient ($C_i$), which determines the final ranking of provinces in terms of investment attractiveness.

The closeness to the ideal solution is determined by simultaneously considering both the distance from the best-performing scenario ($S_i^+$) and the distance from the worst-performing scenario ($S_i^-$).

The formula

$$\mathrm{Ci} *= \frac{\mathrm{S} * -}{\mathrm{S} * \mathrm{i} + \mathrm{S} * -}$$

was used to calculate the relative proximity to the ideal solution. According to the results obtained, the investment performance values of the provinces are given in Table 12.

**Table 12**. Results table

| **Provinces** | **S*i** | **S*-** | **Ci *** |
|---|---|---|---|
| Aksaray | 0.3300 | 0.0424 | 0.1139 |
| Ankara | 0.1147 | 0.3312 | 0.7428 |
| Çankırı | 0.3543 | 0.0098 | 0.0268 |
| Eskişehir | 0.3009 | 0.0669 | 0.1818 |
| Karaman | 0.3470 | 0.0173 | 0.0474 |
| Kayseri | 0.2832 | 0.0798 | 0.2198 |
| Kırıkkale | 0.3536 | 0.0058 | 0.0161 |
| Kırşehir | 0.3535 | 0.0058 | 0.0162 |
| Konya | 0.2329 | 0.1712 | 0.4237 |
| Nevşehir | 0.3497 | 0.0112 | 0.0310 |
| Niğde | 0.3462 | 0.0162 | 0.0446 |
| Sivas | 0.3367 | 0.0274 | 0.0754 |
| Yozgat | 0.3452 | 0.0195 | 0.0535 |

Table 12 presents the final results of the Technique for Order Preference to Ideal Solution (TOPSIS) analysis, including the positive ideal distance ($S_i^+$), negative ideal distance ($S_i^-$), and closeness coefficient ($C_i$). The closeness coefficient is used to rank provinces according to their investment attractiveness.

The closeness coefficient is defined as:

$$C_i = \frac{S_i^-}{S_i^+ + S_i^-}$$

Higher $C_i$ values indicate greater proximity to the ideal investment condition.

The results show that Ankara achieves the highest closeness coefficient (0.7428), indicating that it is the most attractive province in terms of overall economic and demographic indicators. This dominance is mainly driven by its strong performance in population, GDP, housing sales, and transportation indicators.

The second highest value is observed in Konya (0.4237), which reflects its exceptional agricultural production capacity combined with moderate economic indicators. This result highlights the significant role of agricultural production in shaping regional investment attractiveness when included in the evaluation framework.

Eskişehir (0.1818) and Kayseri (0.2198) follow, indicating relatively balanced economic structures and moderate investment attractiveness.

At the lower end of the ranking, provinces such as Kırıkkale (0.0161), Kırşehir (0.0162), and Çankırı (0.0268) exhibit the lowest closeness coefficients, indicating limited overall performance across the evaluated criteria.

The investor's preference ranking, i.e., the investment performance rankings of the provinces, is given in Table 13.

**Table 13.** Preference Ranking

| Rank | Provinces | Ci* |
|---|---|---|
| **1** | Ankara | 0.7428 |
| **2** | Konya | 0.4237 |
| **3** | Kayseri | 0.2198 |
| **4** | Eskişehir | 0.1818 |
| **5** | Aksaray | 0.1139 |
| **6** | Sivas | 0.0754 |
| **7** | Yozgat | 0.0535 |
| **8** | Karaman | 0.0474 |
| **9** | Niğde | 0.0446 |
| **10** | Nevşehir | 0.0310 |
| **11** | Çankırı | 0.0268 |
| **12** | Kırşehir | 0.0162 |
| **13** | Kırıkkale | 0.0161 |

Table 13 presents the final ranking of provinces based on the closeness coefficient ($C_i$) derived from the Technique for Order Preference to Ideal Solution (TOPSIS) analysis. The ranking reflects the investment attractiveness of provinces by simultaneously considering economic, demographic, industrial, and agricultural indicators.
The results indicate that Ankara ranks first with a closeness coefficient of 0.7428, demonstrating its dominant position in terms of overall investment attractiveness. This result is primarily driven by its strong performance in GDP, population, housing sales, and transportation indicators.
Konya ranks second (0.4237), highlighting the significant contribution of agricultural production to regional competitiveness. This finding confirms that agricultural capacity can substantially enhance investment attractiveness when integrated into multi-criteria evaluation frameworks.
Kayseri (0.2198) and Eskişehir (0.1818) occupy middle-upper positions, reflecting relatively balanced economic structures and diversified production bases.
At the lower end of the ranking, provinces such as Kırıkkale (0.0161), Kırşehir (0.0162), and Çankırı (0.0268) exhibit the weakest investment attractiveness, indicating limited economic scale and lower agricultural productivity.
The results indicate that Konya exhibits a relatively low distance from the positive ideal solution (0.2329) and a high distance from the negative ideal solution (0.1712). This combination suggests that Konya is the closest province to the ideal investment profile among all alternatives.

Similarly, Kayseri ($S^+ = 0.2832$; $S^- = 0.0798$) and Eskişehir ($S^+ = 0.3009$; $S^- = 0.0669$) demonstrate relatively balanced performance profiles, indicating strong competitiveness in terms of investment attractiveness.

In contrast, provinces such as Çankırı, Kırıkkale, and Kırşehir exhibit low distances from the negative ideal solution and relatively high distances from the positive ideal solution, indicating weaker overall performance.

Following normalization and equal-weight assignment ($w = 1/6$), the weighted normalized decision matrix was obtained. The positive ideal solution ($A^+$) and negative ideal solution ($A^-$) were then determined by selecting the maximum and minimum values for each criterion, respectively. Euclidean distances from both ideal and anti-ideal solutions were calculated to determine the relative closeness coefficient ($C_i^*$), which represents the investment performance score of each province.
The final TOPSIS ranking revealed that Ankara ranked first with the highest closeness coefficient ($C_i^* = 0.7428$), followed by Konya (0.4237) and Kayseri (0.2198). These results indicate that Ankara possesses the strongest investment attractiveness due to its dominant administrative role, high GDP contribution, export capacity, large population, and developed urban infrastructure. As the capital city of Türkiye, Ankara naturally concentrates industrial, governmental, and service-sector activities, which significantly increases its investment potential.
Konya ranked second primarily due to its exceptional agricultural production capacity, which was the highest among all provinces analyzed. Although Ankara dominates in industrial and service-related indicators, Konya's strong agricultural performance substantially improved its ranking. This finding confirms the importance of including agricultural production as a decision criterion, especially in regions where agro-industrial investment

opportunities are significant.

Kayseri and Eskişehir followed as secondary investment centers. Both provinces exhibit strong export performance, industrial development, and urban economic activity. Kayseri's industrial manufacturing base and Eskişhir's diversified economic structure contribute positively to their investment attractiveness. These findings are consistent with previous regional development studies emphasizing the importance of industrial diversification and export capacity in provincial competitiveness (Ustasüleyman, 2009; Orçun & Eren, 2017).

At the lower end of the ranking, Kırıkkale, Kırşehir, and Çankırı showed the weakest investment attractiveness, with very low closeness coefficients. These provinces generally have smaller populations, lower GDP contributions, weaker export performance, and limited industrial capacity. Their lower rankings suggest that economic scale remains a critical determinant of investment attractiveness.

An important contribution of this study is the integration of agricultural production into the TOPSIS framework. Many previous investment location studies primarily focus on industrial and financial indicators, often overlooking the role of agricultural productivity. However, in the Central Anatolia Region, agriculture remains a major driver of regional development and investment sustainability. The inclusion of agricultural production reduced the excessive dominance of metropolitan provinces and allowed provinces such as Konya and Aksaray to achieve stronger rankings.

This finding supports the argument of Bhutia and Phipon (2012), who emphasized that sector-specific indicators significantly improve the explanatory power of multi-criteria decision-making models. Similarly, Hwang and Yoon (1981) highlighted that realistic decision frameworks should incorporate diverse dimensions of economic performance rather than relying solely on urban-industrial measures.

Overall, the TOPSIS results demonstrate that balanced economic structures combining industrial productivity, export performance, urban development, and agricultural strength generate stronger regional investment attractiveness. Therefore, regional investment policies should adopt multidimensional evaluation frameworks rather than relying on single-sector indicators.

## IV. Conclusion

This study evaluated the investment attractiveness of provinces in the Central Anatolia Region of Türkiye using the TOPSIS method within a multi-criteria decision-making framework. Six key indicators population, housing sales, export value, motor vehicle ownership, gross domestic product (GDP), and agricultural production were considered to reflect both urban-industrial and rural-agricultural dimensions of regional development. By incorporating these variables simultaneously, the study provided a comprehensive and balanced assessment of provincial investment potential.

The empirical findings revealed that Ankara ranked as the most attractive province for investment, followed by Konya and Kayseri. Ankara's leading position was primarily driven by its strong GDP, high export capacity, large population, and developed urban infrastructure. Konya emerged as a strong alternative investment center mainly due to its outstanding agricultural production performance, demonstrating that agricultural capacity can substantially influence regional competitiveness when properly integrated into decision-making models. Kayseri and Eskişehir also showed relatively strong investment potential due to their industrial diversification and export-oriented economic structures.

In contrast, provinces such as Kırıkkale, Kırşehir, and Çankırı were ranked lower due to limited economic scale, weaker industrial capacity, and lower performance across multiple criteria. These findings indicate that investment attractiveness is strongly associated with multidimensional regional development rather than dependence on a single economic indicator.

One of the major contributions of this study is the inclusion of agricultural production as a decision criterion in the TOPSIS framework. Unlike many previous studies that focus primarily on industrial and financial indicators, this research demonstrates that agricultural productivity significantly improves the realism and explanatory power of investment location analysis, particularly in regions where agriculture plays a strategic economic role. The inclusion of agricultural output produced a more balanced ranking structure and reduced the excessive dominance of metropolitan provinces.

## References

[1]. Bhutia, P. W., & Phipon, R. (2012). Application of AHP and TOPSIS method for supplier selection problem. IOSR Journal of Engineering, 2(10), 43–50.
[2]. Büyüközkan, G., & Güleryüz, S. (2017). Evaluation of renewable energy resources in Turkey using an integrated MCDM approach. Energy, 123, 149–163. https://doi.org/10.1016/j.energy.2017.01.137
[3]. Chen, S. J., & Hwang, C. L. (1992). Fuzzy multiple attribute decision making: Methods and applications. Berlin, Germany: Springer-Verlag.
[4]. Çakmak, E. H., & Dudu, H. (2018). Agricultural policy and its impacts on regional development in Turkey. New Medit, 17(3), 23–36.
[5]. Hwang, C. L., & Yoon, K. (1981). Multiple attribute decision making: Methods and applications. Berlin, Germany: Springer-Verlag.
[6]. Krugman, P. (1991). Increasing returns and economic geography. Journal of Political Economy, 99(3), 483–499.
[7]. Orçun, Ç., & Eren, B. S. (2017). TOPSIS yöntemi ile finansal performans değerlendirmesi: XUTEK üzerinde bir uygulama. Muhasebe

ve Finansman Dergisi, (75), 139-154.
[8]. Paçacı, B., Erol, S., & Çubuk, M. K. (2026). A hybrid MCDM approach for logistics center location selection: The case of Türkiye. Sustainability, 18(2), 604. https://doi.org/10.3390/su18020604
[9]. Porter, M. E. (1998). Clusters and the new economics of competition. Harvard Business Review, 76(6), 77–90.
[10]. Turkish Statistical Institute (TSI). (2023). Agricultural statistics. https://www.tuik.gov.tr
[11]. TSI, 2024. Türkiye İstatistik Kurumu. Yıllara Göre Dış Ticaret. https://bi.tuik.gov.tr/extensions/tuik-mashup/index.html#/report. Access April 25, 2026.
[12]. TSI, 2024. Türkiye İstatistik Kurumu. Gösterge Uygulaması. https://biruni.tuik.gov.tr/ilgosterge/?locale=tr. Access April 29, 2026.
[13]. Ustasüleyman, T. (2009). Bankacılık sektöründe hizmet kalitesinin değerlendirilmesi: AHS-TOPSIS yöntemi. Bankacılar Dergisi, 69(2), 33–44.
[14]. Yorulmaz, Ö., Kuzu Yıldırım, S., & Yıldırım, B. F. (2021). Evaluation of provincial economic development using MCDM methods. Operational Research in Engineering Sciences: Theory and Applications.
[15]. Zeleny, M. (1982). Multiple criteria decision making. New York, NY: McGraw-Hill.