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Efficiency of Investment Incentives in Reducing Regional Development Disparities in Türkiye[1]

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Türkiye'de Yatırım Teşviklerinin Bölgesel Gelişmişlik Farklarını Azaltma Konusunda Etkinliği[2]

Abstract

This study aims to determine to what extent the investment incentive system implemented in Türkiye effectively reduces regional development disparities. For this purpose, more than 100,000 investment incentive certificates issued between 2001-2022 are examined. The Logarithm Methodology of Additive Weights (LMAW) determines the criteria's importance and ranks the provinces' investment performances. The results obtained indicate that investment incentive applications cannot provide sufficient effectiveness in reducing regional development disparities. In this respect, there is a severe need for revision in the incentive policies currently implemented.

Keywords : Incentive, Development, Investment, MCDM, LMAW.

JEL Classification Codes : A14, B16, C44, D81.

Öz

Bu çalışmada, Türkiye'de uygulanan yatırım teşvik sisteminin bölgesel gelişmişlik farklarını azaltmada ne ölçüde etkili olduğunun tespit edilmesi amaçlanmaktadır. Bu doğrultuda, 2001-2022 yılları arasında verilen 100.000'den fazla yatırım teşvik belgesi incelenmiştir. Kriterlerin önem düzeyinin belirlenmesi ve illerin yatırım performanslarının sıralanması amacıyla Logarithm Methodology of Additive Weights (LMAW) yönteminden yararlanılmıştır. Elde edilen sonuçlar, yatırım teşvik uygulamalarının bölgesel gelişmişlik farklarını azaltma noktasında yeterli etkinlik sağlayamadığını göstermektedir. Bu açıdan, halihazırda uygulanan teşvik politikalarında ciddi bir revizyon gereksinimi olduğu görülmektedir.

Anahtar Sözcükler : Yatırım, Kalkınma, Teşvik, ÇKKV, LMAW.

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1. Introduction

Regarding linguistic meaning, "incentive" means encouragement, emboldening, etc. On the other hand, from an economic point of view, it corresponds to the meaning of "state support for strategically important sectors". As for "investment incentive," it is expressed as the facilitation provided by using policy instruments to attract domestic and foreign capital to invest in predetermined regions or sectors. From this point of view, the investment incentive system can be defined as a set of tools that encourage investors to support.

Incentive applications in developed and developing countries aim to eliminate current socio-economic problems. In pursuit of this intention, reassigning existing financial resources toward more lucrative areas can eventually be recognised as one of the incentive techniques. Therefore, it is imperative to eschew any short-term expectations stemming from a newly developed incentive program. However, it is important to remember that the design of an incentive proposition should be executed under the parameters of a thorough cost-benefit assessment.

Incentive practices may have different contributions at the stage of an investment decision. The first contribution is reducing investment costs using supports such as taxation exemptions, cash supports, employment supports and allocation of investment location. The second contribution is facilitating the financial requirement of the investment by providing interest support through low-interest domestic and foreign credit channels. Finally, the state's undertaking infrastructure investments, providing energy support, personnel support, purchase guarantees, permits and licenses, etc., contribute to increased profitability of enterprises (Şahin & Kaplan, 2021: 18-19).

When the investment incentive system in Türkiye is examined, the Decree on State Aids for Investments (Yatırımlarda Devlet Yardımları Hakkında Karar, 2012), which was legislated in 2012 with the latest updates, is in force. In line with the targets proposed in the development plans and annual programs, it is intended to channel savings to investments that offer substantial added value, to enhance production and employment, to encourage regional investments and strategic investments with high research and development content that will increase international competitiveness, to increase international foreign direct investments, to reduce regional development disparities, to support investments relevant with clustering and environmental protection and research and development activities.

The amount, duration and rates of incentive items that provinces can benefit from are determined according to predetermined provisions. Depending on the decree above about the incentive applications, each province's socio-economic development index range determines the amount, duration and support rates these provinces can benefit from. Several criteria are used in the socio-economic development index determination studies. For the regulation published in 2012, eight leading indicators were taken as reference: employment, competitive and innovative capacity, financial, demographic, educational, health, accessibility, and quality of life indicators. A total of sixty-one sub-criteria of these main

criteria are considered for calculation, and the provinces are sorted according to these results. The socioeconomic development index represents that the most developed provinces are classified in the first region, while the least developed provinces are classified in the sixth region (Dündar, 2019: 351-352).

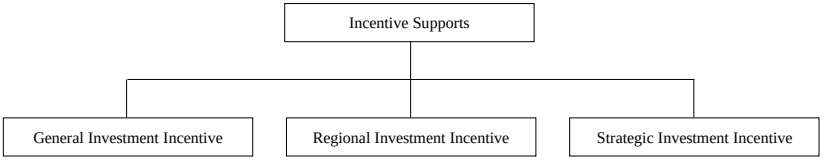
Any change in the value of the socio-economic development index for the provinces over the years may inherently cause a change in the regional classification of the provinces. Therefore, a change in the index value of any province benefiting from support in a particular region may cause changes in the amount, duration and rates of support previously benefited by the province. Following the amendments made in the relevant legislation in 2020, the provinces in Türkiye are classified according to the socio-economic development index, as shown in Table 1.

Table: 1
Regional Classification of Provinces

Region 1	Region 2	Region 3	Region 4	Region 5	Region 6
Ankara	Aydın	Adana	Afyonkarahisar	Bayburt	Adıyaman
Antalya	Balıkesir	Burdur	Aksaray	Çankırı	Ağrı
Bursa	Bilecik	Düzce	Amasya	Erzurum	Ardahan
Eskişehir	Bolu	Gaziantep	Artvin	Giresun	Batman
İstanbul	Çanakkale	Karaman	Bartın	Gümüşhane	Bingöl
İzmir	Denizli	Kırıkkale	Çorum	Kahramanmaraş	Bitlis
Kocaeli	Edirne	Kütahya	Elâzığ	Kilis	Diyarbakır
Muğla	Isparta	Mersin	Erzincan	Niğde	Hakkâri
Tekirdağ	Karabük	Samsun	Hatay	Ordu	Iğdır
	Kayseri	Trabzon	Kastamonu	Osmaniye	Kars
	Kırklareli	Rize	Kırşehir	Sinop	Mardin
	Konya	Uşak	Malatya	Tokat	Muş
	Manisa	Zonguldak	Nevşehir	Tunceli	Siirt
	Sakarya		Sivas	Yozgat	Şanlıurfa
	Yalova				Şırnak
					Van

The investment incentive system implemented in Türkiye includes three main applications: General Investment Incentive, Regional Investment Incentive and Strategic Investment Incentive, as indicated in Figure 1.

Figure: 1
Investment Incentive System



Some types of investments refused to be supported by the law, or those subject to predefined minimum conditions to be supported can benefit from the General Investment Incentive provided that they meet the minimum investment amount in the region. Supported items that can be used in this context are Customs Duty Exemption and VAT Exemption.

On the other hand, considering the region's socio-economic development differences, the Regional Investment Incentive system stipulates different minimum conditions based on each sector. Supported items are Customs Duty Exemption, VAT Exemption, Corporate Tax Reduction, Social Insurance Premium Support (Employer's Share), Land Allocation and Interest or Profit Share Support. In addition to these supports, Social Insurance Premium Support (Employee's Share) and Income Tax Withholding Support are also implemented in the sixth region where the least developed provinces are located.

Investments for manufacturing products specified in the relevant law, with high investment capital and import dependency, are evaluated under the Strategic Investment Incentive system. Supported items are Customs Duty Exemption, VAT Exemption, Corporate Tax Reduction, Social Insurance Premium Support (Employer's Share), Land Allocation, Interest or Profit Share and VAT Refund.

Investment incentives are sometimes confused with grant programs. While the beneficiary receives support over monetary values in grant programs, it is aimed to facilitate investment thanks to the exemptions provided in incentive applications. By the way, it seeks to alleviate the investor's burden both in the investment and operation phases.

VAT Exemption means the investor is exempted from VAT payment for purchasing machinery, equipment, software, and intangibles. Similarly, Customs Duty Exemption means that the investor is exempted from paying customs duty for the same items to be imported. Building construction expenditures to be made within strategic investments with a fixed investment of more than five hundred billion Turkish Liras can benefit from VAT Refund.

If the investor requests interest or profit share support, it can be applied for investments that benefit from support within the scope of regional and strategic investment incentives. Interest or profit share support is applied at different rates for different regions. Similarly, social insurance premium supports are used according to the province's socioeconomic development index.

As clearly stated in the law guiding investment incentive practices in Türkiye, one of the most important purposes of this application is to reduce the development disparities among regions. To contribute to this goal, the state relinquishes some resources such as value-added tax and customs duty, and when necessary, it provides additional financial resources with instruments such as insurance premium support and interest support. Moreover, in socio-economically underdeveloped regions, investment land is allocated free of charge.

When the approach incentive system is analysed holistically, less developed regions seem more advantageous regarding the support supplied during the investment period and, later on, during the operating period. In this case, investors are expected to invest more in less developed provinces to benefit from these financial supports and increase their

profitability. So, is this the case? When the investment incentive certificates issued for different sectors for each province are examined, are the underdeveloped regions able to use this advantage sufficiently? Do investors refrain from investing in developed regions and prefer less developed regions to benefit from investment incentives?

For this purpose, this study aimed to find answers to these questions by examining whether the investment incentive law is by its target. Within the scope of this study, more than 100,000 investment incentive certificates issued between 2001 and 2022, obtained from the Ministry of Industry and Technology of the Turkish Republic, are examined. This list of the obtained certificates includes data such as the date of issuance of the incentive certificate, the province and district where the investment will be executed, the sector of the investment, the budget of the investment, the employment to be procured by the investment, and the exemptions and exceptions to be provided within the scope of the incentive certificate.

2. Literature Review

Studies have been conducted to evaluate investment incentive practices for Türkiye up until today with different aspects. These studies have often been statistically evaluated and aimed to obtain economic inferences. Some of the mentioned studies are as follows.

Sungur (2019) analysed whether the investment applications contributed to the underdeveloped regions using the incentive certificates issued between 2001 and 2016. The data obtained during this period revealed that the number of incentive certificates and investment amounts positively contributed to the underdeveloped regions.

Hazman and Kaya (2018) conducted a study in Afyonkarahisar province to examine the effect of regional incentive certificates issued between 2003 and 2017 on the province's export performance. According to the data obtained from the regression analysis, it has been revealed that the variables of the number of investments with incentive certificates, customs duty exemption and fixed investment amount have a statistically significant effect on export value.

Yanikkaya and Karaboğa (2017) applied the Generalized Method of Moments technique to a panel data set containing six five-year periods between 1981 and 2009. In this way, they aimed to reveal the effect of investment incentives on capital intensity, employment, sectoral labour productivity and total factor productivity for sixteen manufacturing industry sectors in Türkiye. The study shows no evidence that investment incentive practices positively affect any macroeconomic variables examined.

Candan and Yurdadoğ (2017) have analysed the purpose, types, justifications and effective functioning of incentive policies in a theoretical framework and have made a general evaluation of incentive policies by giving information about the forms of incentive policies implemented before and after the planned period in Türkiye.

Using the panel regression model, Selim et al. (2014) aimed to examine the effect of investment incentive certificates and fixed investments on employment in 81 provinces between 2001-2012 in Türkiye. According to the findings, the impact of both the number of incentive certificates and fixed investments on employment is statistically significant, and the effect on employment is positive.

Erdoğan and Ataklı (2012) examined the effect of the incentive program, which was put into effect within the scope of economic measures by Türkiye after the 2008 global crisis, on foreign direct investment. According to the study's results, there has been an increase in the incentive certificates issued in the examined years, which contributed to employment.

LMAW, one of the multi-criteria decision-making methods and a reasonably new approach, is implemented within the scope of the studies described below.

Dündar (2023) has used both LMAW and DNMA methods together to analyse the performance of the Regional Development Agencies in Türkiye in terms of financial support programs since the foundation date of these institutions.

Demir (2022) used LMAW and DNMA methods to measure the quarterly performance of the deposit banking sector during the COVID-19 pandemic, which has affected the whole world in recent years.

Görçün and Küçükönder (2022) made use of the LMAW method to examine the potential of production systems of the heavy industry branches using cyber-physical systems.

Puska et al. (2022) determined the criterion weights using the fuzzy version of the LMAW method to contribute to the producers operating in the agricultural sector while selecting the best green supplier.

Using triangular fuzzy numbers, Bozanic et al. (2022) improved the LMAW method, which is relatively new and defined for exact values. As a result of this modification, the uncertainty in the decision processes of the LMAW method has been largely eliminated.

Pamucar et al. (2021) developed and implemented the LMAW method for the first time to evaluate the operational efficiency of India's six prominent logistics service providers.

Other studies that used the LMAW method can be summarised as follows.

Asadi et al., 2023	The Appropriation of Block Chain Implementation in the Supply Chain of SMES Based on Fuzzy LMAW
Sıcakyüz, 2023	Analysing Healthcare and Wellness Products' Quality Embedded in Online Customer Reviews
Lukic, 2023	Measurement and Analysis of The Information Performance of Companies in The European Union and Serbia Based on The Fuzzy LMAW and MARCOS Methods
Tešić et al., 2023	Development of the MCDM Fuzzy LMAW - Grey MARCOS Model for the Selection of a Dump Truck
Božanić et al., 2021	Modelling of Neuro-Fuzzy System as a Support in Decision-Making Processes
Subotić et al., 2021	Development of a New Risk Assessment Methodology for Light Goods Vehicles on Two-Lane Road Sections

3. Research Methodology

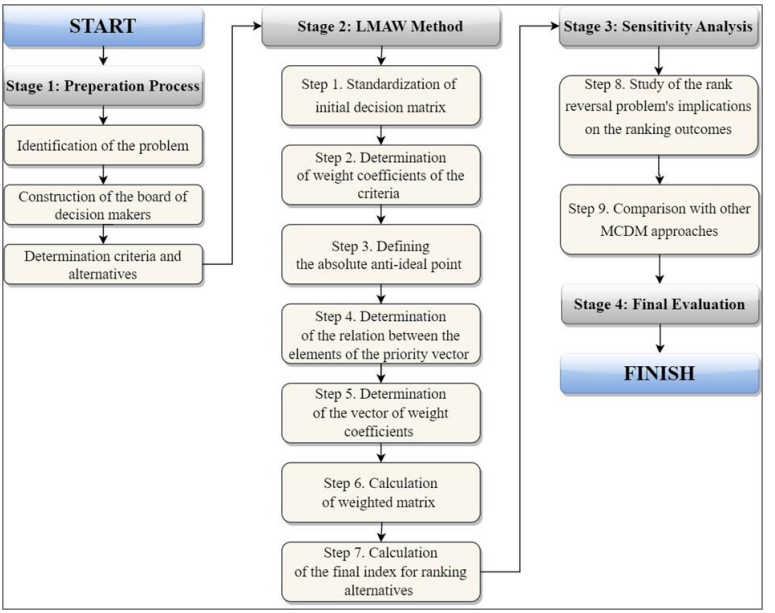
This study is carried out to examine the investment incentive performance of 81 provinces within the borders of Türkiye. The source data of the study is obtained from the Ministry of Industry and Technology of the Republic of Türkiye. The LMAW method is implemented to determine the criteria weights and order the alternatives.

There are some determinative reasons for selecting this method in our study. Initially, the LMAW method enables the incorporation of several decision-makers from diverse disciplines and is available to reflect their opinions qualitatively. Its stability against rank reversal sensitivity analysis is relatively steady. This method upholds a constant mathematical framework, regardless of the number of alternatives or criteria considered. In addition, it is a very suitable approach for using quantitative and qualitative criteria simultaneously.

To prove the resistance of the LMAW method, a sensitivity analysis is performed by applying the rank reversal method and comparing it with seven diverse multi-criteria decision-making methods.

A flowchart of the applied methods is given in Figure 2.

Figure: 2
Flowchart of the Study



3.1. Calculation Procedure of the LMAW Method

Since the LMAW method was introduced to the literature by Pamucar et al. in 2021, it can be considered one of the more up-to-date methods. Weighting the criteria and ordering the alternatives are executed in the same approach. After generation of the initial decision matrix, the method includes the steps as follows (Pamucar et al., 2021: 365-367);

Step 1: Standardization of elements in the initial decision matrix.

Standardized matrix $\Upsilon = [\vartheta_{11}]_{mxn}$ is obtained by applying Equation (1).

$$\vartheta_{ij} = \frac{\eta_{ij}+\eta_j^+}{\eta_j^+} \text{ for benefit criteria}$$
$$\vartheta_{ij} = \frac{\eta_{ij}+\eta_j^-}{\eta_{ij}} \text{ for cost criteria} \quad (1)$$

where η_j^+ is the maximum and η_j^- is the minimum value of the relevant criteria, and ϑ_{ij} corresponds to the standardised values of the initial decision matrix.

Step 2: Determining the weight coefficients of the criteria.

In accordance with the predefined linguistic scale, all experts in the $E = \{E_1, E_2, \dots, E_k\}$ cluster prioritize the $C = \{C_1, C_2, \dots, C_n\}$ criteria. The predefined linguistic scale values are ordered as; 1 - Absolutely Low (AL), 1.5 - Very Low (VL), 2 - Low (L), 2.5 - Medium (M), 3 - Equal (E), 3.5 - Medium High (MH), 4 - High (H), 4.5 - Very High (VH) and 5 - Absolutely High (AH). At the first stage of the prioritization phase, a relatively high value is assigned to important criteria while a relatively low value is assigned to low important criteria. Eventually, the priority vector $P^e = \left(\gamma_{C_1}^e, \gamma_{C_2}^e, \dots, \gamma_{C_n}^e\right)$ is obtained. The expression of $\gamma_{C_n}^e$ indicates the linguistic scale value determined by expert e $(1 \leq e \leq k)$ to criterion C_t $(1 \leq t \leq n)$.

Step 2.1: Defining the absolute anti-ideal point (γ_{AIP}).

The minimum values of the priority vector are taken into consideration for determination of absolute anti-ideal point (Υ_{AIP}) and it should be lower than the smallest value from the priority vector. The equation calculates the absolute anti-ideal point value;

$$\Upsilon_{AIP} = \frac{\Upsilon_{min}^e}{s}$$

where Υ_{min}^e indicates the minimum value of the priority vector. The value of s should be greater than the base of logarithmic function. Considering the logarithmic function as the Ln function, the s value can be reckoned with 3.

Step 2.2: Determination of the relation between the elements of the priority vector and absolute anti-ideal point.

Using Equation (2) below, the relation between the elements of the priority vector and the absolute anti-ideal point is calculated.

$$\eta_{Cn}^{e} = \frac{\Upsilon_{Cn}^{e}}{\Upsilon_{AIP}} \tag{2}$$

Thus and so, relation vector $R^{e} = (\eta_{C1}^{e}, \eta_{C2}^{e}, \ldots\ldots, \eta_{Cn}^{e})$ is acquired where η_{Cn}^{e} represents the value from the relation vector derived from Equation (1) and R^{e} represents the relation vector of e $(1 \leq e \leq k)$.

Step 2.3: Determination of the vector of weight coefficients $w_j = (w_1, w_2, \ldots\ldots, w_n)^T$.

The weight coefficients for each criterion are calculated for each expert e $(1 \leq e \leq k)$ by implementing Equation (3),

$$w_j^{e} = \frac{\log_A(\eta_{Cn}^{e})}{\log_A(\prod_{J=1}^{n} \eta_{Cn}^{e})}\ , A > 1 \tag{3}$$

η_{Cn}^{e} expression in the equation represents the elements of relation vector R and w_j^{e} indicates the weight coefficients obtained according to the evaluations of the e[th] expert. All weight coefficients determined should satisfy the condition of $\sum_{j=1}^{n} w_j^{e} = 1$.

After that, the aggregated vector of weight coefficients $w_j = (w_1, w_2, \ldots\ldots, w_n)^T$ is obtained by performing the Bonferroni aggregator as indicated as Equation (4).

$$w_j = \left(\frac{1}{k.(k-1)} . \sum_{x=1}^{k} \left(w_j^{(x)} \right)^{p} . \sum_{\substack{y=1 \\ y \neq x}}^{k} \left(w_{ij}^{(y)} \right)^{q} \right)^{\frac{1}{p+q}} \tag{4}$$

Step 3: Calculation of weighted matrix (N). The elements in weighted matrix $N = \left[\xi_{ij}\right]_{mxn}$ are calculated by Equation (5).

$$\xi_{ij} = \frac{2\varphi_{ij}^{w_j}}{(2-\varphi_{ij})^{w_j} + \varphi_{ij}^{w_j}} \tag{5}$$

where

$$\varphi_{ij} = \frac{\ln(\vartheta_{ij})}{\ln(\prod_{i=1}^{m} \vartheta_{ij})} \tag{6}$$

ϑ_{ij} presents the elements in standardized matrix $\Upsilon = [\vartheta_{11}]_{mxn}$while w_j presents the weight coefficients for each criterion.

Step 4: Calculation of the final index for ranking alternatives (Q_i).

Final index for ranking alternatives is calculated by Equation (7).

$$Q_i = \sum_{j=1}^{n} \xi_{ij} \tag{7}$$

where ξ_{ij} presents the elements in weighted matrix $N = \left[\xi_{ij}\right]_{mxn}$.

3.2. Rank Reversal Analysis

Obtaining consistent results in multi-criteria decision-making problems is important to prove the method's reliability (Pamucar et al., 2021: 373). During the analysis, adding new alternatives or sequentially removing the lowest-performing criteria can be a method that can be used to verify its reliability. The main expectation is that the resulting sequence does not change significantly after these steps are performed (Žižović et al., 2020: 10-11).

3.3. Comparison with Other MCDM Methods

There is a wide array of Multi-Criteria Decision Making (MCDM) methodologies within the literature, and the evaluation approaches of each may differ more or less from each other. Obtaining similar results through multiple methods will contribute to the reliability of the strategy implemented. In addition to the LMAW approach used as the primary method in the study; ARAS (Zavadskas & Turskis, 2010: 163-165), CoCoSo (Yazdani et al., 2018: 2507-2508), CRADIS (Puška et al., 2022b: 11204-11205), EDAS (Ghorabaee et al., 2015: 439-441), MABAC (Pamucar & Ćirović, 2015: 3019-3021), MAIRCA (Gigović et al., 2016: 11-13) and MAUT (Keeney et al., 1979: 403) are also implemented to enable making comparison among them.

The Spearman Rank Correlation Coefficient (SRCC) is employed to establish the statistical correlation between the LMAW approach and alternative MCDM methods, using the orders they disclosed (Liao & Wu, 2020: 13; Hafezalkotob & Hafezalkotob, 2015: 952).

4. Performances Evaluation of Provinces in Terms of Investment Incentives

4.1. Problem Description

The primary purpose of this evaluation is to determine whether the investment incentive system contributes to reducing regional development disparities, which is one of its main objectives. For this reason, the performance of the provinces within the scope of investments with investment incentive certificates is examined in this study. Investment incentive certificates obtained for each province indicated in Table 2 are discussed in line with the criteria listed in Table 3.

Table: 2
List of the Provinces

Adana	Artvin	Bolu	Edirne	Hatay	Kastamonu	Malatya	Osmaniye	Tekirdağ
Adıyaman	Aydın	Burdur	Elazığ	Iğdır	Kayseri	Manisa	Rize	Tokat
Afyonkarahisar	Balıkesir	Bursa	Erzincan	Isparta	Kırıkkale	Mardin	Sakarya	Trabzon
Ağrı	Bartın	Çanakkale	Erzurum	İstanbul	Kırklareli	Mersin	Samsun	Tunceli
Aksaray	Batman	Çankırı	Eskişehir	İzmir	Kırşehir	Muğla	Siirt	Uşak
Amasya	Bayburt	Çorum	Gaziantep	Kahramanmaraş	Kilis	Muş	Sinop	Van
Ankara	Bilecik	Denizli	Giresun	Karabük	Kocaeli	Nevşehir	Sivas	Yalova
Antalya	Bingöl	Diyarbakır	Gümüşhane	Karaman	Konya	Niğde	Şanlıurfa	Yozgat
Ardahan	Bitlis	Düzce	Hakkâri	Kars	Kütahya	Ordu	Şırnak	Zonguldak

Table: 3
List of Criteria

C1:	Number of foreign investment incentive certificates
C2:	Fixed investment amount of foreign investments (M ₺)
C3:	Employment forecast procured by foreign Investment
C4:	Number of domestic investment incentive certificates
C5:	Fixed investment amount of domestic investments (M ₺)
C6:	Employment forecast procured by domestic Investment

Criterion C1 indicates the number of incentive certificates issued within the scope of foreign investment. C2 is the fixed investment amount of foreign investments, while C3 is the employment forecast created by these foreign investments. On the other hand, C4 indicates the number of incentive certificates issued as domestic investment. C5 corresponds to the fixed investment amount of domestic investments, while C6 points to the employment forecast that emerged from domestic investments.

4.2. LMAW Method Application

The provinces whose performances will be evaluated and the data regarding the evaluation criteria are listed in Appendix 1A as the initial decision matrix.

The initial decision matrix is standardised using Equation (1). However, due to the large number of provinces, the first and last three data are shown and summarised in Table 4.

Table: 4
Standardised Decision Matrix

	C1	C2	C3	C4	C5	C6
Adana	1.1530	1.2639	1.4085	1.1646	1.1645	1.1249
Adıyaman	1.0063	1.0002	1.0203	1.0808	1.0342	1.1443
Afyonkarahisar	1.0392	1.0049	1.0137	1.0955	1.0488	1.0514
⋮	⋮	⋮	⋮	⋮	⋮	⋮
Yalova	1.0329	1.0366	1.0270	1.0388	1.0945	1.0913
Yozgat	1.0063	1.0295	1.0050	1.0293	1.0159	1.0199
Zonguldak	1.0152	1.0073	1.0066	1.0358	1.0581	1.0415

Since all the criteria are benefit-oriented, the relevant equation is applied as follows;

$$\vartheta_{11} = \frac{121 + 791}{791} = 1{,}1530$$

where η_1^+ value is 791, which corresponds to the total number of foreign investment incentive certificates for İstanbul province.

Eight Decision Makers (DM), consisting of representatives from the Chamber of Commerce and Industry, Organized Industry Zone Directorate, Chamber of Financial Advisors, energy sector, service sector, manufacturing industry sector, mining sector and agriculture sector, contributed to determining the criteria weights.

Priority vectors derived from the linguistic scale, obtained from eight experts' opinions, are given in Table 5. The implementation steps are also explained.

Table: 5
Priority Vectors

	C1	C2	C3	C4	C5	C6
DM1	5	4	1.5	5	4	1.5
DM2	4	3.5	1	5	4	1
DM3	5	3.5	1	5	3.5	1
DM4	5	4	1	5	4	1.5
DM5	4.5	4	1	4.5	4	1.5
DM6	5	3.5	1	5	3.5	1
DM7	5	3.5	1.5	5	4	1.5
DM8	4.5	3.5	1	4.5	3.5	1

The relationship between the elements of the priority vector and the absolute anti-ideal point (Υ_{AIP}) is determined based on the data obtained from the expert priority vectors and arbitrarily defined absolute anti-ideal point $\Upsilon_{AIP} = 0.5$.

The elements of the vector R^1 are obtained by applying Equation (2) as follows.

$$\eta_{C_1}^1 = \frac{5}{0{,}5} = 10, \eta_{C_2}^1 = \frac{4}{0{,}5} = 8, \eta_{C_3}^1 = \frac{1{,}5}{0{,}5} = 3, \eta_{C_4}^1 = \frac{5}{0{,}5} = 10, \eta_{C_5}^1 = \frac{4}{0{,}5} = 8, \eta_{C_6}^1 = \frac{1{,}5}{0{,}5} = 3$$

The remaining elements of vectors R^2, R^3, $R^4, R^5 R^6, R^7$and R^8 re calculated in similar manner as resulted in as follows;

$$R^1 = (10,8,3,10,8,3)\ R^2 = (8{,}7{,}2{,}10{,}8{,}2)\ R^3 = (10{,}7{,}2{,}10{,}7{,}2)\ R^4 = (10,8,2,10,8,3)$$

$$R^5 = (9,8,2,9,8,3)\ R^6 = (10{,}7{,}2{,}10{,}7{,}2)\ R^7 = (10{,}7{,}3{,}10{,}8{,}3)\ R^8 = (9{,}7{,}2{,}9{,}7{,}2)$$

The elements of the first expert's vector w_j^1 are calculated individually to create the weight coefficients vector by applying Equation (3) as follows.

$$w_1^1 = \frac{\ln(10)}{\ln(10.8.3.10.8.3)} = 0.210\ w_2^1 = \frac{\ln(8)}{\ln(10.8.3.10.8.3)} = 0.190$$

$$w_3^1 = \frac{\ln(3)}{\ln(10.8.3.10.8.3)} = 0.100\ w_4^1 = \frac{\ln(10)}{\ln(10.8.3.10.8.3)} = 0.210$$

$$w_5^1 = \frac{\ln(8)}{\ln(10.8.3.10.8.3)} = 0.190\ w_6^1 = \frac{\ln(3)}{\ln(10.8.3.10.8.3)} = 0.100$$

The values of weight coefficients obtained meet the condition of $\sum_{j=1}^{9} w_j^1 = 1$. The remaining elements of vectors w_j^2, w_j^3 ,w_j^4, w_j^5, w_j^6, w_j^7 and w_j^8 are calculated in similar manner as follows;

$w_j^1 = (0.210; 0.190; 0.100; 0.210; 0.190; 0.100)$

$w_j^2 = (0.212; 0.199; 0.071; 0.235; 0.212; 0.071)$

$w_j^3 = (0.233; 0.197; 0.070; 0.233; 0.197; 0.070)$

$w_j^4 = (0.218; 0.197; 0.066; 0.218; 0.197; 0.104)$

$w_j^5 = (0.212; 0.201; 0.067; 0.212; 0.201; 0.106)$

$w_j^6 = (0.233; 0.197; 0.070; 0.233; 0.197; 0.070)$

$w_j^7 = (0.213; 0.180; 0.101; 0.213; 0.192; 0.101)$

$w_j^8 = (0.227; 0.201; 0.072; 0.227; 0.201; 0.072)$

The aggregate vector of the weighting coefficients is obtained by applying the Equation (4).

For instance, the value of w_1 is calculated by average values of w_j^e $(1 \leq e \leq 8)$ for each expert where $w_1^1 = 0.210$, $w_1^2 = 0.212$, $w_1^3 = 0.233$, $w_1^4 = 0.218$, $w_1^5 = 0.212$, $w_1^6 = 0.233$, $w_1^7 = 0.213$ and $w_1^8 = 0.227$ as follows.

$$w_1 = \left[\frac{0.210^1.0.212^1 + 0.210^1.0.233^1 + 0.210^1.0.218^1 + \cdots + 0.227^1.0.212^1 + 0.227^1.0.233^1 + 0.227^1.0.213^1}{8(8-1)}\right]^{\left[\frac{1}{1+1}\right]} = 0.2198$$

The remaining values of the vectors of the weight coefficients are obtained correspondingly.

$w_j = (0.2198, 0.1951, 0.0770, 0.2227, 0.1984, 0.0866)^T$

The evaluation of criterion weights indicates that the Number of Domestic Investment Incentive Certificates (C4) emerged as the most crucial criterion, while the Employment Forecast Procured by Foreign Investment (C3) is the least important one. The final significance of the criteria can be ordered as C4>C1>C5>C2>C6>C3.

The elements of weighted matrix $N = \left[\xi_{ij}\right]_{mxn}$ are calculated according to Equation (5) and Equation (6) and the results are summarized in Table 6.

Table: 6
Elements of Weighted Matrix

	C1	C2	C3	C4	C5	C6
Adana	0.5568	0.6614	0.8700	0.5436	0.5914	0.7999
Adıyaman	0.3248	0.2176	0.7636	0.4859	0.4739	0.8056
Afyonkarahisar	0.4481	0.3755	0.7493	0.4992	0.4995	0.7645
⋮	⋮	⋮	⋮	⋮	⋮	⋮
Yalova	0.4350	0.5088	0.7739	0.4297	0.5487	0.7874
Yozgat	0.3248	0.4934	0.7136	0.4091	0.4217	0.7264
Zonguldak	0.3804	0.3998	0.7232	0.4236	0.5123	0.7559

As an example;

$$\varphi_{11} = \frac{\ln(1.1530)}{\ln(1.1530 * \ \ldots\ldots\ldots\ldots * 1.0152\ )} = 0.0259$$

$$\xi_{11} = \frac{2 * 0.0259^{0.2198}}{(2 - 0.0259)^{0.2198} + 0.0259^{0.2198}} = 0.5568$$

The final indices (Q_i) of alternatives are calculated based on Equation (7). Final indices and the order of the provinces are listed in Table 7.

Table: 7
Final Indices and Orders of Provinces

Province	Q_i	Order	Province	Q_i	Order	Province	Q_i	Order
Adana	4.0231	10	Edirne	3.0569	56	Malatya	3.3024	37
Adıyaman	3.0714	54	Elazığ	3.3395	32	Manisa	4.0606	9
Afyonkarahisar	3.3361	33	Erzincan	3.1736	47	Mardin	3.2051	41
Ağrı	2.7308	71	Erzurum	2.7457	70	Mersin	4.0834	8
Aksaray	3.5541	23	Eskişehir	3.7293	14	Muğla	3.6131	18
Amasya	3.1347	48	Gaziantep	3.8830	11	Muş	1.5055	76
Ankara	4.2078	5	Giresun	3.0235	59	Nevşehir	2.8647	67
Antalya	4.1502	6	Gümüşhane	1.4057	78	Niğde	3.3123	35
Ardahan	1.2418	81	Hakkâri	1.3296	79	Ordu	3.1792	45
Artvin	2.9305	62	Hatay	3.6175	17	Osmaniye	3.1901	44
Aydın	3.5053	26	Iğdır	2.5297	74	Rize	2.8118	68
Balıkesir	3.7162	15	Isparta	3.1769	46	Sakarya	3.8476	12
Bartın	2.9355	61	İstanbul	4.6261	1	Samsun	3.4541	29
Batman	3.1240	49	İzmir	4.3412	3	Siirt	2.6131	73
Bayburt	2.4198	75	Kahramanmaraş	3.5263	24	Sinop	2.7971	69
Bilecik	3.5595	22	Karabük	1.4925	77	Sivas	3.2359	39
Bingöl	3.0381	58	Karaman	3.3048	36	Şanlıurfa	3.5973	19
Bitlis	2.6610	72	Kars	2.8778	64	Şırnak	2.8729	65
Bolu	3.2143	40	Kastamonu	3.0858	52	Tekirdağ	4.1248	7
Burdur	3.0607	55	Kayseri	3.6708	16	Tokat	3.0401	57
Bursa	4.3666	2	Kırıkkale	2.8709	66	Trabzon	3.0985	50
Çanakkale	3.4826	28	Kırklareli	3.5234	25	Tunceli	1.2968	80
Çankırı	3.2887	38	Kırşehir	2.9270	63	Uşak	3.3276	34
Çorum	3.0806	53	Kilis	2.9474	60	Van	3.1917	43
Denizli	3.5795	21	Kocaeli	4.3137	4	Yalova	3.4834	27
Diyarbakır	3.3944	30	Konya	3.8415	13	Yozgat	3.0890	51
Düzce	3.5908	20	Kütahya	3.3616	31	Zonguldak	3.1951	42

The final index of Adana province is calculated as;

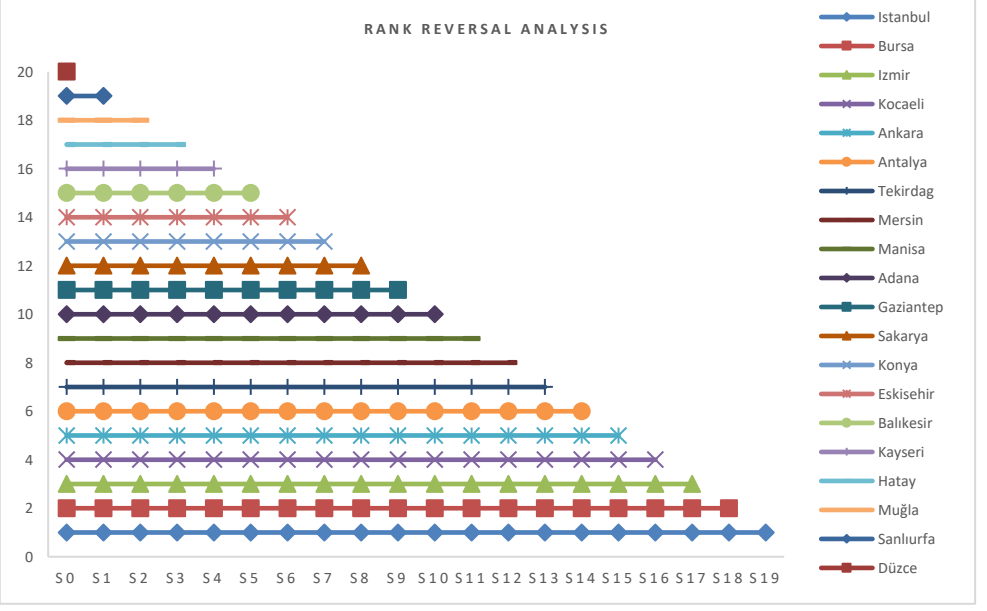
$$Q_1 = 0.5568 + 0.6614 + 0.8700 + 0.5436 + 0.5914 + 0.7999 = \ 4.0231$$

According to the absolute indices of provinces, İstanbul, Bursa, İzmir, Kocaeli, Ankara, Antalya, Tekirdağ, Mersin, Manisa and Adana are ordered sequentially in the first ten order. However, Bitlis, Siirt, Iğdır, Bayburt, Muş, Karabük, Gümüşhane, Hakkari, Tunceli and Ardahan showed minor performance in terms of the same evaluation.

4.3. Sensitivity Analysis with Rank Reversal Method

In line with the principles revealed by the method, the alternative with the lowest performance is removed sequentially from the list, and new orders are obtained. The shifts in the order of the options according to the Rank Reversal Analysis result are visualised in Figure 3.

Figure: 3
Effect of Rank Reversal Analysis



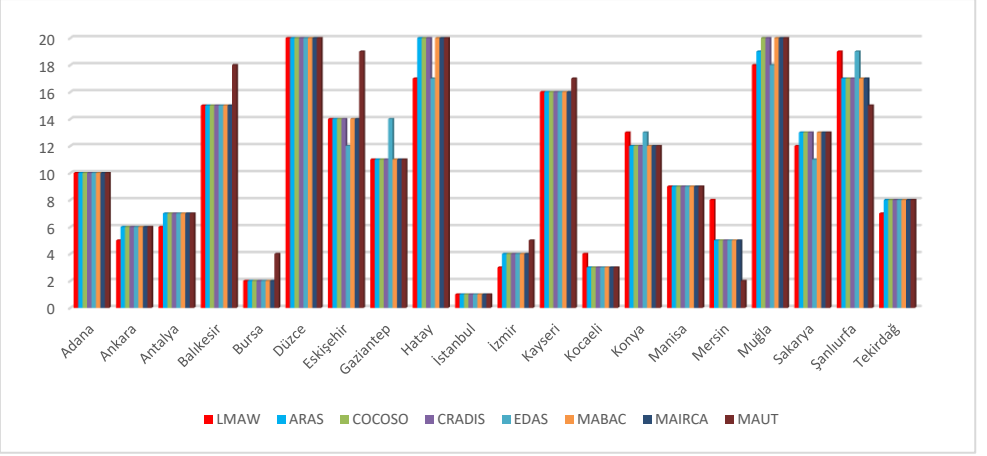
It is evident from Figure 3 that the LMAW model is effective in generating valid outputs in a dynamic environment and has a robust resistance against rank reversal problems. The advantages of the top-ranked option are preserved across all situations.

4.4. Comparison with Other MCDM Methods

In addition to the LMAW approach used as the primary method in the study, evaluation is also made with ARAS, CoCoSo, CRADIS, EDAS, MABAC, MAIRCA and MAUT methods, and the ranking results obtained are indicated in Appendix 1B. Due to the

vast number of alternatives, the provinces in the top twenty order according to the results of the LMAW method are bar-charted in Figure 4.

Figure: 4
Comparison with other MCDM Methods



The ordering results performed by other methods also result in consistency compared with LMAW method results. This is a significant indicator to prove the validity of the obtained orders.

Based on their rankings, the Spearman Rank Correlation Coefficient establishes the statistical correlation between the LMAW method and other techniques. Table 8 presents the outcomes obtained through using SRCC to compare the orders. Based on the data in Table 8, one can conclude that the LMAW approach exhibits a significant correlation (over 0.932) with the remaining seven MCDM techniques. To summarise, it can be inferred from the suggested method that the sequencing is verified and dependable.

Table: 8
Rank Correlations of the Models Tested

	ARAS	CoCoSo	CRADIS	EDAS	MABAC	MAIRCA	MAUT
LMAW	0.982	0.982	0.982	0.979	0.982	0.982	0.932

When all the results are evaluated together, contrary to the argument put forward by the investment incentive legislation, capital owners prioritise the already developed provinces regarding investment location preferences. The evaluation performed with the LMAW method regarding the investment performance of the provinces has revealed results which refute this suggestion. Sensitivity analysis with rank reversal revealed that the MCDM method has a consistent structure. Obtaining similar results in the order performed with other

MCDM methods and high correlation among them increased the reliability of the applied method.

5. Results and Discussion

In this study, the investment incentive system, implemented as an instrument to trigger investments in Türkiye, has been examined on a provincial and sectoral basis. The weights of the criteria used for the evaluation are determined by eight decision-makers who are experts in their fields. As a result of the evaluation, it is determined that the most important criterion was "Number of Domestic Investment Incentive Certificates" (C4), and the least important criterion was "Employment Forecast Procured by Foreign Investment" (C3). After that, the success indicators of all provinces in terms of investment performance within the scope of the incentive certificates are ordered. The Additive Weights method's Logarithm Methodology carries out both evaluations.

Considering the investments that obtained incentive certificates, it is observed that Istanbul has a superior position compared to other provinces. Within the scope of the same evaluation, Bursa, İzmir, Kocaeli, Ankara, Antalya, Tekirdağ, Mersin, Manisa, Adana, Gaziantep, Sakarya, Konya, Eskişehir, Balıkesir, Kayseri, Hatay, Muğla, Şanlıurfa and Düzce are ordered sequentially in the first twenty order after İstanbul province.

A vital point emerged in this order is that İstanbul, Bursa, İzmir, Kocaeli, Ankara, Antalya, Tekirdağ, Eskişehir and Muğla provinces are classified in the first region. Manisa, Sakarya, Konya, Balıkesir and Kayseri are in the second, and Mersin, Adana and Gaziantep are in the third region. In addition, the least order value of the provinces in the first region is 18, which points to the province of Muğla.

According to the performance evaluation, 11 of the 15 provinces in the second region are in the top 28 regarding investment performance. Meanwhile, 10 of the 13 provinces in the third region are in the top 50 in terms of the same evaluation. The last ten provinces are ordered as Bitlis, Siirt, Iğdır, Bayburt, Muş, Karabük, Gümüşhane, Hakkari, Tunceli and Ardahan. In this order, Bitlis, Siirt, Iğdır, Muş, Hakkari and Ardahan are classified in the sixth region, whereas Karabük is in the second and Gümüşhane and Tunceli are in the fifth region.

Mersin and Adana provinces are classified in the third region. However, especially in recent years, high energy and agricultural investments have been made in these provinces, significantly contributing to their performance. Investments in the manufacturing industry made in provinces such as Manisa, Gaziantep, Sakarya, Konya, Balıkesir, Kayseri, Şanlıurfa and Düzce in recent years have been an important factor for these provinces being ordered in the top twenty.

The provinces in the first region have many advantages, such as robust industrial infrastructure, access to ports, access to raw materials and markets, hosting the most qualified universities, and potential in terms of skilled labour supply.

Considering that all the provinces in the first twenty are relatively developed, the tendency of investors in terms of investment location does not show an alteration despite the advantages of the incentive system. Namely, despite the excellent support items such as Customs Duty Exemption, VAT Exemption, Corporate Tax Reduction, Social Insurance Premium Support (Employer's Share), Land Allocation, Interest Rate Support, Social Insurance Premium Support (Employee's Share) and Income Tax Withholding Support, the underdeveloped regions do not tempt the investors sufficiently.

Indeed, when the provinces in the regions determined according to the socio-economic development index and the investment incentive data are analysed together, it is seen that the first region has the highest share, with 42.55% in terms of the number of incentive certificates. On the other hand, the remaining regions have a share of 18.04%, 13.87%, 8.63%, 6.49% and 10.42%, respectively. Regarding the fixed investment amount, the first region dominates almost half of the investment expenditures in Türkiye, with a share of 47.54%. The remaining total fixed investment amounts are shared as 20.00%, 16.74%, 6.48%, 5.10% and 4.14%, respectively, according to the region's number.

In this case, it is an issue that needs to be questioned whether the investment incentive system in Türkiye is implemented for its purpose. This situation points out that factors investors consider on the sidelines of making investment decisions are issues that must be studied comprehensively. Apart from the support already provided, introducing new incentives that encourage investors to invest in underdeveloped regions should be the most critical agenda for policymakers dealing with this issue.

Visits to some of the Chambers of Commerce and Industry, which are the direct interlocutors of the investment incentive system, have also given rise to important ideas. The most important point emphasised by the chamber representatives is that the socio-economic development index used in the regional classification of provinces is far from being a fair approach. Concerns about political interference while making the socio-economic categorisation of provinces have been particularly articulated. While regional classification processes are already perceived as inequitable, deploying a new concept such as the "Centre of Attraction" triggers a sense of discrimination between regions. In this respect, it may be helpful to transform investment incentives into an optional and flexible structure rather than standard applications so that they would be practical, efficient and easily implementable.

Investors usually avoid obtaining incentive certificates because incentive implementation processes have a challenging bureaucracy. They often outsource this service to intermediary consulting companies to avoid this intensive bureaucracy. Intermediary institutions' quantitative and qualitative inadequacy, especially in relatively less developed regions, constitutes a second disadvantage for these regions in benefiting from incentives. This situation is also frequently experienced in the revision processes of incentive certificates. Even though the E-TUYS application aims to facilitate these processes, this system is not considered user-friendly.

In almost every sector, the problem of employing intermediate staff is expressed, and it seems pretty essential to put high-level incentive supports in force, especially for the employment of vocational high school and/or vocational college graduates. In addition, implementing incremental insurance premiums for minimum wage in areas where the unemployment problem is intense could also alleviate the issue of migration in these regions.

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Appendix: 1A
Initial Decision Matrix

	C1	C2	C3	C4	C5	C6
Adana	121	21,688.81	24,553	2,259	56,947.86	57,153
Adıyaman	5	15.29	1,222	1,109	11,835.49	66,046
Afyonkarahisar	31	403.48	822	1,311	16,893.55	23,538
Ağrı	2	9.18	573	242	4,667.88	11,732
Aksaray	34	7,095.96	7,471	701	14,041.57	21,256
Amasya	22	995.32	710	391	3,626.62	10,923
Ankara	240	17,682.04	10,351	5,196	129,921.86	158,901
Antalya	158	23,288.62	15,715	3,938	78,655.40	173,279
Ardahan	-	-	-	56	649.14	1,606
Artvin	9	815.00	207	159	5,539.78	2,862
Aydın	37	933.87	1,234	1,120	48,741.89	40,294
Balıkesir	70	6,856.61	2,678	1,337	38,991.34	33,610
Bartın	5	164.93	1,281	145	10,118.64	7,088
Batman	7	25.60	1,865	1,330	7,230.44	99,832
Bayburt	3	49.03	3	95	1,154.77	1,466
Bilecik	77	2,251.56	5,065	524	32,622.67	21,145
Bingöl	3	4,133.96	350	287	2,542.06	10,616
Bitlis	1	1.01	102	431	6,270.34	25,075
Bolu	18	585.87	578	476	13,537.91	24,596
Burdur	16	152.20	1,413	481	5,695.90	8,706
Bursa	454	41,126.37	51,282	5,443	112,317.82	134,742
Çanakkale	40	4,948.31	1,624	527	21,975.23	15,485
Çankırı	11	3,118.79	3,177	379	9,412.55	13,323
Çorum	10	556.17	138	645	6,939.14	16,435
Denizli	43	1,965.05	1,262	2,031	29,241.93	42,616
Diyarbakır	17	173.78	2,511	2,057	20,190.60	106,192
Düzce	69	3,321.17	5,987	715	21,673.33	29,552
Edirne	15	548.76	328	304	6,422.29	9,738
Elazığ	20	1,131.04	1,476	734	15,396.70	24,631
Erzincan	10	4,742.50	604	329	4,011.66	9,463
Erzurum	4	30.52	1	619	10,116.64	20,193
Eskişehir	86	6,559.74	5,951	1,140	29,889.06	37,105
Gaziantep	148	1,861.86	2,778	3,622	98,445.70	107,851
Giresun	11	259.64	794	378	4,637.96	11,426
Gümüşhane	-	-	-	150	2,952.73	2,832
Hakkâri	-	-	-	105	1,270.39	2,477
Hatay	58	4,656.38	2,682	1,048	28,072.90	26,319
Iğdır	2	16.19	70	161	999.95	5,364
Isparta	24	433.57	612	621	8,750.27	11,355
İstanbul	791	46,248.41	60,108	13,723	346,095.86	457,658
İzmir	422	23,876.50	28,497	5,132	196,005.13	149,948
Kahramanmaraş	31	930.77	929	1,759	47,877.57	51,613
Karabük	-	-	-	211	4,801.38	6,790
Karaman	22	2,635.39	1,834	486	7,255.40	13,279
Kars	7	1,131.22	72	184	1,692.35	8,289
Kastamonu	9	436.69	325	457	10,361.74	14,440
Kayseri	42	3,978.54	2,560	1,966	35,124.09	48,512
Kırıkkale	5	87.05	211	303	8,045.57	6,978
Kırklareli	59	2,572.65	1,606	538	38,587.44	22,485
Kırşehir	6	552.23	84	269	6,409.67	6,741
Kilis	11	280.96	418	197	5,840.40	5,604
Kocaeli	612	40,175.36	43,843	2,926	110,068.77	86,291
Konya	75	2,570.56	3,068	4,318	82,149.82	78,300
Kütahya	22	639.26	811	761	36,290.14	29,287
Malatya	16	202.82	722	1,140	23,639.35	71,976
Manisa	229	17,212.89	12,494	2,176	70,506.87	76,811
Mardin	15	59.22	2,088	1,281	7,255.35	83,528
Mersin	145	82,183.11	7,735	2,123	57,916.66	41,229
Muğla	56	1,787.73	2,874	1,304	39,073.91	46,788
Muş	-	-	-	276	2,798.08	14,008
Nevşehir	8	31.81	97	601	5,670.46	9,347
Niğde	22	822.15	1,656	611	19,737.24	14,381
Ordu	14	437.95	997	579	7,961.78	26,693
Osmaniye	21	819.56	418	530	8,885.15	13,779
Rize	7	107.57	355	226	2,548.61	4,799
Sakarya	127	8,162.56	10,765	1,235	46,698.52	44,740
Samsun	26	2,542.51	700	1,066	22,030.77	32,277
Siirt	1	0.56	400	237	5,512.52	11,238
Sinop	2	255.24	95	242	4,033.91	8,826
Sivas	19	403.70	1,083	803	10,656.85	22,025
Şanlıurfa	44	879.72	6,751	1,945	25,355.93	78,614
Şırnak	4	38.01	420	419	4,497.95	21,361
Tekirdağ	269	18,367.80	18,789	2,459	86,216.87	88,822
Tokat	9	75.97	905	589	6,015.06	30,786
Trabzon	12	489.29	309	576	7,186.24	13,329
Tunceli	-	-	-	88	933.62	2,133
Uşak	17	2,157.27	1,391	726	11,738.28	14,069
Van	12	169.98	5,671	623	7,918.27	33,179
Yalova	26	3,004.51	1,625	533	32,697.80	41,762
Yozgat	5	2,428.17	301	402	5,502.89	9,085
Zonguldak	12	601.48	395	491	20,116.09	18,992

Appendix: 1B
Orders Obtained by Different MCDM Methods

	LMAW	ARAS	COCOSO	CRADIS	EDAS	MABAC	MAIRCA	MAUT
Adana	10	10	10	10	10	10	10	10
Adıyaman	54	36	36	36	37	36	36	31
Afyonkarahisar	33	35	35	35	32	35	35	34
Ağrı	71	70	70	70	70	70	70	70
Aksaray	23	26	27	27	26	27	27	30
Amasya	48	54	55	55	54	55	55	59
Ankara	5	6	6	6	6	6	6	6
Antalya	6	7	7	7	7	7	7	7
Ardahan	81	81	81	81	81	81	81	81
Artvin	62	68	68	68	68	68	68	71
Aydın	26	23	23	23	24	23	23	22
Balıkesir	15	15	15	15	15	15	15	18
Bartın	61	64	64	64	64	64	64	64
Batman	49	32	31	32	35	31	31	23
Bayburt	75	78	78	78	78	78	78	78
Bilecik	22	25	24	24	22	24	24	24
Bingöl	58	52	57	57	51	57	57	53
Bitlis	72	62	61	61	62	61	61	56
Bolu	40	45	45	45	46	45	45	44
Burdur	55	58	56	56	58	56	56	58
Bursa	2	2	2	2	2	2	2	4
Çanakkale	28	29	32	31	27	32	32	36
Çankırı	38	43	43	43	41	43	43	43
Çorum	53	51	51	51	52	51	51	52
Denizli	21	20	19	19	20	19	19	20
Diyarbakır	30	21	21	21	30	21	21	14
Düzce	20	24	25	25	21	25	25	28
Edirne	56	60	60	60	60	60	60	63
Elazığ	32	37	37	37	36	37	37	38
Erzincan	47	46	49	49	45	49	49	45
Erzurum	70	55	53	53	56	53	53	50
Eskişehir	14	14	14	14	12	14	14	19
Gaziantep	11	11	11	11	14	11	11	11
Giresun	59	61	62	62	61	62	62	62
Gümüşhane	78	77	77	77	77	77	77	77
Hakkâri	79	79	79	79	79	79	79	79
Hatay	17	22	22	22	17	22	22	26
Iğdır	74	76	76	76	76	76	76	76
Isparta	46	47	46	46	47	46	46	49
İstanbul	1	1	1	1	1	1	1	1
İzmir	3	4	4	4	4	4	4	5
Kahramanmaraş	24	18	18	18	23	18	18	16
Karabük	77	75	75	75	75	75	75	74
Karaman	36	41	42	42	40	42	42	46
Kars	64	69	69	69	69	69	69	72
Kastamonu	52	57	54	54	57	54	54	55
Kayseri	16	16	16	16	16	16	16	17
Kırıkkale	66	66	65	65	66	65	65	65
Kırklareli	25	27	26	26	25	26	26	29
Kırşehir	63	65	66	66	65	66	66	66
Kilis	60	67	67	67	67	67	67	68
Kocaeli	4	3	3	3	3	3	3	3
Konya	13	12	12	12	13	12	12	12
Kütahya	31	33	34	34	33	34	34	32
Malatya	37	31	29	29	31	29	29	27
Manisa	9	9	9	9	9	9	9	9
Mardin	41	34	33	33	34	33	33	25
Mersin	8	5	5	5	5	5	5	2
Muğla	18	19	20	20	18	20	20	21
Muş	76	74	74	73	74	73	73	67
Nevşehir	67	59	59	59	59	59	59	57
Niğde	35	38	38	38	38	38	38	39
Ordu	45	48	47	47	48	47	47	48
Osmaniye	44	49	48	48	49	48	48	51
Rize	68	73	73	74	73	74	74	75
Sakarya	12	13	13	13	11	13	13	13
Samsun	29	30	30	30	29	30	30	35
Siirt	73	71	71	71	71	71	71	69
Sinop	69	72	72	72	72	72	72	73
Sivas	39	42	41	41	43	41	41	40
Şanlıurfa	19	17	17	17	19	17	17	15
Şırnak	65	63	63	63	63	63	63	61
Tekirdağ	7	8	8	8	8	8	8	8
Tokat	57	50	50	50	50	50	50	47
Trabzon	50	53	52	52	53	52	52	54
Tunceli	80	80	80	80	80	80	80	80
Uşak	34	39	39	39	39	39	39	41
Van	43	40	40	40	42	40	40	37
Yalova	27	28	28	28	28	28	28	33
Yozgat	51	56	58	58	55	58	58	60
Zonguldak	42	44	44	44	44	44	44	42