Effectiveness of the collective index of the relative advantage of its components in Kermanshah province

Sousan mohammadi varleh

[1]Master's degree in agricultural economics, teacher of Kermanshah Vocational Technical Education Organization.E-mail: s.m.v.1366@gmail.com

Abstract

Crops in the agriculture of Kermanshah province have a large and decisive contribution and the study of the economic aspects of these crops, especially in relation to their commercial and competitive power in the world market, is of great importance. In this study, three indicators of efficiency advantage, scale advantage and collective advantage have been investigated as a comprehensive index of relative merit in irrigated and rainfed crops of Kermanshah province. The results show that this province compared to the average of the whole country among all crops. In the products of sugar beet, rainfed peas, dry-fed wheat, dry-fed barley and seed corn, it has the advantage of scale and in the production of products, cucumber, tomato, sugar beet, rapeseed, dry-fed wheat, seed corn has an efficiency advantage compared to the country and the index Collective advantage shows the relative advantage of Kermanshah province in the products of sugar beet, chickpeas, dry wheat, dry barley and seed corn. The correlation results show a higher correlation of the collective advantage index with the scale advantage and the efficiency advantage compared to the national average.

Keyword :scale index advantage efficiency index advantage collective index relative advantage of irrigated and rainfed crops of Kermanshah

Introduction

Diversification of production activities in various fields of agricultural industry and services provides suitable conditions for the sustainable development of the national economy, but this should be formed in the framework of a system that involves the allocation and division of regional work. Rahimi et al. (2008) and this itself requires knowing the production potentials and as a result the relative advantages in each region of a country, identifying the relative advantages of production in the agricultural sector and using them not only the policies for the allocation of production resources and the production pattern improves, but it can also determine the type of export and their composition.

Comparative advantage is the central point of trade and shows the profit obtained from trade and its path. The growth and development of world trade in recent years and the national and international organizations and institutions that have been created in this connection make governments think seriously about competition and especially relative advantage. has forced them to allocate their limited capital in the direction of development and progress in such a way that, first, it causes the use of other production factors and increases their productivity, and secondly, production resources are used in the direction of producing products that have a regional and national advantage, the main comparative advantage is that It is based on competitiveness. According to the definition of competitiveness, it is an indicator for the ability to supply products and services in a specific place, time and form that buyers are looking for at a price equal to or better than other suppliers in a way that covers the minimum opportunity cost of consumption resources. to give In this context, there are generally 2 strategies (Sultani (1374).

1 self-sufficiency strategy (import substitution) comparative advantage strategy (export development) The strategy of self-sufficiency is based on limiting the import of products (especially important and

essential products in order to increase the reliability of their supply in crisis situations and embargoes and the like, and their production in each country is at least as much as domestic consumption. Obviously, this strategy affects the country's ability to Exports will also have an effect and will limit foreign trade as a whole. On the other hand, the strategy of comparative advantage emphasizes the expansion of international trade as much as possible and the specialization of countries in the production of specific products. This means that each country should produce and export products that It is more compatible with the conditions, talent, and abundance of production factors, and as a result, they can be produced in the country at a relatively lower cost, and incompatible products can be imported from other countries. It is in line with the self-sufficiency strategy.

In the Kermanshah region, with a close look at the natural factors required for the agricultural sector, i.e. water, soil and climatic conditions, we realize that agriculture in Kermanshah has a high potential, on the other hand, a look at the statistics of the production and performance of this sector reveals the fact that We have not been able to take advantage of these capacities, that's why it is very important to check the relative advantage criteria of these products. In principle, two types of indicators can be used in the use of relative advantage indicators, the first type of indicators are cost indicators and the second type of indicators are physical indicators. Cost indicators include the internal resource index (DRC), the ratio of cost to social benefit (SCB) and net social profitability. (NSP) is Also, the most important physical indicators include the scale advantage (SA), the efficiency (EAF), and the advantage (Lee, 1995) is collective (AA1).

It should be noted that the concept of indicators of the second type is different from the concept of indicators of the first type and it indicates that Does the studied area have an advantage in the desired products compared to their import or not (Amirenjad 2006).

The measurement of comparative advantage was first done in 1963 by Bruno. Using the internal resource cost index (DRC), he investigated the relative advantage of the garment industry in occupied Palestine (Bruno, 1972). Shije (1997) showed the results of the study on the advantage of rice and soy products in two provinces of Thailand between 1999 and 1996. that rice has a relative advantage in these two provinces, and Suba Khabar Junk and his colleagues (hong&el 2002 al) showed by using both types of indicators that the relative advantage of major crops in different regions of China is significantly different from each other and has a high potential for improvement Allocating resources and increasing productivity There is reallocation of resources in different sectors.

Feng and his colleagues (2000.fanget al) examined the costs and benefits of the self-sufficiency policy in China and using the adjusted policy analysis matrix examined the costs and benefits of the self-sufficiency policy in China and using the adjusted policy analysis matrix of comparative advantage For major crops such as wheat, rice, cotton.

1-Net social profitability
2-Scale Advantage Index
3-Demestic resources cost
4-Scale Advantage Index
5-Efficiency Advantage Index Aggregated Advantage Index

They calculated in six different areas and considered different modes for self-sufficiency and its effect on advantage Tasbi investigated and finally showed which products are on the ground and as a result of joining the World Trade Organization, issues such as the reduction of input prices will arise.

In Iran, in various researches, the comparative advantage of production and export of various products has been investigated. Rahmani (1378) showed in his study that with the first type of indicators and with the shadow exchange rate obtained from the method of absolute purchasing power parity in Khuzestan province, the products of wheat and blue barley, grain corn, long grain rice, short grain rice, sugar beet, and hand Cucumbers and tomatoes have had a competitive advantage in production

and they have also had a relative advantage by using the exchange rate resulting from the relative purchasing power of potatoes. He also showed by using the second type of indicators of scale advantage, efficiency advantage and collective advantage that this province had a relative advantage more than the country's average in the production of wet and rainfed wheat and less than the country's average in the production of other products.

Mohammadi (2004) showed that Fars province has a relative advantage based on the first type of indicators and with the currency conversion rate using the absolute purchasing power parity method in the production of wheat and grain corn products, rice, potatoes, tomatoes, and cotton. Also, based on these indicators and with both types of exchange rates, all horticultural products have a relative advantage in production, and based on the second type of indicators and the EAT index, the products of wheat, corn, tomatoes, cotton, grapes and dry figs, dates, oranges, lemons and pomegranates compared to The whole country has an efficiency advantage and by using the SAI index, grape and fig products, dry orange, sweet lemon and dry pomegranate have the advantage of scale, as well as the products of corn, barley, grape, orange, sweet lemon and pomegranate according to the AAI index have a greater relative advantage than the average of the country have.

Amirnejad (2008) showed the relative advantage of irrigated crops in Mazandaran province by examining the physical indicators. This province is compared to the national average among all crops in rice, watermelon, soybeans Rapeseed has the advantage of scale and is used in the production of wheat, barley, rice, beans, lentils, cotton, tomatoes, melons, Watermelon, cucumber, alfalfa, seed corn, cheddar, soy and rapeseed, Merit Karai The country has had and in the production of products Paddy, watermelon, cheddar, soy, and chlorine have a relative advantage in production.

In this study, in order to determine the indicators of the relative advantage of crops in Kermanshah province compared to the country in 2009, three efficiency indicators multiplied by the scale of advantage and collective advantage were calculated, and then a suitable solution to improve the situation compared to the country level for the province was presented, as well as the correlation of the comprehensive index. The advantage was presented with the indicators of the scale advantage and the efficiency advantage of calculation and necessary policy to improve the situation.

Research Methodology In this study, the efficiency indicators of the collective advantage scale are used. Moqbas index of advantage (degree of concentration of a product in one region compared to all regions) is calculated as follows (Mohammadi (2008).

(1)   (GSO) Salio =

(5) which is related to a SAL index of the scale of the crop's advantage in the GS area of the cultivated area of the crop Region 1 GS is the total cultivated area of agricultural crops in the GS region, the cultivated area of agricultural crops in the entire region, G5 is the total cultivated area of agricultural crops in the entire region. If Salie is greater than one, the degree of crop concentration is 0 in the area to plant more crops. If the degree of concentration is determined with the help of economic factors, then SAT can be an indicator of advantage. The low value of SAI, which is due to low profitability or natural limitations or other conditions, shows that producers do not want to share their share of To increase production, it is implied that producers can react to the market situation by adjusting the product mix and focusing on one product, and reflect the difference in product profitability through the cultivation pattern of the region.

In fact, SAT has become a kind of obvious advantage that is used in the discussion of production instead of being used in business. In general, farmers have some freedom of action in their decision-making, and SAT can be used as one of the indicators of regional relative advantage despite government interventions.

 The relative efficiency index of advantage is also defined as follows (Mohammadi ,2004).

In the relationship between two AP, crop yield in region A is the average yield of crops in the region, AP is the average crop yield in the entire region, AP is the average yield of all crops in the entire region, and FAL is also the efficiency index of the crop advantage in the region. If EAL is greater than one, the average performance of product 0 is higher than the average of the province or country in relation to all products in the region and vice versa.

It is assumed that there is no significant difference in technology or at least there is no great limit to the spread and acceptance of technology between different regions. EAlia can be an indicator in the allocation of natural resources production factors and economic, social and cultural factors and as an indicator of relative advantage. be used well. The index of collective advantage is the geometric mean of Ala and SAlio, which is calculated as equation 3. May Gared (Mohammadi (1384)

(2)　AAI = VEAL SAl

If AAL is greater than one, then product 0 in the region will have a greater relative advantage than the average of the entire region and vice versa.

In fact, AAI is a comprehensive index of comparative advantage. In order to determine the effectiveness of the comprehensive index of relative advantage among its constituent factors, the correlation between this index and the indicators of scale advantage and efficiency at the province level compared to the country was determined by Eviews software. In this research, the statistics of the crop year 2018-2018 were used, which were extracted from the Ministry of Agricultural Jihad (2019) and the Organization of Agricultural Jihad of Kermanshah Province (2019).

discussion

In this part, the results of the research in the two parts of the first part

A: The results of the relative advantage indices of cereals with the results of the relative advantage indices of legumes

c :indicators

The relative merit of industrial products in the relative advantage index of vegetables and the relative advantage index of Jalizi products The relative advantage index of fodder plants, the second part, the results of the effectiveness of the relative

advantage index of its components in Kermanshah province.

presented: The first part

A: Comparison of relative advantage indicators of rainfed and irrigated grains in Kermanshah province with the whole countryAs it is clear in Table 1, among the grains cultivated in Kermanshah province, the SAT index for dry wheat, jodim, and grain corn products is greater than one, which indicates the existence of a scale advantage compared to the overall average.

Table 1. Scale advantage index, efficiency advantage and collective advantage of grains in Kermanshah province

Maize	Paddy	we ate	Answer	Wheat	Blue wheat	Indicators
۱/۳۳۵	۰/۰۰۱	۱/۸۴۶	۰/۰۶۵	۱/۵۴۶	۰/۵۲۱	Scale of Advantage (SAl)
۱/۲۸۸	۰/۰۰۵	۱/۳۴۲	۱/۲۹۲	۱/۳۳۱	۱/۰۹۹	Efficiency Advantage (EAT)
۱/۳۱۱	۰/۰۰۲	۱/۵۷۴	۰/۳۰۱	۱/۴۳۶	۰/۷۵۹	Aggregate Advantage (AAl)

Source: research findings

The country has the highest and lowest degree of concentration, respectively, related to dry barley and paddy products. And the EAI index is greater than one for five wheat products, dry wheat, dry wheat, dry barley and grain corn, so Kermanshah province is efficient in the production of these products. The highest and lowest efficiency in yield is related to the production of wheat and paddy crops, respectively, and the AAI index for dry wheat and grain corn products is greater than one, which indicates the relative advantage of producing more of these products compared to the whole country. The highest and the lowest relative advantage in production is related to dry barley and paddy products, respectively.

Table 1 index of scale advantage of efficiency advantage and collective advantage of grains in Kermanshah province

B: Comparison of relative advantage indicators of rainfed and irrigated legumes in Kermanshah province with the whole country

Kermanshah province as shown in table 2. In the production of rainfed chickpeas, it has a scale advantage over the whole country. The lowest degree of concentration is related to beans. The EAI index is not greater than one for any of the legume products, which indicates the efficiency in the lower performance of these products compared to the average of the whole country. And the AAI index is greater than one only for the rainfed chickpea product, so this product in Kermanshah province has a relative advantage in production more than the average of the whole country. The lowest relative advantage is obtained for the blue bean product.Is.

Table 2. Scale advantage index, efficiency advantage and collective advantage of legumes of Kermanshah province.

Table 2 index of scale advantage, efficiency advantage and collective advantage of legumes in Kermanshah province

Lentils	Blue beans	dry peas	blue peas	Indicators
۰/۱۵۶	۰/۰۱۲	۳/۸۶۱	۰/۰۱۸	Scale of Advantage (SAl)
۰/۷۷۸	۰/۴۰۶	۰/۸۱۵	۰/۳۵۱	Efficiency Advantage (EAl)
۰/۳۵۳	۰/۰۶۹	۱/۷۷۹	۰/۰۷۹	Aggregate Advantage (AAl)

Source: research findings Comparison of relative advantage indices of industrial products of Kermanshah province with the whole country

As can be seen from Table 3. Among the two industrial products of Kermanshah province, only sugar beet has a scale advantage greater than 1, which indicates greater concentration than the average of the whole country, and the EAI index greater than 1 for both sugar beet and rapeseed products indicates the efficiency in the higher performance of these products. Compared to the average of the whole country. The AAI index for sugar beet is greater than one, which indicates the relative advantage of producing more than the average of the whole country.

Table 3 advantage index, efficiency advantage and collective advantage of industrial products of Kermanshah province

Table 3 index of scale advantage, efficiency advantage and collective advantage of industrial products of Kermanshah province

canola	Sugar beet	Indicators
٠/٢٧٨	١/۴٩۴	Scale of Advantage (SAI)
١/٠۶٣	١/٠۶١	Efficiency Advantage (EAI)
٠/۵۴۴	١/٢۵٩	Aggregate Advantage (AAI)

Source: research findings

D: Comparing the indicators of relative advantage of vegetables in Kermanshah province with the whole country As can be seen from Table 4, among the three products of potato, onion and tomato cultivated in None of Kermanshah province has a scale advantage greater than one, which shows the lower concentration of these products compared to the average of the whole country. Also, the EAT index is greater than one only for the product, which indicates the performance efficiency of this product compared to the average of the entire country, and potatoes have the lowest efficiency advantage in performance compared to the average of the entire country. The AAI index is also not greater than one for all three products, which indicates the relative advantage of producing less than the average of the entire country Table 4 Index of scale advantage, efficiency advantage and collective advantage of vegetables in Kermanshah province

Table 4. Scale advantage index of efficiency advantage and collective advantage of vegetables in Kermanshah province

tomato	an onion	potato	Indicators
٠/٢٣٩	٠/٠۶١	٠/۴٧٩	Scale of Advantage (SAI)
١/۴۵۵	٠/٨٣٢	٠/۴۵٢	Efficiency Advantage (EAI)
٠/۵٩٠	٠/٢٢۵	٠/۴۶۶	Aggregate Advantage (AAI)

D: Comparing the indicators of the relative advantage of the mesh products of Kermanshah province or the whole country

As can be seen from Table 5, the SAI index is not greater than one for two products, watermelon and cucumber which shows the lower concentration of these products compared to the average of the whole country and the EAI index only for The cucumber product is greater than one, which shows the efficiency of this product compared to the average of the whole country, and the AAI index also shows the relative advantage of the lower production of these products compared to the average of the whole country.

Table 5 advantage index, scale of efficiency advantage and collective advantage of mesh products of Kermanshah province

Table 5 index of advantage of scale, advantage of efficiency and collective advantage of mesh products of Kermanshah province

cucumber	watermelon	Indicators
۰/۲۵۴	۰/۰۰۶	Scale of Advantage (SAI)
۱/۴۰۸	۰/۹۰۲	Efficiency Advantage (EAI)
۰/۵۹۸	۰/۰۷۲	Aggregate Advantage (AAI)

the whole country, as can be seen from table 6, Kermanshah province has a lower degree of concentration in the production of cheddar and alfalfa than the average of the whole country, and also the EAT index shows the efficiency in the lower yield of these products compared to It is the average of the whole country. The AAI index shows the relative advantage of producing less of these products compared to the average of the whole country.

Table 6 index of scale advantage, efficiency advantage and collective advantage of fodder plants in Kermanshah province

Source: research findings

Second part: Correlation results of collective advantage index with its components

The results of the correlation between the comprehensive index of relative advantage of AAI and its components, Table 7 shows that the relative advantage of production in Kermanshah province has a significant correlation with the two indicators of scale advantage and efficiency. The level is one percent, this indicates that in Kermanshah province, the efficiency advantage is weak compared to the average of the country, and therefore the improvement of the collective advantage in Kermanshah province has a greater relationship with the scale advantage. Therefore, the improvement of the production advantage is more than

related to the efficiency advantage. It depends on the economy of scale. Welda has a high weakness compared to the average of the country because of the collective advantage in the province. It can be concluded from the first to sixth tables that the relative advantage is low in

Many of the water products of Kermanshah province, despite having proper efficiency, due to the lack of scale advantage in this

It is products.

Table 7 Correlation between collective advantage and its components

Kermanshah province compared to the average of the whole country	Indicators
0/907**	Scale of Advantage (SAI)
0/536*	Efficiency Advantage (EAI)

Summary and suggestions

According to the results of the study on crops (alfalfa, cheddar, watermelon, potatoes, onions, blue peas, dry peas, blue beans, dry lentils) in Kermanshah province, compared to the national average, more weakness in the efficiency advantage was observed.

If policy goals are based on improving the situation in the province compared to the average of the country, improving the efficiency of these products will be a suitable option, because the improvement of performance and the advantage of efficiency will not be achieved. Increasing the area under cultivation will lead to the non-optimal use of production resources, especially land, also promotional and educational activities for the optimal use of resources and teaching the correct production method can be very effective. On the other hand, based on the results, it was observed that the main problem of this province compared to the national average in many products (canola, tomato, cucumber, blue wheat, blue barley and paddy, despite having the advantage of greater efficiency than the national average, is the lack of scale advantage, which It will be appropriate to implement policies to encourage farmers to explore more, and the correlation results also showed that improving the scale advantage in the case of products that have an efficiency advantage will increase and improve the relative production advantage compared to the average of the whole country.

References

1- Soltani 6 (1374) self-sufficiency versus relative advantage in the production of fresh agricultural products
Economy, No. 52, pp. 24-26
2- Amirnejad, Rafiei, (2008) Investigating the indicators of relative advantage of irrigated crops in the province
Mazandaran Quarterly Journal of Agricultural Economics and Development, Year 18, Number 71
Rahmani (1378) Determining the relative advantage of major crops of Khuzestan province, Agricultural Research Center
Khuzestan, the final report of the research project
Bamohammadi, Dadgar (2004) Calculation of the relative advantage of agricultural and horticultural products of Farsdadgar province (2004) Calculation of the advantage

Relative crops and horticultural products of Fars province, the fifth biennial conference of agricultural economics of Iran, Shahrivar 2004

5 Ministry of Agricultural Jihad, publication of agricultural statistics letter of the General Directorate of Statistics and Information

6. Rahimi, M., Esdi Shiring Journal of sustainable agriculture knowledge, volume 1/20, number 1-2009

7-lee J. (1995).comparative advantage in manufacturing as a determinate of industrialization: the Korean case world development.23(7)1195-1214

8-Bruno.M(1972).Domestic resource costs and effective protection :clarification and synthesis. journal of political economy.16-33

9-shajie.y(1997)comparative advantage and crop diversification a policy analysis for the thai agriculture journal of agriculture economice.48(2):211-222

10-zhong 4, xzhigang and f. longbo(2002). Regional comparative advantage in china s. main grain.corps

11-Fang.c.and J.c Beghin (2000), food self a comparative advantage, and agricultural trad :apolicy analysis matrix for Chinese agricultural, working paper 99-wp223