DISTRIBUTION OF EDUCATIONAL RESOURCES OF THE MINISTRY OF SCIENCE, RESEARCH AND TECHNOLOGY BASED ON THE DEGREE OF DEVELOPMENT OF UNIVERSITIES

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Abstract
The purpose of this research is to examine the distribution of educational resources of the Ministry of Science, Research and Technology based on the degree of development of universities to each university. In this research, the library studies were first designed to determine the developmental indicators, and then, during fieldwork, the required data from the general educational, technical and supervision departments of the Ministry of Science, Research and Technology and Higher Education of the Planet Budget Organization and the Budget Law of 1395 The whole country was extracted and analyzed using numerical taxonomic techniques and different regions were prioritized. Ultimately, the main goal of this study was to provide an intelligent model for the allocation problem for ten regions using intelligent algorithms and computer programming to achieve a more equitable and more reasonable allocation of funds.

Key words: *Regional Planning-Numerical Taxonomy-Degree of Development-Smart Model.*

Introduction

Today, developing countries need to plan and identify the resources and resources of their country, in order to strengthen the economic infrastructure and escape the dependence and eliminate existing imbalances. Certainly, in planning the country's growth and development, recognizing the status and position of different regions is one of the most important factors in achieving progress. Access to facilities and zoning are the right categories for managers to achieve their goals for their goals. Therefore, leveling requires accurate and accurate studies. With the leveling of regions, spatial, spatial, social, cultural and economic differences are evident. Construction projects in the country's economic and budgetary system are of great importance and every year a large part of our national income is invested in construction projects and infrastructure projects.

On the other hand, today, the allocation of funds in each organization is very important, especially if we realize that the budget of the organizations is limited and there are several projects to be implemented. The Ministry of Science, Research and Technology is not excluded from this and, having a large number of projects in the educational sector of universities, is trying to get the best decisions in the area of budget allocation, which, in addition to considering budget constraints, the priorities of the Ministry of Science, Research and technology should also be considered. Educational units of universities are organized in the form of 31 provinces, 10 districts and 96 universities. The aim of this study is to determine the degree of development of universities in terms of facilities and sports spaces and the comparison of universities, and the possibility of equitable distribution of resources to all universities in proportion to the facilities and Sports spaces. The important and practical variables of this research are university development, the amount and amount of facilities and sports spaces of universities and the amount of funding allocated to each university. The relation between these variables is completely non-linear and complex and can not easily be expressed in a mathematical model. Data analysis is performed using numerical taxonomic techniques to prioritize different regions. Ultimately, the main goal of this research is to provide an intelligent model for the allocation of funds for the 10 regions by intelligent algorithms and computer programming in order to obtain a more equitable and more reasonable allocation of funds. Therefore, the interesting and interesting issue in this thesis is the formulation of the traditional issue of budget allocation to an intelligent model and its intelligent solution instead of human and manual solution.

The main question is whether the intelligent model can provide and implement an optimal model for the complex problem of allocating resources efficiently and efficiently. Sadeghi Arani and Mir Ghafouri (2009) have achieved the following results: Of the 28 provinces in Iran in 2005, only the province of Semnan with a developmental level of 495% is among the provinces with sporting and educational facilities. The year 2006 included the provinces of Semnan and Zanjan, respectively, with a degree of development of 0.712 and 0.755 respectively. During this time period, the provinces of Isfahan, Kohkiluyeh and Boyerahmad, Kerman and Sistan and Baluchestan have been considered as undeveloped provinces for sporting and

educational facilities (1). Ismaili et al. (2014) have achieved the following results: Fars Province continues to suffer from a lack of per capita sport space and the development of places is one of the main concerns of the provincial governors (2). Nastaran (2001) showed that the per capita utilization of urban services, especially educational, health and welfare spaces is very unbalanced in urban areas of Isfahan (3). Mazaherinia (2005) indicates that the concentration of facilities in Isfahan's first and third districts is higher than in other areas. Also, the inequality process of the various indicators is decreasing in all regions. Therefore, the necessity of proper zoning between organizations, especially with the municipality, seems necessary in order to provide the best possible services (4). Asad Masjedi et al. (2014) showed that the province of Tehran has the highest degree of development. Cleaner et al. (1395) showed that more facilities and services are concentrated in the city center. Hence, inequality in the five regions is highly variable. So, in the analysis of all three models of regions one and two are more favorable, but the five regions are the most deprived areas (5). According to a review of past work, it has become clear that so far no intelligent model has been presented for the allocation of funds in sporting areas which is being investigated in this study.

Methods

The research method is analytical-descriptive based on descriptive statistics. Data was collected by analyzing the status quo.

In this study, a numerical taxonomic ranking model was used to identify inequalities. In the distribution phase of the required credits, universities are utilizing the intelligent resource allocation model. Firstly, considering the data collected from the general educational, technical and supervision departments of the Ministry of Science, Research and Technology and the Office of Higher Education of the Organization for Economic Cooperation and Development of the Organization for Budget and Budget of 2016 in the whole country, using the numerical taxonomy method, the universities in question Sports facilities (Indoor and indoor gyms and pools) were ranked and we determined the developmental level of each.

In order to adequately distribute financial resources to the Ministry of Science, Research and Technology, taking into account the ranking, as well as the degree of development of universities, and to observe the indicators:

1. For every 2500 students, a sports hall of 1800 square meters
2. For every 6,000 students, a pool of 1800 m²

The deficit or addition of sports spaces of each university in two indices was estimated traditionally. In the next stage, for each university, the estimated deficit is considered as the minimum number of gyms and pool required, taking into account the size of 20 million rials, the cost of construction and operation per square meter of the sports hall and 25 million rials, the construction cost and the interest For each square meter of pool infrastructure, the final grade required for assignment to each of the universities was determined, which is to be paid during the sixth program of development at the university level. The distribution of such funds is not close to reality and justice, and is a method that is now free of the usual bargaining.

There are various methods for finding an optimal cost function, such as traditional derivatives, Newton Robson, or newly inspired methods of nature such as genetic algorithm and bird migration. With the advent of technology, the virtual world and computer computing, they have been a major contributor to reflecting new ideas. In the meantime, in order to allocate appropriate resources and maximize justice, in this study, an optimal response to the bird migration algorithm based on the social behavior of birds and fish communities has been identified as one of the most up-to-date numerical methods of optimization and the most powerful optimization methods. The problem of optimizing the multi-objective functions has been used. For this purpose, it is necessary to define the functions. Bird migration algorithm is similar to intelligent evolution algorithms because it is a population based approach and each member of the population has an objective function. But in the birds' migration algorithm, there is a mechanism in which each member of the population uses past events that are not available in other intelligent methods. The Bird Migratory Algorithm is a parallel multifactorial method that consists of a number of birds in a group, each bird representing an answer to a problem. All birds fly in the multi-modal space, and each bird adjusts its position based on its own experience and neighbor's experience.

In the previous step of the traditional calculations, the minimum and maximum funding required for each university was determined according to the current situation of the universities and considering the mentioned indicators. In addition, the total amount required for fair distribution between universities is estimated, which requires the contribution of each of the universities examined, taking into account the degree and degree of development of each university, which means that universities with a high rank of low-rank universities and low-rated universities Getting the most out of the total financial resources with the minimum and maximum funding requirements and, most importantly, observing the ceiling of allocated credit.

In the smart approach, several decision parameters must be considered, the most important of which is to define the cost function and determine the decision variables. To define the multi-purpose cost function, consider the following conditions:

1. Rank and degree of development of any university multiplied by the allocation of funds should be the highest. The university has the lowest budget and the lowest university has the highest budget):

$$f_1 = Max\sum_{1}^{n} x_i p_i^{\,2}$$

Where xi is the allocation of funds for each university (N: number of studied universities, Pi: the rank of each university in the ranking table).

2. The total budget required for each university, minus the total budget, should be the lowest of both.

$$f_2 = Min\sum_{1}^{n} (x_i - B)^2$$

Where B: is the total allocation budget.

The reason for making the result in paragraph 1 is to give more importance to the ranking and degree of development.

Example: If we multiply the two priorities with numbers 2 and 3 in a given number, then the final result will be 2 to 3, while if the numbers of priorities are given by the power of two in the calculations, the final result will be from 4 to 9. And the importance of ranking and degree of development would be more evident.

Finally, the overall cost function will be as follows:

$$f_{total} = -W_1 \times \sum_{1}^{n} x_i p_i^2 + W_2 \times \sum_{1}^{n} (x_i - B)^2$$

In which: W1, W2 is the coefficient of importance of the functions 1 and 2.

The reason for the weighting coefficient for each of the functions in the above formula is the importance of each function, which means, in terms of the distributor of credits, whether each of the defined functions is of the same importance (then the weight of the importance of the functions will be taken), or One of the functions is superior to another (in this case, different numbers will be assigned to the importance of the functions). The reason for the negativity of the first function in the formula of the final function (the sum of the two initial functions) is that the genus of the two initial functions is not the same; in the first function, the goal is to minimize the function, and in the second function the objective is to maximize the value of the function.

Society and Sample
Study population: Departments and educational colleges of the 10th Region Universities of the Ministry of Science, Research and Technology have 96 universities, all of which have been studied and analyzed in a comprehensive and targeted manner.

Information Collection Tool
Data were collected using data bases of the educational and developmental departments of the universities under study, as well as the Ministry of Science, Research and Technology, and the Organization for Management and Planning, and then the data were collected and analyzed and analyzed using the information obtained in the research.

Statistical Methods
Excel software was used for statistical analysis and results analysis. Matlab's intelligent modeling software was used.

Results

The results of the measurement of the degree of development of the universities of the 10 areas of the Ministry of Science, Research and Technology in terms of physical spaces (halls and pools and lateral spaces) indicate that:

Among all the universities studied (96 universities), in terms of physical spaces, Tafresh University in Markazi province has 2153 students in undergraduate, master and doctoral degrees, and 5100 square meters of physical space in the gym and extant spaces. Under construction and 1200 square meters of swimming pool and peripheral spaces, the most profitable university among all universities studied and 15 universities without having even one square meter of physical space, including gym, swimming pool and outdoor spaces are one of the most deprived universities of the Ministry of Science from different regions in terms of physical spaces.

Based on the above results, the first hypothesis of the study was that "Places and sports spaces have not been constructed among the universities of the 10 regions of the Ministry of Science, Research and Technology, according to the number of students." And the second assumption is that "the proportional distribution of facilities and sports spaces of the 10th Region Universities is based on a prioritized budget." Based on the results obtained from the Intelligent Bird Immersion Algorithm, the credits required to be allocated to each of the universities during the sixth development plan of the following tables lead to maximum equity in the distribution of financial resources in the Department of Physical Education in the Ministry of Science, Research and Technology.

Table 1. Credits Required for Assignment to 10 Universities of the Ministry of Science, Research and Technology (Million Rials).

Rank	University	Credit required for assignment	Rank	University	Credit required for assignment
1	Tafresh	0	25	Valiasr of Rafsanjan	41618
2	Varamin Agriculture and Natural Resources	0	26	Zabul	0
3	Shahr e Kord	0	27	Gorgan Agriculture and Natural Resources	35480
4	Industrial Shiraz	0	28	Kharazmi	0
5	Qom	0	29	Sistan and Baluchestan	44150
6	Art	22206	30	Shahid Chamran Ahvaz	31632
7	Ilam	34876	31	Shiraz	42729
8	Fasa	15622	32	Gonbad-e Qabus	36307
9	Industrial Sirjan	36102	33	Shahrud	66234
10	Kosar	30333	34	Arak	0
11	Esfahan	74954	35	Garmsar	54521
12	Teacher Training	68416	36	International Imam Khomeini (RA)	64124
13	Marine Science and Technology of Khorramshahr	18700	37	Science and Technology Mazandaran	79023
14	Zanjan	38524	38	Wise Sabzevari	66347
15	Graduate Studies of Basic Science in Zanjan	20221	39	Grand Ayatollah Boroujerdi	59036
16	Masoumeh (AS)	23928	40	Tehran	28815
17	Industrial Jandhi Shapur Dezful	31492	41	Seagoing and Maritime Science Chabahar	41818
18	Persian gulf	59821	42	Birjand	63148
19	Sahand Industrial Co.	33797	43	Sharif Industrial	0
20	Yasuj	62898	44	Maragheh	61057
21	Amir Kabir Industrial Co.	158658	45	Mazandaran	124728
22	Arak Industrial Co.	29737	46	Golestan	65725
23	Ayatollah Haeri is dead	49583	47	Kurdistan	41640
24	Hormozgan	36318	48	Damghan	76089

Table 1. (Continued) Credits Required for Assignment to Universities of 10 Areas of the Ministry of Science, Research and Technology (million Rials).

Rank	University	Credit required for assignment	Rank	University	Credit required for assignment
49	Tabriz	86469	73	Birjand Industrial Co.	28110
50	Ferdowsi Mashhad	98325	74	Yazd	89453
51	Art of isfahan	39719	75	Khaje Nasir al-Din Tusi Industrial Co.	113397
52	Giulan	125631	76	Lorestan	119872
53	Semnan	159240	77	Agricultural Sciences and Natural Resources of Sari	79696
54	Elm o Sanat	35046	78	Mohageg Ardebil	151198
55	Urmia	0	79	Iranshahr province	73483
56	Kahan	25291	80	Farzanegan of Semnan	75143
57	Abu Ali Sina	37485	81	Art of Shiraz	66604
58	Allame Tabatabai	38942	82	Shahid Bahonar Kerman	305437
59	Isfahan Industrial	33452	83	So	69215
60	Al Zahra	100087	84	Specialized Amol Technologies	70831
61	Azerbaijani Shahid Madani	70241	85	Advanced Graduate Studies in Industrial and Advanced Technology	75149
62	Khatam-ol-Anbia Industrial Behbahan	68242	86	Gaenat BozorgMehr	80563
63	Islamic Art of Tabriz	42934	87	Neyshabour	74863
64	Tehran - Faculty of Agriculture and Natural Resources	37925	88	Seyed Jamaleddin Asad Abadi	69559
65	Razi	75984	89	Hamedan Industrial Co.	74803
66	Jiroft	42527	90	Industrial kermanshah	79720
67	Industrial Babol	43143	91	Salman Farsi Kazeroun	77879
68	Malayer	45067	92	Qom Industrial	80593
69	Ardakan	69467	93	Torbat	76777
70	Bojnord	44341	94	Industrial Urmia	80994
71	Industrial Hojjat Shahid	31530	95	Jahrom	69969
72	Shahid Beheshti	186249	96	Engineering and Technology of Qouchan New Technologies	78328

Based on the above results "fitting model for the distribution of resources in the educational sector of the Ministry of Science, Research and Technology" was confirmed.

Conclusion

It is proposed that the distribution of educational credits from the Ministry of Science, Research and Technology's Education Department annually be based on the results of this study so that in the next few years all universities in the member regions will be proportionate to the number of students from physical exercise spaces and the existing inequalities are gradually eliminated.

Multi-criteria decision-making methods such as AHP and ANP, data envelopment analysis, etc., were compared to the ranking of universities and compared with the results of numerical taxonomy.

Using the intelligent method of genetic algorithm, compare the distribution of resources and the results with the results of the algorithm of the migration of birds.

A combination of multi-criteria decision-making methods and intelligent resource allocation methods and compare the results with each other.

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