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Cereal Comparative Advantage Analysis of North Khorasan Province

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ABSTRACT

Comparative advantage is one of efficient tools for decision making in production and trade of goods that is impotant from two dimensions of import substitution and export development. In this study, the economic importance of cereals using internal resources cost indicators (DRC), the net social profit (NSP) and the social cost benefit (SCB) has been studied. Necessary information released by Agriculture Organization in North Khorasan province, websites and completing a questionnaire is randomly prepared for each grain in each city to calculate the production cost. Based on the results of the comparative advantage indexes observed that in North Khorasan Province whole grains have a comparative advantage Quad are the first priority to grain production is blue. According to the results, the appropriate decisions necessary to promote exports of products with comparative advantage and the necessary actions to improve performance, production efficiency and reduce production costs for products without comparative advantage is felt.

Key words: comparative advantage, cerals, production costs, North Khorassan.

Introduction

From the most outstanding issues related to globalization can point to the comparative advantage. Comparative advantage considered as one of key economic criteria for production planning, and export and import. It states that each country or region according to the abundant natural potentials and efficiency rate of production factors has a relative advantage in producing some of the products.

If all of these countries or regions be aware of these advantages and act upon them, the regional and international labor division completed and global production and trade boom reaches its peak [2].

Currently, issues such as climate change, water crisis and drought, lack of necessary power and ability to use modern technology for farmers and small and scattered pieces of farm lands led efforts to move toward optimal use of all relevant factors in agriculture sector.

Agriculture as one of the major economic sectors, according to capital, climate and technology constraints,needs more to proceed based on the relative advantages than other sectors, however, it is unsustainable unless brings technologic progress and innovation.

Although, agricultural productions comparative advantage to some extent influenced by climatic conditions, color and flavor and other unique products characteristics of each geographic region, it is the impact and progress of technology that finally determine the comparative advantage of the product and prefer production regions to each other [12]. Many domestic and foreign studies have been carried out on relative advantage so far.

Karbassi and Rastgarpour [7] in a study concluded that wheat cultivation with existing conditions in Sistan has no comparative advantage, but performance increase, reduced production costs and improvement of cultivation methods are strategies for wheat cultivation efficiency in Sistan region.

In a study Joulaee and Jeirani [1] reached this conclusion that the DRC index for irrigated wheat is 0.73 and for dryland wheat 0.72 which indicates the comparative advantage for wheat in the country. Also sustaining indexes show the government's support of this product.

Nouri and Jahan Nama [10] in their study reached this conclusion that the comparative advantage in soybean production exists in major producing provinces of the country.

Shahnoushi *et al* [5] concluded that in Khorasan dryland wheat, irrigated barley, rice paddy, irrigated wheat, dry lentils and dryland peas rated first to sixth that based on comparative advantage indices

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came to this end that the red-blue beans has no comparative advantage to produce.

Nozari and Sadro al-Ashrafi [6] found that Iran's wheat production has comparative advantage and thus moving towards self-sufficiency in wheat production was accurate.

Mehrabi Bshrabady [8] understood that the greatest comparative advantage in Kerman is related to the onion and watermelon. The nominal protection of product market and effective support in production of wheat and barley are in favor of producers.

Daneshvar Kakhki *et al* [4] in a study showed that in Mashhad plain comparative advantage exists in irrigated and wheat production. Moreover, comparative advantage of dryland wheat production is more than irrigated.

Najafi and Mirzaee [9] showed that in Fars province dryland wheat and barley, sugar beet and sunflower on relative currency exchange rate have no relative advantage and tomatoe, cucumber, potatoe and irrigated lentils hold highest comparative advantage.

Khalilian and Yousefi [3] found that the planting dryland and pastures alfalfa in dryland in north Khorasan superior economicly over the other functionality and planting dryland wheat and barley have economic advantages in comparison to natural pastures.

Zhang *et al* [15] showed that the main products of comparative advantage in agricultural production in different regions of China is another significant difference

Fanyng *et al* [11] showed that total rice production in China, Japan, sorghum, rice medium Hindi, Hindi late millet and rice has a comparative advantage

Makosholou and Jouste [13] in a study to assess the comparative economic advantage (CEA) agricultural perennial crops (cherries, peaches, apples and asparagus) in the four agro-ecological zone in the underlying mountainous Lesotho, posts, valleys and foothills found that in lowlands region all products RCR are less than 1 that indicates comparative advantage of these products.

In foothills region only apple and peach were assessed that both products contain equal comparative advantage. in valleys,apples enjoy comparative advantage and peaches holds no comparative advantage. in the mountainous region only apples have a comparative advantage. Sensitivity analysis moreover relates to changes in exchange rates, price of land and water, and the threshold price.

Shahab Uddin *et al* [14] in a study concluded that Bangladesh domestic production of rice due to replace imports has comparative advantage. Cereals as one of the most strategic agricultural products hold special importance among the crops and have the highest production and cultivation level in comparison with other crops in the country.

Various factors such as adaptation to different climates, easy transport, relatively easy maintenance and optimal performance have added to its importance. North Khorasan province as a major pole of high agricultural potential in the North East of Iran is located on climate, water resources, soil material is in good condition and every comment is suitable for grain production.

Currently cereal products, particularly wheat and barley considered as the province's main agricultural products. Cultivation and cereal production level in the province are about 246,007 hectares and 293,432 tons respectively. Also, about 25 percent of the country's grain is produced in the province.

Since government policies are based on foreign currency income from non-petrelium exports has grown into the grain cultivaton and change them to other processed products can provide a major figure of the country's required currency.

So, more tough attention to the grain production issue and focus on comparative advantage of grain and efficient use of inputs not only increases income, but also increases the country's foreign exchange earnings.

Thus, specific climatic conditions prevailing ecological study area and compliance with climate in the province to produce crops, creating foreign exchange earnings and antreprounership settings and bringing suitable income to local people, makes the importance of this study more apparent.

Method:

To measure the importance of economic imprtnace of cereals in north Khorasan, the comparative advantage ndex is used. To sum up, for measuring comparative advantage there are several indicators. In the present study to calculate the comparative advantage of grain in north Khorasan province, the three internal resources cost index, cost ratio to social interests and net social benefit index are applied.

Index of internal resources cost for achieving desired product is shown as relationship 1:

$$DRC_i = \frac{G}{E-F} = \frac{\sum_{i=1}^{n} a_{ij} g_i}{b_j e_j - \sum_{h=1}^{m} c_{hj} f_h} \qquad (1\text{-}3)$$

G total cost of product domestic inputs to shadow price per unit area, E is earned income proceeds according to shadow prices per unit area, F the total cost of business inputs based on shadow prices per unit area, aij shadow prices per each unit of input, ith applied for jth production per unit area, gi shadow prices per unit of input ith, bj amount of obtained product ei a shadow price obtained product per unit per unit area, chj, amount of applied input hth I applied for production of jth trop per unit area that is tradable. fh a shadow price per unit of each

established hth. If the DRC of a product be less than 1 comparative advantage in producing is available.

But this index for activities heavily relies on internal resources (labor force and land).To determine the comparative advantage index, the cost ratio to social benefits is more appropriate. This indicator using the required information for DRC index presents more efficient criterion to decioson makers. Cost ratio to social interests is shown in relationship 2:

$$SCB = \frac{\sum_{i=1}^{n} a_{ij} g_i + \sum_{h=1}^{m} c_{hj} f_h}{b_j e_j} \qquad (2\text{-}3)$$

A product or ctivity with lower than 1 SCB has comparative advantage. Of the mentioned criterion is used for prioritizing and ranking agricultural activities. Accordingly, the product with minimum SCB rests on the first rank and others on next ranks respectively.

Overally, the two indexes, because of simplicity in calculation and availability of required data, extensively used in commercial decision makings. Other used indicator is net social interest. This index is calculated as relationship 3:

$$NSP=\left(E-\left(G+F\right)\right)=b_j e_j-\left(\sum_{i=1}^{m} a_{ij} g_i+\sum_{h=1}^{m} c_{hj} f_h\right)$$

If the measured amount for this index is larger than 0, there is comparative advantage in producing that product and if smaller than 0, no comparative advantage and net social interest will be. (Institute of Research for Agricultural and Economic Planning, Mohammadi,).

To measure the relative advantage by use of told indicators, the, measurment of shadow price of inputs used in production and prices of products and a shadow exchange rate is required. Among the methods of calculating the shadow price of inputs tradedable (transaction) and non-trade (domestic) are as follows:

Inputs can trade (swap): This inputs are capable to be exchanged in international markets, on the other words, they have business ability. To calculate the shadow price of A is the input (inputs imported from different countries), CIF price, they considered as the basis for shadow price.

Non-Business Inputs (Internal):

Inputs used by non-trade in such products include the inputs have no ability to get purchased and sold in international markets and in terms of foreign trade, hold no prices. to access their shadow price the following methods are used.

$$VMP_{\mathrm{Xi}} = \mathrm{P_y}.\,\mathrm{MPP_{Xi}} \qquad (3\text{-}4)$$

1 - estimate of the production function of final goods and measurement of value of production (VMP) for each input

2 - calculating the lost opportunity cost of inputs used in the best position or the highest cost spent for inputs in the production process of goods.

The production function method, to calculate the shadow price of production factors, the following relationship is used:

$$VMP_{\mathrm{Xi}} = \mathrm{P_y}.\,\mathrm{MPP_{Xi}}$$

In the relationship, VMPxi is the final value of production of each production input, MPPxi final production of each production factor and Py is the price of desired product. Note that the final production of each factor can be produced by using production function estimate obtained.

Calculation of the shadow prices through the lost opportunity costs of inputs in the best position of applying them:

In this method for accessing to the shadow price of desired inputs, the position for applying the highest input costs that have been paid or that the position established through participation in the production process that has had the highest intake is considered.

This cost equals the shadow price of input. The Shadow price of imported inputs equivalent CIF price of inputs multiplied by a shadow exchange rate is [3]. In this second method for calculating shadow prices are used.

Non-Business Inputs (Domestic):

Non-business inputs include animal manure, earth, water, labor force and machineries.

Shadow Price Of Machinery:

In various studies in other countries and in some special cases in Iran (according to the study of Azizi, and Mohammadi,) comment differently about including machineries in the non-business or business inputs.

According to expert opinions, machines can share 64 percent of total business and 36 percent of non-trade machinery expenses.

Shadow Price Of Land:

For measuring land shadow price, according to previous studies there are different ways. Based on the study [2] the average rental rate of land as the shadow price by applying 85 percent factor is used.

The applied coefficient is for the subsidies granted to business institutions that causes higher

land rental price be higher than its real value. Therefore, the average land rental rates in major regions of selected crops considered the 85 percent coefficient as the shadow price of land.

The second method carried on based on MacIntyre studies *et al*. and Nourbakhsh,. the interest resulting from same group products each of the selected products or a quarter of product cost is recorded as the land opportunity cost.

The third method, in Mousavi nejad studies, Joulaee, which took place on garden products. Depreciation from total land construction investment due during the years of useful life calculated and added to the shadow price of land before construction and comprises total shadow costs of land.

Considering the above methods the most rational way to calculate the shadow price of land is that, 85 percent of highest land rent price in a year supposed like common place as the shadow price of land.

Shadow Price Of Labor Force:

Shadow price of labor force is indeed the lost opportunity cost of labor force employed in production according to selected major areas. Based on economic theories, equilibrium wage of the intersection of supply and demand curves in the labor force market is achieved, which indicates the shadow price of labor. Using the equilibrium wage is a very useful method, but due to lack of time series statistics and labor performance for each of the areas, the possibility of using this method makes it difficult.

Another method of calculating a shadow price of labor is linear programming that for each region should be done separately. But the best and simplest way to determine the shadow price of labor is considered the highest salary paid to the various activities in agricultural production in the region. Through which the highest value of final production work force is calculated. Therefore, according to the major production areas and the highest rate of wages paid to agricultural production in selected major areas, a shadow price of labor was cleared.

Shadow Price Of Water:

The shadow price of water varies in different regions. In areas where water is abundant and usually agricultural lands irrigated with water from springs, rivers etc; is done, a shadow price based on the highest cost of water rights that may Abe costs, including water storage and transfer of irrigation efficiency is calculated 45 percent.

Also in areas where groundwater is used, the most expensive cost water has been considered as wells costs, extraction costs, transport, storage, and 45 percent irrigation efficiency.

The second method for determining the shadow price of water is the way used in which 85 percent of water cost in the region is measured as the shadow cost. That is possible the water input be leased which is common in some parts of Iran. Therefore, the effect of Ajar water price determined based on water supply and demand in the region is as the shadow price. The third method for determining the shadow price of water include the the highest final produced value used in producing different crops recognized as the shadow price of water in the region.

Also, by use of the mathematical programming method, can reach the price of these inputs in different regions, but these methods require time series data and cross section so as to estimate the production function of each product in each region. In this study, using first and second methods and according to the Ministry of Energy Study on water extraction cost, shadow price of water was established.

Shadow Price Of Animal Manure:

Animal manure is used as a crop production inputs. Thus, according to most crucial time and highest price for the crop, the price is taken as the shadow price. The other method consists of calculating the highest value of final production of fertilizer is in the region.

Available Inputs Trade (Exchange):

These inputs are capable in global markets exchange, in other words they have the ability to be traded. Inputs located in this category include a part of machinery, chemical fertilizers (phosphate, nitrogen Vptas·h), toxins (herbicides, insecticides and fungicides).

It should be noted that 64 percent of costs relate to machinery. For chemical fertilizer and pesticides (imported inputs from different countries) the shadow price of these inputs is based on their cost, insurance and freight (CIF) price that by use of the shadow exchange rate, their Rial value has been calculated.

Shadow Exchange Rate:

Calculation of shadow exchange rate is substantial. Since the mentioned rate is the basis of access to acceptable shadow price for trade products and inputs. The Exchange rate is calculated in two absolute and relative modes.

In Absolute mode, purchasing power parity, the shadow exchange rate in terms of gold prices in domestic and international market is determined.

$$E=\frac{Pdi}{Pwi} \times E_0 \qquad (3\text{-}5)$$

In a relative method, the shadow exchange rate based on consumer price index in the country and consumer price index in an economicly stable country (as a representative of foreign countries) is calculated.Since the consumer price index holds more power to express the consumer purchasing power, and as gold prices in iran because of the government politics have insufficient mobility, to calculate the exchange rate, the relative method used in this study. Following equation expresses the shadow exchange ratein relative method.

E: shadow exchange rate

Pdi : consumer price index in Iran

Pwi: consumer price index in the United States of America

E0: exchange rate in the base year (1991)

The base year is 1991 and the calculated year is 2010. Accordingly, the shadow exchange rate is 10,500 rials.

Shadow Price Of The Product:

The Shadow prices calculated according to the study products either imported or exported and based on CIF and free on board (FOB) prices.

Results And Discussion

Priotrising North Khorasan Province's Towns In Four-Fold Cereal Production:

According to the indicators DRC, SCB and NSP, the products separately and in terms of cities having comparative advantage were ranked. The results of this prioritizing are presented in Table 1. Based on three comparative advantage indexes, irrigated wheat had comparative advantage in all of province cities. Based on DRC indicators of cities, Garmeh, Maneh and Samelqan respectively ranked first and second in comparative advantage and the city Esfarayen ranked sixth comparative advantage in production.

According to SCB and NSP indicators, cities Garmeh, Maneh and Samelqan ranked first in similar comparative advantage in producing this product. High performance of irrigated wheat in the cities Maneh and Samelqan and low costs of production factors in Garmeh can be due to equal comparative advantage of production in both cities.

Values for all of three indicators show that only rainfed wheat of Manet and Samleqan and Bojnourd cities has comparative advantage.Maximum of comparative advantage belongs to Maneh and Samelqan and other cities in these crops have no comparative advantage.

The results for the DRC index of irrigated barley show that the cities Bojnourd and Jajarm lack comparative advantage in producing this product. Maneh and Samelqan have the maximum and Shirvan h the minimum comparative advantage in producing this product.

Based on two indicators SCB and NSP, only Bojnourd lacks comparative advantage and Maneh and Samelqan holds maximum and Jajarm minimum comparative advantage in producing this product. The cities of Farouj, Esfarayen, Garmeh and Shirvan, respectively, ranked second to fourth in production of this product.

DRC indicator is observed for the product that Maneh, Bojnourd and Samelqan contain maximum and minimum of comparative advantage in producing this product respectively. Other cities lack comparative advantage in production in the dry climate.

Based on two SCB and NSP indicators of Maneh and Samelqan, Bojnurd and Shirvan, respectively ranked first and third in production and other cities in production of this product hold no comparative advantage. Irrigated grain produced only in two cities of Maneh Samelqan and Bojnourd. Based on three indicators, both citieis have comparative advantage in producing this product. Last studied product is irrigated corn produced in two cities of Bojnourd, Maneh and Samelqan. Based on three indicators, Samlqan and Maneh have maximum and Bojnourd minimum comparative advantage in producing this product.

Ranking Of Cereals In The Cities Of North Khorasan Province:

In this study, in addition to the prioritizing cities in production of each product, the products studied in each city and province based on three criteria DRC, SCB, and NSP and ranked based on these rankings. It became clear that each city in which product has maximum, minimum or no advantage.

Results of prioritizing and calculated values for each indicator on the respective product range in the city are presented in Table 2.

The results of estimation all three indicators of comparative advantage for the city Esfarayen shows irrigated wheat and irrigated barley have comparative advantage in producing wheat and blue maximum comparative advantage in production,dryland wheat and barley hold no comparative advantage in production. In The prioritizing products in Bojnourd, observed that based on indicators of DRC and SCB, respectively, irrigated wheat, grain corn, dryland wheat, dryland barley place in first to fifth ranks of comparative advantage. Only irrigated barley has no comparative advantage. According to the indicator of NSP observed that the irrigated barley has no comparative advantage. Maximum amount of the index equals $7.13* 10^{6}$was related to irrigated wheat. Hence the irrigated wheat holds maximum advantage in wheat production. Grain corn, dryland barley, grain,

dryland wheat, respectively, rank second to fifth in comparative advantage.

According to domestic resources cost index (DRC) for the city of Shirvan, maximum comparative advantage to produce irrigated and least comparative advantage belongs to irrigated barley. Also, Dryland barley and wheat products as well have no comparative advantage. Results from the ranking criteria by help of SCB, showed that dryland wheat has no comparative advantage and irrigated wheat, irrigated barley place in order first to third priorities.

Table 1: Prioritizing the city of North Khorasan province in cereal production.

Product	Rating	Index DRC		Index SCB		Index NSP	
Irrigated wheat	1	Garmeh	0.402	Maneh & Samalqan	0.452	Esfarayen	3.96×10^{6}
	2	Maneh & Samalqan	0.491	Garmeh	0.452	Shirvan	4.74×10^{6}
	3	Bojnord	0.493	Jajarm	0.470	Faruj	5.40×10^{6}
	4	Jajarm	0.537	Bojnord	0.534	Jajarm	6.29×10^{6}
	5	Faruj	0.644	Faruj	0.574	Bojnord	7.13×10^{6}
	6	Shirvan	0.657	Shirvan	0.574	Maneh & Samalqan	7.72×10^{6}
	7	esfarayen	0.679	Esfarayen	0.650	Garmeh	7.72×10^{6}
Dryland wheat	1	Maneh & Samalqan	0.63	Maneh & Samalqan	0.654	Jajarm	-5.434×10^{5}
	2	Bojnord	0.79	Bojnord	0.731	Garmeh	-5.598×10^{5}
	3	Jajarm	1.074	Jajarm	1.026	Shirvan	-6.217×10^{5}
	4	Faruj	1.255	Shirvan	1.270	Esfarayen	-7.109×10^{5}
	5	Shirvan	1.380	Garmeh	1.397	Faruj	-7.879×10^{5}
	6	esfarayen	1.600	Esfarayen	1.400	Bojnord	1.080×10^{6}
	7	Garmeh	2.566	Faruj	1.498	Maneh & Samalqan	1.459×10^{6}
Irrigated Barley	1	Maneh & Samalqan	0.774	Maneh & Samalqan	0.761	Jajarm	1.08×10^{5}
	2	faruj	0.811	Faruj	0.787	Shirvan	1.13×10^{6}
	3	Garmeh	0.882	Esfarayen	0.844	Garmeh	1.16×10^{6}
	4	Esfarayen	0.953	Garmeh	0.850	Esfarayen	1.45×10^{6}
	5	Shirvan	0.957	Shirvan	0.873	Faruj	1.56×10^{6}
	6	Jajarm	1.081	Jajarm	0.981	Maneh & Samalqan	2.16×10^{6}
	7	Bojnord	1.767	Bojnord	1.45	Bojnord	-2.59×10^{6}
Dryland Barley	1	Maneh & Samalqan	0.777	Maneh & Samalqan	0.732	Faruj	-8.85×10^{4}
	2	Bojnord	0.823	Bojnord	0.768	Shirvan	9.13×10^{4}
	3	Shirvan	1.19	Shirvan	0.956	Bojnord	6.02×10^{5}
	4	Faruj	1.229	Faruj	1.044	Garmeh	-6.17×10^{5}
	5	Garmeh	2.198	Garmeh	1.48	Maneh & Samalqan	6.95×10^{5}
	6	esfarayen	6.347	esfarayen	3.054	esfarayen	-1.50×10^{6}
Irrigated rice paddy	1	Maneh & Samalqan	0.458	Maneh & Samalqan	0.500	Maneh & Samalqan	7.76×10^{6}
	2	Bojnord	0.837	Bojnord	0.748	Bojnord	1.6×10^{6}
Irrigated grain corn	1	Maneh & Samalqan	0.493	Maneh & Samalqan	0.534	Maneh & Samalqan	5.66×10^{6}
	2	Bojnord	0.541	Bojnord	0.577	Bojnord	6.41×10^{6}

Source: Research Findings

In prioritized using NSP criterion similar results to SCB index is derived. Results of DRC indicator for the city Jajarm shows that only irrigated wheat has a comparative advantage in production. According to SCB index of irrigated wheat and barley hold respectively first and second priorities in production and dryland wheat has no comparative advantage.

NSP estimation results show that dryland wheat lacks comparative advantage and irrigated wheat and barley, respectively, carry maximum and minimum comparative advantage. In Maneh and Smlqan, based on comparative advantage, all desired products have a comparative advantage. According to DRC and NSP indexes, grain possesses maximum and dryland barely minimum comparative advantage. Based on SCB index, irrigated wheat is in first priority and irrigated barely in sixth priority.

In Garmeh, based on three criteria DRC, SCB and NSP, irrigated wheat and barley products have comparative advantage and irrigated wheat and irrigated barley production are in the first priority. In Esfarayen considering DRC, SCB and NSP of dryland wheat and barely are no comparatively advantagous and irrigated wheat holds maximum comparative advantage. Irrigated wheat and barley, respectively, holds first and second priority in production.

Table 2: Ranking of selected crops in the city of North Khorasan.

Product	Rating	Index Value DRC		Index Value SCB		Index Value NSP	
Esfarayen	1	Irrigated wheat	0.679	Irrigated wheat	0.65	Dryland wheat	-7.109×10^{5}
	2	Irrigated Barley	0.953	Irrigated Barley	0.844	Dryland Barley	-1.51×10^{6}
	3	Dryland wheat	1.600	Dryland wheat	1.400	Irrigated Barley	1.45×10^{6}
	4	Dryland Barley	6.347	Dryland Barley	3.054	Irrigated wheat	3.96×10^{6}
Bojnord	1	Irrigated wheat	0.493	Irrigated wheat	0.534	Dryland Barley	6.02×10^{5}
	2	grain Corn	0.541	grain Corn	0.577	Dryland wheat	1.08×10^{6}
	3	Dryland wheat	0.79	Dryland wheat	0.731	Rice Paddy	1.06×10^{6}
	4	Dryland Barley	0.823	Dryland Barley	0.768	Irrigated Barley	-2.59×10^{6}
	5	Rice Paddy	0.837	Rice Paddy	0.748	grain Corn	6.41×10^{6}
	6	Irrigated Barley	1.767	Irrigated Barley	1.45	Irrigated wheat	7.13×10^{6}
Shirvan	1	Irrigated wheat	0.657	Irrigated wheat	0.574	Dryland Barley	9.13×10^{4}
	2	Irrigated Barley	0.957	Irrigated Barley	0.873	Irrigated Barley	1.13×10^{6}
	3	Dryland Barley	1.19	Dryland Barley	0.956	Irrigated wheat	4.74×10^{6}
	4	Dryland wheat	1.380	Dryland wheat	1.270	Dryland wheat	-6.217×10^{6}
Jajarm	1	Irrigated wheat	0.537	Irrigated wheat	0.470	Irrigated Barley	1.08×10^{5}
	2	Dryland wheat	1.074	Irrigated Barley	0.981	Dryland wheat	-5.434×10^{5}
	3	Irrigated Barley	1.081	Dryland wheat	1.026	Irrigated wheat	5.40×10^{6}
Maneh & Samalqan	1	Rice Paddy	0.458	Irrigated wheat	0.452	Dryland Barley	6.95×10^{5}
	2	Irrigated wheat	0.491	Rice Paddy	0.500	Dryland wheat	1.459×10^{6}
	3	grain Corn	0.493	grain Corn	0.534	Irrigated Barley	2.16×10^{6}
	4	Dryland wheat	0.63	Dryland wheat	0.654	grain Corn	5.66×10^{6}
	5	Irrigated Barley	0.774	Dryland Barley	0.732	Irrigated wheat	7.72×10^{6}
	6	Dryland Barley	0.777	Irrigated Barley	0.761	Rice Paddy	7.76×10^{6}
Garmeh	1	Irrigated wheat	0.402	Irrigated wheat	0.452	Dryland Barley	-8.85×10^{4}
	2	Irrigated Barley	0.882	Irrigated Barley	0.850	Dryland wheat	-7.879×10^{5}
	3	Dryland Barley	2.198	Dryland Barley	1.48	Irrigated Barley	1.51×10^{6}
	4	Dryland wheat	2.566	Dryland wheat	1.498	Irrigated wheat	5.40×10^{6}
Faruj	1	Irrigated wheat	0.644	Irrigated wheat	0.574	Dryland wheat	-5.59×10^{5}
	2	Irrigated Barley	0.811	Irrigated Barley	0.878	Dryland Barley	-6.17×10^{5}
	3	Dryland Barley	1.229	Dryland Barley	1.044	Irrigated Barley	1.16×10^{6}
	4	Dryland wheat	1.255	Dryland wheat	1.498	Irrigated wheat	7.72×10^{6}

Source: Research Findings

Ranking In North Khorasan Province Grains:

Results in grain ranking of North Khorasan Province are given in Table 3. Due to domestic resources cost index, the least gained amount is 0.402 related to irrigated wheat.

This value is related to the city of Garmeh and irrigated wheat production in the province. The

second priority in the province is grain allocated to the city of Maneh and is Samelqan.

According to the results of this indicator, the grain corns products (Maneh and Samelqan), dryland wheat (Manet and Smlqan), irrigated barely (Manet Vsmlqan) and dryland barely (Vsmlqan Mane) are in other rankings of provinc's productions. In the second to sixth lines are produced in the province. Rults of SCB index also show that in North Khorasan province, irrigated wheat product (Garmeh, Maneh and Samelqan) holds highest priority in production in comparison to other grains. Based on the results of calculating the index, grain products, dryland wheat, dryland barley, irrigated barely (all in Maneh and Samelqan) locate in second to sixth ranks in production of province.

Other study index is net social prophitability. Based on the obtained results of the calculation, grain,irrigated wheat, grain corn,irrigated barely dryland wheat, dryland barely are located in the first to sixth rank. Totally, the maximum benefit production in the province based on the type of index relatto the first and second irrigated wheat. while the net social profitability of grain products is higher.

Table 3: Ranking products in North Khorasan Province.

Rating	Type Index (1)		Type Index (2)		Type Index (3)	
	Product Name	Index Value DRC	Product Name	Index Value SCB	Product Name	Index Value NSP
1	Irrigated wheat	0.402	Irrigated wheat	0.452	Dryland Barley	6.95×10^{5}
2	Rice Paddy	0.458	Rice Paddy	0.500	Dryland wheat	1.08×10^{6}
3	grain Corn	0.493	grain Corn	0.534	Irrigated Barley	2.16×10^{6}
4	Dryland wheat	0.63	Dryland wheat	0.654	grain Corn	5.66×10^{6}
5	Irrigated Barley	0.774	Dryland Barley	0.732	Irrigated wheat	7.72×10^{6}
6	Dryland Barley	0.777	Irrigated Barley	0.761	Rice Paddy	7.76×10^{6}

Source: Research Findings

Suggestions:

1. Accordingly, irrigated wheat production in the province and most of the province cities has a comparative advantage. The appropriate policies applied to invest properly to create a Silou facilities and extension services for farmers to increase crop work.

2. The appropriate policies to improve the marketing of products that have comparative advantage in production.

3. Apply policies including investment in industrial conversion, packaging, warehouse storage products establishment of warehouse storage appropriate the quantity and nature of the products and make proper use of cold storage to use advantageous products.

4. To thereby identify the factors affecting their deficiency and ultimately improve the proper management and efficient resource allocation, and performance lan appropriate studies in comparing costs and benefits of importing goods without comparative advantage in the production cost and benefit of local and regional produce in line with proper planning in relation to the subject and if possible to do more research In this context there, Seem to produce these products according to need and demand of domestic markets

5. Determine the optimal planting pattern in the city of the province based on comparative advantage of each product. For these crop farmers has to increase technical knowledge about how culture and how to use the pattern established with regard to the opportunity cost of inputs and products required appearing.

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