

# **Wheat Cultivation in the KSA and the International Trade Theories**

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*Trade arises and is beneficial whenever there are international differences in relative costs of production. This means that gains from trade occur even if a country is absolutely more or absolutely less efficient in the production of all of its goods than other countries. The source of these gains lies in the fact that relative prices with trade differ from relative prices in Autarky. (Ricardo, 1817)*

**Abstract:** A need to protect the kingdom against a reverse boycott by the farming superpowers after oil shock in 1973-1974 enhanced the Saudi government to embark for wheat cultivation as a part of agricultural promotion. From the view of most of international trade theories the wheat cultivation in KSA represents a waste of scarce resources without any necessity. On the basis of international theories, especially absolute advantage and comparative advantage we tried to judge for that experience which lasted for about three decades. Our analysis relies on data of two commodities; wheat (W) and oil (O), two countries; the KSA and the USA. Our analysis depends mainly on two important principles of international trade; absolute advantage and comparative advantage. From the perspective of Adam Smith (absolute advantage theory), there is a basis for trade between the KSA and the USA. That is because the KSA has an absolute advantage in extracting (producing) crude oil, while the USA has an absolute advantage in producing wheat. With considering the price ratios in autarky, like Ricardo analysis, the KSA stands to gain by acquiring wheat from the USA at a ratio of 1 bushel:  $\frac{3}{5}$  barrel, or  $1W:\frac{3}{5}O$  (less cost for the bushel of wheat than at home). Similarly, the USA stands to benefit by acquiring oil from the KSA at a ratio of 1 barrel:  $\frac{1}{10}$  bushel, or  $1O:\frac{1}{10}W$  (less cost for the barrel of oil than at home). By importing the wheat from the USA, the KSA would have saved \$19 for every bushel.

**Keywords:** Ricardian Model, Comparative Advantage, Absolute Advantage, Wheat Cultivation in the KSA, Autarky, International Trade, Gains from Trade.

## 1. Introduction:

To diversify its sources of GDP away from oil shortly after oil shock in 1973-1974 (favourable shock for oil producers; reverse, unfavourable, shock for oil consumers), the Saudi government decided to embark for wheat cultivation as a part of agricultural promotion. The stated objective from the decision was, from its view, a need to protect the kingdom against a reverse boycott by the farming superpowers; i.e. guarantee food security through self-sufficiency besides improvement of rural income.

According to Al-Goosi (1980), dependence on oil exporting, that caused sudden high income, and the lack of domestic resources to supply most of the country's needs and services has caused Saudi Arabia to depend on international market to satisfy its high demand for food stuffs and other essentials. He assures that Saudi's economy is heavily dependent on its oil exporting earnings. Moreover, the funds for development relates directly to how the oil sector performs.

So, the government poured immense resources into a wheat self-sufficiency program (Blog, 2011). Local wheat production was enhanced using new imported seeds through offering farmers an exorbitant many times higher than the market price. It reached SR 3,500 (US\$933) in 1980, while the market price was \$ 200 (Blog, 2011). The grain silos and Flour Mills Organization (GSFMO), which has been established in 1972 to import wheat, guaranteed the purchasing supported price for all wheat production (Al-obaid, 2009). However, at the beginning of 1993, under pressure from declining oil prices since the mid 1980s, the government had to scale down its wheat-growing subsidies.

Over the three decades, Blog (2011) thought that the program massively depleted both the government's finances and water resources without ever being in any way necessary, for the farming powers never had any intention of blockading the kingdom. Also, the smuggling of wheat into KSA became a big business especially from nearby Egypt, where the government makes wheat available at lower-than-market prices.

The Economics problem, scarcity, comes to the surface where there are no lakes or rivers in KSA; very low rainfall (less than 100 mm annually). The main source for agriculture is underground water. According to Al-Goosi (1980), of all the sizable countries on the earth, KSA is probably the driest and the dryness of the air reaching

KSA and the consequent lack of clouds produces very high summer temperatures (about 100 to 120 degrees). Besides, rainfall, which occurs mostly during the months from October to April, is scanty, irregular, and unreliable. The annual rainfall averages about five inches, except along the red sea coast it approaches fifteen inches.

Al-Goosi (1980, 32) summarized the important factors affecting wheat production in KSA as follows:

1. The amount of rainfall
2. Competition with other agricultural crops for limited land resources.
3. Domestic wheat prices higher than prices for new varieties and/or imported wheat.
4. Low hectare productivity.

At the end of 2007, 19/11/2007, the Council of Ministers Resolution No. 335 decided to reduce water usage in agriculture and take more than 20 procedures to utilize water more efficiently. It is Saudi government's decree 335 issued in November 20, 2007.

The mentioned decree includes a 12.5 percent annual reduction in domestic wheat production with the goal of terminating wheat domestic production by the spring of 2016, while Saudi government will maintain its guaranteed purchase price for wheat producers at \$ 266.67 per ton until then. According to the Ministry of Agriculture (MOA) officials, the reason to take the decision of terminating domestic wheat production policy is mainly concerns over the depletion of Fossil water since the crop is grown on 100 % central pivot irrigation (for more details, see Mousa, 2011). Al-Obaid (2009) asserted that water in KSA is highly considered as a scarce and limiting resource.

Recently, it is noted that despite the national water demand for agriculture decreased from 17530 million cm in 2004 to 15090 million cm in 2009, the water demand for non-agriculture purposes increased from 2740 million cm in 2004 to 3170 million in 2009 (ministry of Economy and Planning of KSA).

At the end of 2008, GSFMO imported wheat to end three decades of wheat cultivating in KSA. According to Mousa (2011) Saudi Arabia wheat production increased by 34% from 940,000 metric tons in 2009 to 1,260,000 in 2010 despite the commencement to import wheat in September 2008. He asserted that the reason is due

to the decrease in the cost of agricultural inputs (chemicals & fertilizers) compared to 2009.

Let us analyze the wheat cultivation experience in KSA from the view of international trade theories where based on most of them, the wheat cultivation in KSA represents a waste of scarce resources without any necessity.

According to Adam Smith, countries should specialize in and export those commodities in which they had an absolute advantage and should import those commodities in which trading partner had an absolute advantage (Smith, 1779). Absolute advantage exists when a country can produce a good or a service at a lowest cost than other countries. This situation occurs because of the availability of the natural resources or raw material. Ricardo added that even if a country is absolutely more or absolutely less efficient in the production of all of its goods than other countries trade is still beneficial (Ricardo, 1817). That is what he called the comparative advantage principle. It is a situation in which a country specializes in the production of a good or service which results in the greatest efficiency or least inefficiency.

Besides, Heckscher and Ohlin model asserted on the Factor Endowments as a basis of production and trade (see Heckscher, 1950; Ohlin, 1933). So we can summarize the above in few words: any country all over the world should import the commodity with a lower cost of production outside (of trading partners) and produce and export the commodity with a lower cost inside.

On the basis of international theories, especially absolute advantage and comparative advantage we will try to judge for that experience which lasted for about three decades. Some questions arise. Did the Saudi government decision to cultivate wheat, despite of the unsuitable natural resources to do that (except a sudden higher income from the crude oil revenues), right or wrong? If it is wrong, how much did it cost the kingdom (nearly)? And if the KSA would have imported wheat, how much would it save? We will try to answer the questions using the available data about that issue.

Our analysis relies on data of two commodities, wheat and oil, two countries, the KSA and the USA for year 1980 (for wheat data). This year is selected as it has two significant events; first it witnessed the highest level of price given to the Saudi

wheat producers (\$933). Second, it was the year of achieving self-sufficiency wheat production in the KSA.

The USA is selected for our analysis for some reasons related to its trade with the KSA. It represents the first imports partner for the KSA (see appendix 1). According to CIA Face Book, the USA's, which we suppose that it would have sold wheat to the KSA, share of the KSA imports is 12.4%. Besides, the USA was the largest wheat exporting country (41.9% of total volume of world wheat trade at the time when the KSA began to cultivate wheat). So, the USA would have provided the KSA with wheat. Moreover, the KSA is one of the top five sources of the USA crude oil imports. According to the Bureau of Labour Statistics of the USA, the KSA's crude oil imports to the USA are 1,465 thousand barrels per day. The KSA is the second largest exporter of total petroleum with 1,479 thousand barrels per day.

Canada remained the largest exporter of total petroleum exporting 2,829 thousand barrels per day to USA. Oil is selected to be the second commodity since it is the main sector in the KSA (accounts for roughly 45% of GDP, and 90% of export earnings) (Al-Obaid, 2009). So, it is said that the oil sector of the KSA affects the economy rather than the economy affecting the oil sector. This sector is the source of most of the KSA's exports (as mentioned), foreign exchange, and government revenues increasing income per capita rate and resulting in more diversified tastes making imports of goods to rise.

In brief, the USA is the world's largest importer of oil and its largest exporter of grain, while, the KSA is the world's leading oil exporter and a high ranking grain importer. I would have preferred to use any petroleum product, like gasoline, instead of crude oil, however the limitation of the data introduced no help for our analysis. Our analysis depends mainly on two important principles of international trade; absolute advantage and comparative advantage.

## **2. Absolute advantage and comparative advantage: An Overview.**

### **- The Absolute Advantage of Adam Smith:**

The absolute advantage principle refers to the ability of a country to produce more of a good or service than others, using the same amount of resources. Adam Smith described the absolute advantage principle in the context of international trade. The labour theory of value was applied to analyze his idea. So, labour represented the only production factor (input).

His ideas about economic activity, within a country to specialization and exchange between countries, were applied in the context of absolute advantage. A country should specialize in, produce and export those commodities in which it had an absolute advantage (less labour required per unit) and should import those commodities in which the trading partner had an absolute advantage (Appleyard, 2010). Less labour required per unit meant more efficiency in production.

He considered two-country, two-commodity framework and assumed that a labour theory of value was employed; i.e. the exchange of goods internally was based on the relative labour time embodied in producing these goods. The basis for trade arises when each country of the two has an absolute advantage in at least one commodity. So, both countries are better off when specializing and producing the commodity with lower cost and importing the commodity produced cheaply abroad.

### **-The simple Ricardian Model and the Comparative Advantage:**

The Ricardian model, featured in an early chapter of any textbook of international economics, is the simplest and most basic general equilibrium model of international trade (Deardorff, 2007). It provides the simplest setting to illustrate comparative advantage and the gains from trade in a general equilibrium setting (Karp, 2005). The first appearance of the Ricardian model was in Mill (1844). In his model, Ricardo focused on the amounts of labour used to produce traded goods and the concept of comparative advantage (Ruffin, 2002).

In our case and according to Karp (2005), the KSA has a comparative advantage in the production of a commodity, wheat, if the ratio between its pre-trade marginal costs of that commodity and its pre-trade marginal cost of producing the other commodity, oil, is lower than its trading partner.

According to Deardorff (2007), this model describes a world of two goods and two countries in which these two goods are competitively produced from a single factor of production, labour, using constant-returns-to-scale technologies, differing across countries and goods. Deardorff (2007) added that equilibrium takes two forms, one with both countries completely specialised and gaining from trade, the other with one country producing both goods and neither gaining nor losing from trade.

The assumptions of the Ricardian model will be applied to analyze the comparative advantage of the KSA and the USA in producing wheat and oil and the gains in case of trade between both countries. Let us see (in brief) the assumptions of the Ricardian model which seem to be very restrictive and unrealistic as follows (for more details see, Appleyard et al., 2010, 29-30).

- 1) Each country has a fixed endowment of resources (with identical units of each resource).
- 2) The factors of production are completely mobile between alternative uses within a country (this implies the prices of factors of production also are the same among these alternative uses.
- 3) The factors of production are completely immobile externally (do not move among countries)
- 4) A labour theory of value is employed in the model.
- 5) The level of technology is fixed for both countries.
- 6) There is full employment.
- 7) The economy is characterised by perfect competition
- 8) No government-imposed obstacles to economic activity.
- 9) No transportation costs (internal & external are zero).
- 10) Unit costs of production are constant. So, the hours of labour per unit of the production of a good do not change, regardless of the quantity produced. This means or i.e, the supply curve of any good is horizontal.
- 11) The analysis is confined to a two-country, two commodity model to simplify the presentation.

So, it is assumed that one input only (labour) is used in the production, with constant returns to scale. According to Karp (2005), this means that technology is determined by labour requirement per unit of output in each country and each sector. Also, it is



assumed that the only input (labour) moves freely between the two sectors (of producing the two commodities) internally, implying that the wage must be the same in both sectors. However, labour is immobile between the two countries, implying that the wage is not the same between the two countries.

According to Ricardian model, relative prices of autarky relies on technology (not preferences) as the two commodities will be produced in equilibrium and then will be consumed. Since all markets are perfectly competitive, the two commodities are priced at cost in countries that produce them,  $p_c^s = w^s l_c^s$ , where (in our example)  $w^s$  is the competitive wage in the KSA,  $l_c^s$  is a fixed amount of labour, which is available in a fixed supply in each country, for any commodities (c is any of the two) in the KSA, and  $p_c^s$  is the price of any of the two commodities in the KSA. So, according to the equation, if we have two variables, we can easily get the third one. Demands for commodities are left less fully specified than supplies (Deardorff, 2007).

### **3. The KSA & the USA Smith-Ricardian Model:**

Before analyzing the Smith-Ricardian model for the two countries, the KSA and the USA, of the two commodities, wheat and oil, let us make some simple calculations to calculate the oil revenues wasted in cultivating wheat in the KSA for three decades. We suppose that the KSA would have bought wheat from the USA, the first imports partner, instead of cultivating this crop.

**Table 1**  
**The wasted resources of wheat cultivation in the KSA**  
**(1978-2010)**

Year	(A) Production of KSA(ton)	(B) Price per ton in KSA(paid to farmers)\$	(C)=(A)*(B)	(D) Price per bushel in USA(\$)	(E)=(D)*37 Price per ton in USA (\$)	(F)=(A)*(E)	(G)=(F)-(C)
1978	120225	600	7,2135,000	2.33	86.21	10364597.25	-61770402.75
1979	140767	933	131,335,611	3.99	147.63	20781432.21	-110554178.8
1980	141732	933	132,235,956	3.99	147.63	20923895.16	-111312060.8
1985	2,134,930	933	1,991,889,690	2.42	89.54	191161632.2	-1800728058
1986	2,289,995	533	1,220,567,335	2.42	89.54	205046152.3	-1015521183
1988	3,267,391	533	1,741,519,403	3.72	137.64	449723697.2	-1291795706
1996	1,200,000	400	480,000,000	4.5	166.5	199800000	-280200000
2005	2,648,472	266	704,493,552	3.42	126.54	335137646.9	-369355905.1
2007	2,558,502	266.67	682,275,728.3	6.48	239.76	613426439.5	-68849288.78
2008	1,372,775	266.67	366,077,909.3	6.78	250.86	344374336.5	-21703572.8
2009	950,000	266.67	253,336,500	4.87	180.19	171180500	-82156000
2010	1,260,000	266.67	336,004,200	5.70	210.9	265734000	-70270200

Total: \$

5,284,216,557

- Author calculations based on data obtained from GSFMO, Ministry of Agriculture of KSA, & O'Brien (2011).

By summing the last column of table 1 to get the total, the results provide evidence that if the KSA would have imported wheat from its first imports partner, USA, instead of cultivating it, it would have saved \$5,284,216,557 from the oil revenues. This \$5,284,216,557 is a waste of scarce resources which are not renewable.

The data collected help to apply two important principles of international trade to estimate the gains from trade; the first principle is the absolute advantage of Smith and the second one is the comparative advantage of Ricardo which will just help to get the gains for both the KSA and the USA. Our data are shown in table 2 for countries, the KSA and the USA, and both commodities, wheat and crude oil, taking 1980 as the base for wheat data of KSA.

There is a difficulty to get the data about the manufactured products of crude oil which, if obtained, will give an absolute advantage to the USA in producing these products enabling us to apply the Ricardian model completely as the USA would have absolute advantage in producing both commodities (lower costs). However, the analysis of Smith will mainly applied besides the Ricardian model to get the gains from trade for both countries. According to Barlett (2003), the average cost to produce one barrel of oil in the KSA is \$2.5, while it's \$10 in the USA (in Iraq is the lowest, \$1.).

These production costs per barrel of oil do not include costs of transportation and the hundred billion dollars to rebuild the oil infrastructure. They can be compared to the \$20-\$30 a barrel of oil costs for the higher quality crude on the open market. According to the International Energy Agency, the KSA oil crude is the cheapest in the world to extract, (except in Iraq as stated), because of its location near to the desert surface and the size of fields that allow economies of scale (increasing returns to scale). This agency estimated the operating cost to extracting a barrel (including capital expenditure) in the KSA to be \$4-\$6 a barrel.

**Table 2**

**The proposed production cost conditions in KSA and USA**

	Wheat	Oil	Price Ratios in
Autarky			
KSA O)	\$25.22/bushel	\$2.5/barrel	1 O:1/10 W (or 1 W:10 O)
USA O)	\$6.29/bushel	\$10/barrel	1 O:5/3 W (or 1 W:3/5 O)

- 1) Labour theory of value will not be applied, the costs will be used instead of hours.
- 2) Data sources: for oil costs Barlett (2003), for wheat costs USAD:Economic Research Service (ERS) & GSFMO and Ministry of Agriculture of KSA.

Table 2 shows the KSA-USA, the Wheat-Oil framework. From the perspective of Adam Smith (absolute advantage theory), there is a basis for trade between the KSA and the USA. That is because the KSA has an absolute advantage in extracting

(producing) crude oil (less cost required for extracting a barrel of oil), while the USA has an absolute advantage in producing wheat (less cost required for producing a bushel of wheat). So, the KSA is more efficient in producing the second commodity, oil, and the USA is more efficient in producing the first one, wheat. Within the KSA, 1 barrel of oil will exchange for 1/10 bushel of wheat (or 1 W for 10 O); on the other hand, 1 barrel of oil will exchange for 5/3 bushel of wheat in the USA (or 1 W for 3/5 O). These exchange ratios reflect the relative quantities of cost required to produce the commodities in both countries. Adam Smith and David Ricardo viewed these exchange ratios as opportunity costs and called them as the price ratios in autarky, where there is no international trade. With trade both countries are clearly better off specializing and producing in their low-cost commodity and importing the commodity that can be produced more cheaply abroad. For purposes of illustrating the gains from trade, we will analyze the case by considering the autarky (pre trade) price ratio as discussed in the Ricardian model.

It is obvious that the KSA will specialize, producing and exporting oil to the USA, while the USA will specialize, producing, and exporting wheat to the KSA. Within the KSA, as mentioned, 1 bushel of wheat would exchange for 10 barrel of oil; 1 and 10 are costs not quantities, while in the USA 1 bushel of wheat would exchange for 3/5 barrel of oil; 1 and 3/5 are costs not quantities. Thus, the KSA stands to gain if it can acquire wheat from the USA at a ratio of 1 bushel: 3/5 barrel, or 1 W:3/5 O (less cost for the bushel of wheat than at home). Similarly, within the USA, 1 barrel of oil would exchange for 5/3 of wheat; 1 and 5/3 are costs not quantities, while in the KSA 1 barrel of oil would exchange for 1/10 bushel of wheat; 1 and 1/10 are costs not quantities. Thus the USA stands to benefit by acquiring oil from the KSA at a ratio of 1 barrel: 1/10 bushel, or 1O:1/10W (less cost for the barrel of oil than at home).

By importing the wheat from the USA, the KSA would have saved \$19 for every bushel where 1 bushel within the KSA costs \$25, which will be exchanged for 3/5 O ( $3/5 * 10 = \$6$ ) saving \$19 a bushel. 10 is the cost of oil within the USA.

#### **4. Conclusion & recommendations:**

Decisions influencing the producing, buying, and selling of goods and services in different countries should be based on two economic principles accounted as the

most important theories of international trade; absolute advantage of Adam Smith and Comparative advantage of David Ricardo. However, wheat cultivation decision in the KSA was taken in the opposite direction from these two principles causing a waste of scarce resources; water, and oil revenues. Saudi's government objective was to achieve food security. Two countries; the KSA and the USA, two commodities; wheat and crude oil, framework is used to analyze the gains to the KSA from USA'S wheat importing, the first import partner of the KSA, instead of wheat cultivation which wasted a huge quantities of water and money for about three decades. The data of wheat were collected for the KSA and the USA of 1980 which witnessed wheat self-sufficiency in the KSA, besides the prices introduced to the Saudi farmers represented the highest along the three decades. The analysis is based on the two important principles of the international trade basis; the absolute advantage of Smith and the comparative advantage of Ricardo. The analysis shows that both countries are better off with trade where the KSA specializes and produces crude oil, then exports the oil to the USA, at the same time, the USA specializes, produces, and then exports wheat to the KSA. The analysis indicates that, in case of autarky for the KSA, 1 bushel of wheat would exchange for 10 barrel of oil, while in the USA 1 bushel of wheat would exchange for  $\frac{3}{5}$  barrel of oil. Thus, the KSA stands to gain by acquiring wheat from the USA at a ratio of 1 bushel:  $\frac{3}{5}$  barrel, or  $1W:\frac{3}{5}O$  (less cost for the bushel of wheat than at home). Similarly, within the USA, 1 barrel of oil would exchange for  $\frac{5}{3}$  of wheat, while in the KSA 1 barrel of oil would exchange for  $\frac{1}{10}$  bushel of wheat. Thus the USA stands to benefit by acquiring oil from the KSA at a ratio of 1 barrel:  $\frac{1}{10}$  bushel, or  $1O:\frac{1}{10}W$  (less cost for the barrel of oil than at home).

Thus, based on the international trade principles it would have been saver for the KSA to import wheat instead of cultivation. Fortunately, the Saudi wheat cultivating decision has been already corrected at the end of 2007 when the Council of Ministers Resolution No. 335 decided to reduce water usage in agriculture. The decree includes a 12.5 percent annual reduction in domestic wheat production with the goal of terminating wheat domestic production by the spring of 2016. Moreover, aiming at achieving food security and meeting the large demand locally for wheat, *per capita wheat consumption was 110 kg in 2010*, the KSA has already issued food security plan in 2008 called king Abdullah's Initiative to guarantee the supply of food and to

avoid any food crisis by building up strategic stock for selected grains after the decision to utilize water. It seems to be a right decision to provide companies and individuals to invest in the agricultural production abroad based on the comparative advantage principle of Ricardo.

Also, Saudi government has already allocated about \$800 million for credit facilities to whom that want to engage in that production. In the start of 2010, the first agricultural agreement was signed with Philippines for Saudi investments in fishery and agricultural production.

Come to wheat cultivation investments abroad, we find the best place is Egypt, despite it represents the largest importer of wheat (slightly more than six million tons per year: USDA, 1990-2000). However, increasing the production of wheat is also the greatest goal of Egypt which is ranked the 14<sup>th</sup> among the world countries of the wheat production with 8,700,000 metric ton annually, while the KSA took the 35<sup>th</sup> rank with 1,100,000 metric ton annually (index mundi). While the average wheat consumption and wheat products is 110 kg per capita in the KSA, as mentioned, it is about 200 kg per capita, one of the highest levels in the world, taking that the population of Egypt is about 5 times more of KSA into consideration.

The Egyptian Agriculture Ministry stressed the need for expanding local cultivation of wheat to increase productivity vertically. Ministry of Agriculture assures that wheat production this year, 2012, reached about 8.5 million tons, and is expected to increase next year between to 9 and 9.5 million tons. This will be through increasing wheat prices, and planting species of high productivity devised in agricultural research centers.

These species yield of 24 ardebs (134.88 U.S. bushels) per acre compared to 18 ardebs per acre for the species currently cultivated. this quantity is enough to produce bread, and that there is a need for grain silos to store 9 million tons of wheat in order to be able to overcome the losses, estimated at about 20 percent annually or 1.5 million tons, that occur due to open storage and transport.

In Middle Egypt and the Nile Delta, winter temperatures are suitable for wheat. The mean daily temperature during the wheat growing period at Giza (Middle Egypt) is 15.7°C and at Mansoura (Delta) it is 16.4°C. By comparison, the mean daily temperature at Aswan (Upper Egypt) during the same period is 21.4°C. As a result,

average wheat yields in Upper Egypt are about half of those obtained in Middle Egypt and the Delta.

Wheat production potential in Egypt is assessed only under irrigated conditions, both for areas already irrigated and for those which may come under irrigation in future.

Both countries have the same aim, besides the Egyptian wheat is the best and matures at 120-140 days. It occupies the land for just 6 months only (9 months in the other wheat producing countries). Several characteristics make it ideally suited as a food and cover plant. Unlike other grain sorghums, Egyptian wheat is not prone to damage by flocks of blackbirds. Its spindly seed heads prevent blackbirds and other relatively large birds from perching on the upper stems to eat the seeds.

Moreover, Egypt is near from the ports of KSA, so the costs of transportation will be cheaper. It will be a balanced equation for both countries: Egypt has the land, skilled workers and the suitable weather for wheat cultivation (factors endowments), while KSA has fiscal ability (high income from petroleum exports).

Or KSA can share in the project of Egypt with Sudan to cultivate wheat. This comes within the framework of a project between the Egyptian and the Sudanese governments to cultivate wheat in Ad Damazin area, Sennar State, and River Nile State in north Sudan. These areas come within the framework of three Sudanese projects: Gabriya, Bakrie and Ahamdab. The area of 33,000 acres, 450 km north of the southern borders of Egypt, are ready for planting grain crops and wheat as a preliminary step in the wheat cultivation project. Egypt's contracts with Sudanese farmers will be in accordance with international prices, especially with regards wheat and corn.

Economic integration, steps to reach the economic union, among the Arab countries becomes a necessity where much international trade occurs in a context of differential treatment accorded to countries' trading partners. It allows for all to benefit from the diversification in the natural resources in each country (factor endowments).

**Agriculture - products:**

wheat, barley, tomatoes, melons, dates, citrus; mutton, chickens, eggs, milk

**Exports:**

\$237.9 billion (2010 est.)

**country comparison to the world: 20**

\$192.3 billion (2009 est.)

**Exports - commodities:**

petroleum and petroleum products 90%

**Exports - partners:**

Japan 14.3%, China 13.1%, US 13%, South Korea 8.8%, India 8.3%, Singapore 4.5% (2010)

**Imports:**

\$88.35 billion (2010 est.)

**country comparison to the world: 32**

\$87.08 billion (2009 est.)

**Imports - commodities:**

machinery and equipment, foodstuffs, chemicals, motor vehicles, textiles

**Imports - partners:**

US 12.4%, China 11.1%, Germany 7.1%, Japan 6.9%, France 6.1%, India 4.7%, South Korea 4.2% (2010)

Source: CIA facebook



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