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## An Investigation of Agricultural Products in the Province of Fars

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### ABSTRACT

**Background:** Agricultural sector has advantage of the private sector, a special place among the economic sectors in Iran. The Fars province of poles agriculture in Iran have main quota in agricultural products. **Objective:** Given of importance of agricultural products in the province of Fars and in order to identify the comparative advantage of these products have been used two methods (cost ratio internal sources) and (cost ratio to social interest) for the agricultural years 2009-2010. Accounting of standards mentioned show that four products from 18 agricultural products under study include rainfed wheat, rainfed barley, sugar beet and sunshade haven't possess any comparative advantage in percentage rate equation for exchange, while tomatoes are superior to comparative advantage and cucumber, potatoes and blue lentils in the following positions. **Results:** A comparison of comparative advantage with the balance of the minimum level of cultivation in relation to actual products shows there is confidence relative to the selling price. Agriculture model applies have a lot with comparative advantage and priorities for products such as tomatoes, onions and potatoes have a high risk of price, the average model of agriculture and arrange comparative advantage notes that there is a significant difference. **Conclusion:** At the end of the research was to make proposals for greater applicability to agriculture with the order form the comparative advantage of products.

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## INTRODUCTION

Iran has more regional and conditions geography and this is a powerful factor of comparative advantage for agricultural products. At present only 32 percent of the land subject to exploitation and the rest of the land could be used to add the possibility of improving the exploitation of the land the importance of economic reality (Aresvik, 1976).

The share of the agriculture sector in employment and value added, balance of non-contact abroad and secure raw materials and productive enterprises for the rest of the sections are among the advantages in this section. In Fars province diversity a lot of water and air that creates the possibility of rising winter to summer products among these advantages. In this province of 3.7 million hectares of land is subject to the cultivation and which is only now been exploited 1.6 million hectares means 43 percent and the rest for many reasons, especially the lack of water remained without exploitation (Alizadeh, & Keshavarz, 2005).

The water, although it is basic restrictions for agriculture in the province, it can be increased in the correct use of the image there possibility to level of observation.

Among agricultural products of Fars province, there are agricultural products with the largest share and in different years, there are 1 million hectares means at 65 percent of the land be only agricultural products (Nasseri *et al.*, 2009).

Given the importance and advantage of the agriculture sector in the economy of the country entirely of Fars province in particular, the research in the field of knowledge capacity and capabilities and comparative advantages of agricultural products in the province enjoyed importance and great value and study thus agriculture sector as one of the most important sectors of agriculture in the province enjoys great importance (Aresvik., 1976).

#### Objective:

The aim of this paper is to help to recognition about the capabilities of production of agricultural products in the province of Fars. To reach this goal will be to answer the following questions:

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1 - Given the factors and the natural capacity of the region and the factors and institutions in the province, which kind of products in the province have more of economic and social benefits?

2 - Given the index measuring the comparative advantage of Fars province in production, which one of the products (for export) has a comparative advantage?

To reach the above goals, it is tested the following hypotheses:

1 - There is no congruence between the cultivation of agricultural products in the province of Fars with its comparative advantage.

2 - Comparative advantage products are greater than the proportion of capital products in Fars province

3 - Some basic products have comparative advantage from the point of view of exports.

## MATERIAL AND METHODS

In this research, two criteria are used to determine the comparative advantage of domestic Resource Cost (DRC) and Social Cost-Benefit cost (SCB), which both depend on the basis of the method or technique Ricardo (Soltani, 1995).

DRC and SCB can be extracted from net profit social relationship that can show the following as:

$$NSP_o^s = \left( P_o^s - \sum_{oj} a_{oj} P_j^s - \sum b_{ok} P_k^s \right) \cdot Y_o = \left( P_o^b - \sum_{oj} a_{oj} P_j^b - \sum b_{ok} P_k^s \right) \cdot Y_o$$

Which in this relationship;

$P_o^s$  Shadow Price of output o

$P_o^s$  Shadow Price of Inputs tradable j

$P_o^s$  Shadow Price of Inputs un-tradable k

$a_{oj}$  Deal required of Inputs for production of the unit output o

$b_{ok}$  Deal required of Inputs for production of the unit output o

$Y_o$  Performance per hectare output o

$P_o^b$  Equal to the value of the upper limit output o on the basis of foreign exchange, which includes the costs such as transport output, storage and distribution (taking into account the differences Quality) (Salehi, 1994)

$P_j^b$  The upper limit of the value of tradable j to the exchange rate, which includes the costs such as transport output, storage and distribution (taking into account the differences Quality)

The Shadow Price is the real value of a single product or single Inputs equal to the value of the product or stock in free trade conditions, competition and without the impact of external factors of the capacity of the market. Securing these conditions within the country, particularly for agricultural goods is a very big problem, because most countries with protectionist and tax policies differ in the value of the agricultural products and marketed to private parties (Moses Nijad, and Zargami, 1994).

## RESULT AND DISCUSSION

After determine the shadow price of products, Inputs and the possibility of identifying the comparative advantages it can get relative SCB and DRC criterions from relationship net social profit NSP which calculated involves three factors:

1 - Shadow price or the upper limit of the crop

2 - Total cost of inventories internal non-tradable to shadow price

3 - Total cost of inventories internal non-tradable to shadow price

This information in Table 1 show that the cost of land, water and machinery by shadow price identified for hectare of products. in Table 1 shows the total cost of toxins per hectare on the basis of shadow price, and in Table 2 and 3 were three factors accounting listed They Ingredients SCB, DRC and NSP.

As has been pointed out to net social profit NSP shows the balance of interest per hectare of different products or the single currency. This issue is the main problem NSP to determine advantage. Given the column NSP in Table 3, it is clear this issue. For example blue lentils with net social profit at 2825146.265 Real of hectare to rainfed lentils at 196246.858 Real of net social profit, and it seems that with high feature, but in fact not like that, but equally absolute net social profit of blue lentils higher, but the rate of return has less For to rainfed lentils and the cost ratio of their benefit is greatest.

**Table 1:** Cost of chemical fertilizers and poisons on the basis of shadow prices (per hectare of products) Rails.

output	chemical fertilizers		poisons	
	PPP absolute	PPP relative	PPP absolute	PPP relative
Blue wheat	107936.4	144901.5	140912.938	188933.7
Rainfed wheat	28430.6	38167.3	88.42	188.697
Blue barley	75917.59	101514.42	20180.588	27091.44
Rainfed barley	19070	25601	1856.75	2492.64
corn kernels	211130.84	283436.99	370906.18	477795.88
blue gram	55521	74535.45	45135.9	60593.6
Rainfed gram	5349.9	7182	-	-
blue lentils	51958	69752.13	73429.3	98576.6
rainfed lentils	36032.5	48372.64	-	-
sunshade	102589.14	137722.93	56763.65	76203.57
cotton	116323.4	156160.74	337397.05	452797.42
Beet	168432	226115.13	445442.49	597993.65
watermelon	98119.43	131722.47	349174.87	468554.26
Cucumber	185079.14	248463.34	261018.63	350388.31
potato	203013.5	272539.66	196265.95	259427.09
onion	138793.5	186326.2	495928.296	665717.37
tomatoes	280674.29	376797	552044.06	740912.86
beans	108226.8	145345	422117.33	566675.68
paddy	159812.5	214543.59	153266.23	214955.259

**Table 2:** Size of NSP,DRC,SCB with shadow exchange rate PPP relative.

Product	output tradable Cost	domestic ResourceCost	Shadow product value	Performance per hectare (Kg)	NSP (rails)	DRC	SCB
Blue wheat	1111389.58	1916528.8	1000.39	3207.98	181312.73	0.913	0.94
Rainfed wheat	256789.497	311891.6	1000.39	467.68	-100818.7	104	102
Blue barley	425484.7	1611028.4	969.68	2154.12	52293.78	0.968	0.97
Rainfed barley	222108.24	293956.6	969.68	462.94	-6716.18	1.296	1.149
corn kernels	1817853.27	3526744.4	1057	6629.99	1663310.76	0.679	0.76
blue gram	641625.65	1714050.2	3530.7	983.63	1017226.59	0.64	0.7
Rainfed gram	356736.7	710712	3530.7	603.45	1062152.215	0.4	0.5
blue lentils	586021.29	1623540.5	4319.265	1165.64	2825146.265	0.364	0.43
rainfed lentils	313423	589937.7	4319.265	254.56	196246.858	0.75	0.82
sunshade	602292.5	2160291.7	2113.4	816.4	-1037204.284	1.92	106
cotton	125754.36	3111588.3	-	2559.5	-	-	-
Beet	1720562.78	6235486.6	174.912	21834.45	-1136942.06	1054	1.29
watermelon	1974155.83	4377479.8	739.93	19141.22	7811527.284	0.359	0.448
Cucumber	2639146.75	4458642.6	1496.186	17163.35	18581774.63	0.193	0.276
potato	1864117.31	3214149.9	886.72	19031.93	11797725.79	0.214	0.3
onion	2843852.37	3469482.7	511.659	27997.44	8011807	0.3	0.44
tomatoes	2699602.46	5704779.2	737.93	41467.89	22196018.41	0.2	0.274
beans	1865062.26	2536258	2717.268	1856.61	643586.68	0.79	0.87
paddy	1568507.93	5450179.2	2379.936	4867.465	4565568.05	0.544	0.6

**Table 3:** Size of NSP,DRC,SCB with shadow exchange rate PPP absolute.

Product	output tradable Cost	domestic ResourceCost	Shadow product value	Performance per hectare (Kg)	NSP (rails)	DRC	SCB
Blue wheat	1026403.718	1916528.8	724.779	3207.98	-617855.46	1.47	1.26
Rainfed wheat	101222.52	311891.6	727.779	467.68	-74149.47	1.31	1.2
Blue barley	392677	1611028.4	701.9	2154.12	-491728.57	1.43	1.32
Rainfed barley	214941.35	293956.6	701.9	462.94	-183560.26	2.66	1.56
corn kernels	1618657.42	3526744.4	766.947	6629.99	-60550.87	1.01	1.01
blue gram	605463.1	1814050.2	2906.9	983.63	439505.66	0.8	0.84
Rainfed gram	354904.6	710712	2906.9	603.45	1327552.2	0.5	0.607
blue lentils	400186.8	1623540.5	3196.99	1165.64	1702812.124	0.48	0.54
rainfed lentils	301082.9	589937.7	3196.99	254.56	-77194.82	1.15	1.09
sunshade	547718.79	2160291.7	1553.87	816.4	-1439431	2.99	2.13
cotton	1102309.65	3111588.3	-	2559.5	-	-	-
Suger-beet	1510328.49	6235486.6	104.78	21834.45	-2458001.42	4.16	2.07
watermelon	1821173.4	4377479.8	524.174	19141.22	9894676.65	0.52	0.61
Cucumber	2486392.87	4458642.6	1088.99	17163.35	11745681	0.27	0.37
potato	1728430.01	3214149.9	632.65	19031.93	7097970.6	0.43	0.41
onion	2626530.6	3469482.7	360.724	27997.44	4003335.246	0.46	0.603
tomatoes	2414610.95	5704779.2	563.745	41467.89	15257925.5	0.27	0.34
beans	1683425.71	2536258	2003.76	1856.61	-499649.95	1.24	1.31
paddy	1452087.81	5450179.2	1752.3938	4867.465	1627448.48	0.77	0.8

**Table 4:** Ranking comparative advantage on basis SCB, DRC.

Product	SCB(PPP relative)		SCB(PPP absolute)		DRC(PPP relative)		DRC(PPP absolute)	
	size	rank	size	rank	size	rank	size	rank
tomatoes	0.271	1	0.34	1	0.2	2	0.27	1
Cucumber	0.276	2	0.37	2	0.193	1	0.27	2
potato	0.3	3	0.41	3	0.214	3	0.43	3
blue lentils	0.43	4	0.54	4	0.364	6	0.48	5
onion	0.44	5	0.603	5	0.3	4	0.46	4
watermelon	0.448	6	0.61	7	0.359	5	0.53	7
Rainfed gram	0.5	7	0.607	6	0.4	7	0.5	6
paddy	0.6	8	0.8	8	0.544	8	0.77	8
blue gram	0.7	9	0.84	9	0.64	9	0.8	9
corn kernels	0.76	10	0.01	10	0.679	10	1.01	10
rainfed lentils	0.82	11	0.09	11	0.75	11	1.15	11
Beet	0.87	12	1.31	14	0.79	12	1.24	12
Blue wheat	0.94	13	1.26	13	0.913	13	1.47	15
Blue barley	0.97	14	1.32	15	0.968	14	1.43	14
Rainfed barley	1.149	15	1.56	16	1.296	16	2.66	16
Rainfed wheat	1.21	16	1.2	12	1.4	15	1.31	13
Beet	1.29	17	2.07	17	1.54	17	4.16	18
sunshade	1.6	18	2.13	18	1.92	18	2.99	17

Results related to NSP show that the net social profit of all the products under study except blue and rainfed wheat, blue and rainfed barley, corn, rainfed lentils and bean beet and sunshade in absolute PPP exchange rate is positive. calculation of criterions SCB and DRC in Table 2 and 3 shows that the growing population of agricultural products in the province of Fars has comparative advantage, which turned out to be in this thread with a high capacity of Fars province in the production of agricultural crops. Among the products, tomatoes have earned first place with the original criterion SCB in this study also DRC in search absolute exchange rate PPP. This product in the 1999-2000 agricultural year reached 9728 hectares of agricultural land in the province and performance 41467.89 kg per hectare. Also, cucumber is the second feature with criterion SCB and DRC in search absolute PPP exchange rate but with criterion DRC to the exchange rate relative get the first place.

Cucumber in Fars province is grown on a limited area and the minimum to be grown in the 1999-2000 agricultural year is 5.000 hectares. Performance cucumber is very excellent and arrived 17162.35 kg per hectare. Also, potatoes singled ranked third. Minimum level of potato cultivation reached 10015 hectares and performance to 41467.89, which is the ratio of the average performance of potatoes in the country midwife interesting. Produce products such as tomatoes, cucumbers, potatoes, onions, due to price differences did not have a place at the level and broaden in agriculture. These products, the lack of market possibilities in the Declaration of storage, corruption of these products leads to restrict planting and blue lentil scored fourth place on this basis. Lower-level blue lentils arrived in 5323 hectares and performance to 1165.64 kg per hectare. Also, onions have the fifth ranked with minimum cultivation at 3291 hectares and Performance to 27997.44 kg per hectare. The reason goes back that is not accepted onions between farmers Fares and potential fluctuations in prices when grown with a very big risk. After these rainfed products above, watermelon has sixth position, with the minimum level of cultivation to 3396 hectares and performance at 19141.22 kg. Rainfed Beans among rainfed products with relative criterion SCB in the seventh position and absolute criterion SCB in the sixth position among all products. Rainfed Beans among products that have the first position and the high comparative advantage. NSP of the rest products is few at 4652 hectares and performance 306.45 kg. Because this could be include wheat price entitled competing product. Given most rainfed land specializes to wheat and barley, and they accept the protection of the government and the possibility of wheat sold and marketed better able to harvest wheat and barley easily and also given the harvested beans in half conventional farmers haven't the ability to extensive agriculture.

After rainfed gram, paddy, blue gram, corn kernels and rainfed lentils, beans, wheat, barley, blue barley, rainfed wheat, beet and sunshade have eighth to eighteen ranked. Arrangement mentioned related to the criterion of SCB in relative PPP exchange rate which SCB for all products exception of the four products, wheat, rainfed barley and sunshade and beet are less than one and has a comparative advantage. All mattresses in absolute PPP exchange rate to eleventh ranked without any change. Beans came down to the fourteenth rank, and it place became to rainfed wheat, blue wheat occurred in the thirteenth rank and rainfed-blue barley in less hierarchy and beet and sunshade without any change.

Grades arrangement with the DRC and SCB in exchange rates relative PPP and absolute PPP fully illustrated in Table 4. Although he mentioned in the table noted that the beet and sunshade in at the bottom of comparative advantage and even in search of absolute PPP exchange rate with both criteria, it lacks the comparative advantage. Minimum level of sugar beet cultivation in the 1999-2000 agricultural year in Fars province equal to 22,000 hectares that are observable and Among blue products with minimum level of agriculture at the fifth position. Performance beet toward onions and tomatoes has a very high comparative

advantage. Also with regard to potatoes that high comparative advantage, the advantage of a large share of the land that the cause of this phenomenon can be the possibility of selling to beet sugar factories. Compared the behavior of farmers with relative results show that the products Fars province farmers haven't properly on the basis of comparative advantage, relevant interest in acquiring social and even personal interest income-earning scale certainly. As noted that the ranks of comparative advantage with DRC and SCB are not equal. With this case and with the difference in grades, there is no apparent difference and holistic approach to a similar rank. The hypothesis relating to the use of DRC more than the input of tradable is acceptable. For example, Cucumber in the same rank with the criterion DRC and relative can be used more than tradable input, and the ratio of the cost of tradable input to the internal cost of inventories with the shadow price of Cucumber 0.5 and tomato 0.42.

#### *Conclusion:*

calculation criterions SCB and DRC Show four products from 18 agricultural product under study in the exchange rate relative equivalent haven't a comparative advantage that these products is a wheat, rainfed barley, beet sugar and sunshade and tomato with SCB equal 0.274 in exchange rate relative and 0.34 of absolute exchange rate have higher comparative advantage. The tomatoes of little importance among blue products with the lowest level for agriculture have twelfth ranked.

Minimum level of cultivation in 1999 equal to 5323 hectares is not suitable with rank of comparative advantage. As seems to be the most important issues in the production of onions and tomatoes are not sure to the value of the product at harvest cultivation is more dangerous. Totally, it can say that in any place had confidence in relation to the relative value of the sale, it have good use of the best comparative advantage haven't confidence lead to an imbalance in the relationship.

Cucumber has Second comparative advantage. SCB criterions have the exchange rate relative PPP equal to 0.276 and the absolute exchange rate at 0.37. Although the comparative advantage of the Cucumber is high but it does not accept the farmers of Fars province and the lower level of cultivation in 1999 was shackled 5.000 hectares. Note potentially that beet and sunshade in both rate in last rank. Although the sugar beet in all criteria without of comparative advantage, it is cultivated in large scale (22 thousand hectares). Stress value and the possibility of selling to the sugar factories (market confidence) of the original factors in finding such branches between farmers.

Given the results of the study, offers the following suggestions:

- 1 - Results of the study show that any product with a high comparative advantage at the same time has steadily relative value, it is being used by comparative advantage in the rest of the notes, and there is no effect of comparative advantage on the installation of Agriculture. Given the role played by the market and marketing crops in determining the value of reassuring and fair, it is proposed the government and research institutions considerable attention to improving advertising market and product marketing.
- 2 - To finding a space of competition and result in equal value to the products, it is proposed that the regulations of exports and imports of agricultural products in logical framework and the rise of blogging to avoid too strongly sudden changes and without any program.
- 3 - For the purpose of exploitation of comparative advantage of different regions in the production of products appropriate to the circumstances of the areas, it is the implementation of marketing and research programs, especially on those products. In the meantime, recommended great interest in Fars province produces products: tomatoes, cucumbers and potatoes given the market demand.
- 4 - Suggests the protection of the state of the crops that are cultivated in order to target and more protection in each area with crops higher comparative advantage.
- 5- Given the high comparative advantage of most agricultural products in the province of Fars, especially export products, Iran's membership in the World Trade Organization cannot afford to damage these products. Necessary in such studies carried out in different places and times to reach the transparent picture in the relationship with the features or the loss of comparative advantage for agricultural products in the country with a view to taking decisions and policy development in the relationship with the balance of the protection of different products.

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