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Title of the Poster:

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A Study of Iran's Comparative Advantage in Saffron, the Red Gold

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Introduction

Iran is OPEC's second largest oil producing country, but has been trying to join the World Trade Organization (WTO) in order to expand non-oil exports. Among the non-oil exports, agricultural products play a major role in the Iranian economy. Among the agricultural products exported from Iran, saffron is a key product. With a production of about 170 tons of saffron annually Iran is the number one producer of saffron in the world. Many third party countries, such as Spain & France use fancy packaging to re-export Iranian saffron from their countries with higher added value and price. Peculiarities: Saffron does not require much water for cultivation. And once it is planted it can be picked (harvested) for many seasons. The flower, which is the valuable part of the plant, can be picked up to seven consecutive seasons. Saffron itself can be stored for many years without loosing its quality. Also, the transportation of saffron is rather easy and does not require heavy machinery. Since saffron is used in producing certain medicines and preparing different fancy dishes around the world, it earns its producers hard currency. Moreover, since saffron does not require any high-tech farming machinery for its production, it can easily provide employment in the agricultural sector.

Methodology

Comparative advantage plays an important role in bilateral trade among different countries. Measures of comparative advantage are:

1-Domestic Resource Costs (DRC),
2-Revealed Comparative Advantage (RCA),
3-Net Present Value (NPV),
4-Profitability Index (PI),
5- Social Benefit Cost Ratio (SBC).

However, applied individually, these indices only cover part of the comparative advantage phenomenon. To overcome this shortcoming, we have used a policy analysis matrix (PAM) to study the competitiveness of saffron production in Iran. PAM provides a framework through which we can compute the comparative advantage index, the protection coefficients and the cost competitiveness index simultaneously. These measures can be used to assess the impact of globalization on economic units. PAM can also be utilized to analyze the economic policies of the government and offer ways to improve them.

Table 1 presents a PAM matrix as was first presented by Monke & Pearson (1987) and was later modified by Masters & Winter Nelson (1995). The first row shows the revenue of a firm (A), the cost of tradable inputs (B), the cost of the non-tradable inputs (C) and the domestic profitability (D) matrices. The second row consists of the same matrices as the first row except that the computations performed use shadow prices both for the products and the inputs. The third row is obtained by subtracting the elements of the second row from the first row. This row is used to analyze government policies.

As it is evident from the elements of the matrix in Table 1, we need to compute the shadow prices of three main groups: the non-tradable inputs, the tradable inputs, and the exchange rates. Shadow prices reflect the real social cost of the resources used in producing a product. This is important because in many developing countries resource prices are distorted by government interventions. If the social profit H >0, this implies that the industry in question has a comparative advantage. But a negative H implies a waste or misusing of resources.

	Revenue	Tradable Resources	Non-Tradable Resources	Profit
Private Prices	A	B	C	D
Social Prices	E	F	G	H
Effects of Divergences	I	J	K	L

Table 2 shows an estimated policy analysis matrix for saffron. The revenue from one hectare of saffron based on shadow prices is 17,950,000 Rials more than the revenue for the same amount of saffron based on market prices. Therefore, we can claim that a 40% tax has been imposed on saffron production.

Since K is -24,700,000 Rials this implies that the market or private prices for non-tradable inputs are less than their shadow prices and so the producers receive an indirect subsidy for such inputs. In other words the government actions have caused a 68% cost reduction for the producer.

According to Table 2, J is -1,180,000 Rials; the market costs of tradable inputs to the producer are lower than their shadow or social costs for these inputs. Thus saffron producers are receiving a 57 % subsidy on tradable inputs.

The producer's profit at market prices, D, is 13,560,000 Rials, so saffron production at current market conditions is profitable. Profit at shadow prices (H) are also positive and equal 5,630,000 Rials, so we can say that saffron production is profitable at shadow prices too. Since L > 0 we conclude that saffron production at market prices is more profitable than at shadow prices. Thus the subsidies on saffron more than compensate for the taxes.

PAM for the output of one hectare saffron plantation 2008 (Rials)	Revenue	Tradable Resources	Non-Tradable Resources	Profit
Private Prices	29500000	1340000	14600000	13560000
Social Prices	47450000	2520000	39300000	5630000
Effects of Divergences	17950000	-1180000	-24700000	7930000

Computing the Indices in a PAM Framework

Table 3 shows the values for the three Comparative Advantage Indices associated with saffron production:

The DRC is 0.87. So at social prices,

increased domestic production of saffron costs 0.87 while generating 1.00 in income from the international market, which implies that Iran has a comparative advantage in saffron production. The UC index is also less than one which implies that saffron production is profitable given current market prices. Therefore, with UCs equal to 0.88, Iran would have a comparative advantage in saffron under competitive conditions (the situation that Iran will move towards when it becomes a member of WTO and shadow prices prevail in the country). The fact that NSP is positive indicates that the production of saffron is socially profitable.

Comparative Advantage Indexes	Abbreviation	Value
Based on Domestic factors	DRC	0.87
Based on unit costs	UC5	0.88
Net social profit	NSP	5630000

Conclusion

In this research, we studied the comparative advantage and export potentials of saffron, known as Iranian red gold. The results, based on the comparative advantage indices, including DRC and UCs, indicate that Iran has a comparative advantage in the production of saffron. Moreover, the nominal rate of protection on saffron shows that there has been an indirect tax on saffron production during the period of study. In other words government agricultural policies as a whole have penalized saffron growers.

The elasticity analyses show that a 10% increase in the world price of saffron and Iranian Rial would improve the Domestic Resource Cost Index of saffron by 0.67%. The value of the competitiveness index, based on export prices, was estimated to be 0.333, which shows that Iranian saffron farmers can compete in the world markets. Based on these results the amount of land allocated to saffron production in Iran should be increased. The geography and the climate conditions of Iran and market conditions call for such a move. Joining the WTO should benefit saffron growers because Iran has a comfortable comparative advantage in saffron production.

Also, since saffron is produced in provinces where people on the average earn less income than the rest of the population, the expansion of saffron production is recommended to reduce poverty, especially because saffron production does not require any sophisticated or advanced technology.