

Determine Comparative Advantage of investment in Different Industries through TOPSIS¹ Technique

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ABSTRACT

Decision making is one of the most important managerial functions and theorists believe that management is decision making science that for decision making used various methods. No doubt logical and rational decision making about investment plans is cause success and achieve goals of economic development. In this research and adviser economic policies, we decide that for guidance to investors define the potential of various industries in Iran (Khuzestan province). Therefore for determine the comparative advantage of different industries in the Khuzestan province were used entropy techniques for the weighty indicators such as utilization rate - the rate of employment - fixed investment rate -export amount then by using successful technique of TOPSIS was performed priority options.

Also field studies have been carried out in all production units and industrial investment projects covered of industries and mines organization Khuzestan province by describing the overall profile of Khuzestan province combined with industrial potential from 78 to 87. The overall results of research express the comparative advantage of investment.

KEY WORDS: Decision Making, TOPSIS, Comparative Advantage, Industrial Investment Projects.

1- INTRODUCTION

Considering that developing countries will find to increase its production during next few decades and available vast amount of new industrial investments, thus number and volume of studies and surveys increases in attracting investment. From industrial revolution onwards, companies have been seeking the promotion of their competitive advantage to increase their profiles and shareholding. (Cheshm-Be-Rah & Mortazavi , 2007,p.17)Nowadays does not secret to anyone that world economic growth and improvement is function of growth manufacturing sites and targeted investment in different fields of industrial. Due to the lack of influence of each variable, lead to problems.(Gilaninia & et al,2011).In this regard, the strategies adopted by industrialized countries and third world always have been drawn according to regional facilities and production units in order to increase profitability. It is clear that for industry development there aren't certain and strict policy. But always for adopt effective strategies need to performed review investment and pushing it toward the optimal policy (Noori.I & Others. 2007). This is not possible unless with periodic studies and targeted research put new and effective strategies for capitalist owners and Industry activists. In this regard past data collection and preparation of special measures can be used effectively for adopt efficient strategies. In other words, review and audit of past economic indicators is that allows for future growth. In today's business environment is characterized by increasing competition, more forward fighting is going to win every day(Gilaninia & et al,2011).Although the achievement and definition such indicators in a macro-level for national economy growth and prosperity are requires the collaboration of researchers and scholars in various fields university and industry but in this study is trying for finding advantage of the investment between different sectors of industries in the Khuzestan province For applicants projects of industrial from indicators such as exploitation rates, employment rates, average fixed investment, exports amount be used in various industries.

2- Theoretical framework

In present world that economy is a very important and crucial issue therefore from the perspective of macroeconomic, industrial upgrading and ultimately economic prosperity of a country is affected by many factors That structural model Find in this relationship are required extensive studies but as a general principle for adopt a

1 -Technique for Order Preference by Similarity to Ideal Solution

particular underlying investments that are typically faced applicants two fundamental factors affect that one of them be considered external factors and other as internal factors. The first factor is government macro strategy how effectively it will be influential in attracting investment in various sectors. One of these cases have been small industries that especially in this cases after the Islamic Revolution in our country has provided a positive context for growth and achieve to self-sufficiency and alongside regard to industry's infrastructure and main such as industry of oil, steel, gas, nuclear energy... is considering by officials. The second factor that has been referred to as the internal factor facilities and capabilities of the region and can be as lever for guiding and optimal use of capital considered by examining and identifying relative advantages of each region. Therefore, for understand this facilities and capabilities of the region, we need to identify and monitor key indicators to measure the amount Facilities and capabilities on region various fields (industrial). Exporting constitutes the most popular, quickest and easiest way for industrial (Stoian et al,2010;Gilaninia&Etal,2011).Already this question be discussed, How can determine prioritize investment and comparative advantage in different industries in Khuzestan province? .Obviously, a researcher in a recent study attempted to regard to regional facilities of Khuzestan province investment between different sectors of the industry, according to key indicators such as exploitation rates, employment, investment average amount and export volume,...in comparison to previous years. In each field are determined advantages.

2-1) *Investment Plan*

Every proposed investment to create expanding and improving facilities to increase goods or services in a society during a given period is called investment plan. The other definition, every investment technically, commercially and economically inseparable from other investments is called investment plan. (Industries and Mines Organization, 1996, 1997)

2-2) *Non-metallic mineral industries*

To production units will be called that their raw material were mining and minerals while their final product is not metal. It is industries that their raw material is mineral but their final product is obtained through concentrated or mineral processing and mostly investment is high and while often government under the ministry of mines and metals. Such as factories of plastering, tile, ceramics, bricks, sand, Chinese porcelain and.... (Ibid)

2-3) *Comparative advantage*

Condition shows that in it economic factors have most efficiently in applied activities, so their performance is relatively better performance in other activities.

2-4) *Added Value*

Include value of output minus the value of the data.

2-5) *Public and private sector*

Public sector is large industrial sites that are managed by ministries, public agencies and institutions of Islamic Revolution and private sector is large industrial sites that are managed under private management.

2-6) *Exploitation license*

License is production unit after a successful trial production of the product received Exploitation license and subsequently begins its activities.

2-7) *Fixed Capital*

Include total value of land, buildings and landscaping, the cost before exploitation, technical and engineering, machinery and equipment repair shop and quality control, machinery and transportation vehicles, public utilities, the cost of installation and commissioning of production machines five percent of the price of machinery and equipment repair shop, installation costs and office facilities and equipment.

2-8) *Industrial factory*

Clear and consistent locations that in it active set of capital and labor under a management and accounting unit in order to produce a or group of similar goods and services industry.

2-9) *Mineral processing*

All physical and chemical process that is doing in order to separate the part of the waste from the mineral or mineral separated from each other.

2-10) *Mineral*

Any substance or combination of solid, liquid or natural gas as a result of geological changes has occurred in the Earth's crust is called Mineral. (Industries and Mines Organization, 1996, 1997)

3- Research Questions

- 1- Do Food and beverage industries have higher comparative advantage in Khuzestan province?
- 2- Do chemical and Cellulose industries have higher comparative advantage in Khuzestan province?
- 3- Which is Priority investments in various industries of Khuzestan province based on comparative advantage indices 10-year period 1379 till 1388?
- 4- Which is Priority investments in various industries of Khuzestan province based on comparative advantage indices in each of years 1379 till 1388?

4- RESEARCH METHOD

In present study data and information is used through review of records and documents contained in database and the views of experts and managers of industries and mines organization of Khuzestan Province. Statistical Society includes all production units and industrial projects located in the geographic area covered of Khuzestan Province by Industries and Mines Organization of Khuzestan province. Data analysis is performed in two stages. In first stage through descriptive statistics and in final stage of the TOPSIS technique is reviewed. Research method is an experimental mathematics method. Considering that result of this study can be as a policy for guide investors, practically need to research and fieldwork (identify goals and criteria with a various options). Whereas in beginning science of operations research and make modeling and then attempt to resolve it, also this study follow it. In stage modeling used TOPSIS techniques. Thus that during a given period indicators such as the exploitation rates, average employment, average fixed investment, exports, industrial units and projects selected and using Entropy model are determined the relative importance of each indicator. So more importance indicator gives more weight and as less important indicator gives less weight. However for determined comparative advantage of different industries than in each other use multi-criteria decision-making (MCDM). And finally, the goal priority industries towards each other (MCDM) (choosing best option) and we use compensation models techniques and the overall results can be derived. (Asgharpour, 2004; Bojadzif& et al2002, C.L. Hwang and K.yoon,1985).

5- Data analysis

- 1- Do Food and beverage industries have higher comparative advantage in Khuzestan province?
According to results study, chemical and cellulose industries relative to other industries are more Comparative advantage and Non-metallic Minerals Industry is in fourth place, so the answer is negative.
- 2- Do chemical and Cellulose industries have higher comparative advantage in Khuzestan province?
According to results, study of chemical and cellulose industries relative to other industries is more Comparative advantage and Non-metallic Minerals Industry is in fourth place, so the answer is positive.
- 3- Which is Priority investments in various industries of Khuzestan province based on comparative advantage indices 10-year period 1379 till 1388?

Table 1) Priority investments in 10-year period 1379 till 1388

Industries	rank
Chemical and cellulose industries	1
making machine and Metal industries	2
Food and Beverage industries	3
Non-metallic mineral industries	4
Automotive and Driving Force industries	5
Textile and leather industries	6
Electrical and Electronics Industry	7

- 4- Which is Priority investments in various industries of Khuzestan province based on comparative advantage indices in each of years 1379 till 1388?

Table 2) Priority investments in each of years 1379 till 1388

Year	79	80	81	82	83	84	85	86	87	88
industries										
Chemical and cellulose industries	1	3	3	6	4	2	1	1	1	1
Non-metallic mineral industries	2	1	1	1	5	4	5	5	7	3
making machine and Metal industries	3	5	4	3	1	1	2	2	2	2
Food and Beverage industries	5	2	2	2	2	3	4	3	3	4
Automotive and Driving Force industries	4	4	5	5	6	6	3	4	6	5
Textile and leather industries	7	6	6	7	7	7	7	7	4	6
Electrical and Electronics Industry	6	7	7	4	3	5	6	6	5	7

6-Conclusions & Suggestions

The results show that according to environmental conditions and the region special talents can viewed compared to the economic development of province with a strategic vision and objectively and led owners investors relative to establish industrial units with a higher productivity and profitability . This attitude causes the area as an industrial hub in part of industry lead to greater comparative advantage. Also industrial development in desired section leads to most competitive units, exchange experiences and technical knowledge.

Around implementation of optimal design of industrial and mineral and exploitation of industries and mines of Khuzestan province are offered following suggestions:

1 - According to gain Top rank in Cellulose and chemical industries, making machine and Metal industries and Food and Beverage industries and Non-metallic mineral industries in terms of Comparative advantage in research seems For attract more investment in Khuzestan province, relevant organizations provide necessary activities for notification to investors and providing investment opportunities in this area.

2- Mines and Industries Organization and other related organizations must try in the field reasons lack of comparative advantage Electrical and Electronics Industry, Automotive and Driving Force industries and Textile and leather industries done necessary investigation and investors to direct investment in industries with high advantage.

3- According to the Khuzestan province in terms of strategic resources (oil, gas, nuclear energy...) is the most important and richest province in our country. Development of chemical and cellulose industries, especially in our country should be used major programs of export promotion.

7. Suggestions for future research

1 - Since each industry has a subset can be by using a group decision making like AHP and TOPSIS are identified industrial units In terms of comparative advantage in the province have higher priorities.

2- Can be found in industrial units that produce the best product in the province several products by using the techniques mentioned above can be selected.

3 - Considering that exports are one of the important indicators. In the present study due to the unavailability of required information system, in future research can be used another quality indicators.

4- This research was conducted in the Khuzestan province. Obviously, possible achieving better results proportional to regional facilities would Gain if separately similar studies done in another province and the region Strengths and weaknesses will be discussed as significant.

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