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General Trade Performance of Saudi Arabia before and After Accession to the WTO with Special Emphasis on Agricultural Trade

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Abstract **– The objective of this paper is to analyze the impact of Saudi Arabia accession to the WTO on general trade performance with emphasis on agricultural trade. Secondary data was used for the analysis. Before and after analysis was used to achieve the paper objectives. The results showed that there is a significant difference between post accession to the WTO and prior period in terms of value of exports and imports and their share in the GDP. Also, the share of Saudis total trade in the world market is expanded after accession to the WTO. There is an improvement of country integration in the world market after accession to the WTO. There is a decline in total export growth in the second period after accession to the WTO, while total import growth rise due to changes of oil price. Regarding agricultural trade, there is a decline in the share of agricultural exports in total exports after accession to the WTO although in value term it increases. Saudi Arabia is a net importer of food product and this situation is more aggravated after accession to the WTO. The comparative advantage of agricultural sector is deteriorated in the post WTO accession.**

Keywords **– WTO Accession, Trade Performance, Agricultural Trade, Saudi Arabia.**

I. INTRODUCTION

Saudi Arabia has the biggest economy in the Middle East and it is a member of G20 group. Historically, oil exports represents major source of foreign income for Saudi Arabia. Depending solely on oil create greater risk for economy. Lower oil prices during last few years emphasized the need for reform of financial sector to foster diversification of oil exporter' economies [1]. In 2016 the Saudi Government adopted strategic plan (Saudi vision 2030) to diversify economy and to reduce dependence on oil export [2].

GDP growth is important for economy because it helps to generate the economic resources needed for improving living condition of the people. On average, the GDP of Saudi Arabia for the period (2010 - 2018) was SR 2399 billion (I US $ = 3.75 SR). The GDP rose from SR 1980 billion in 2010 to SR 2631 billion in 2018 derived by booming of oil sector (Figure 1). Notice slow annual growth rate of GDP during last four years, even negative value in 2017, due to decrease in oil prices as it drop from 95 US $/barrel in 2011 to 44 US $ in 2016.

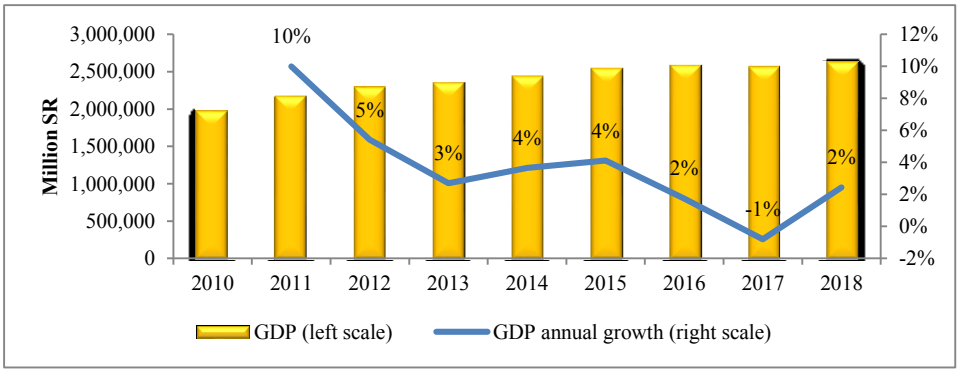

Fig. 1. GDP at constant price (2010 = 100), 2010-2018. Source: General Authority for Statistics-Saudi Arabia.

Table 1. Contribution of economic sectors to Saudi GDP at constant price (percent), 2011-2018.

	2011	2012	2013	2014	2015	2016	2017	2018
Crude petroleum and natural gas	42.6	42.6	40.8	39.8	40.0	40.4	39.3	39.8
Agriculture	2.5	2.4	2.4	2.4	2.3	2.3	2.35	2.3
Manufacturing	10.9	10.7	10.8	11.4	11.7	11.9	12.2	12.1
Wholesale and retail trade	8.6	8.6	9.0	9.2	9.1	8.8	8.9	8.8
Government services	13.9	13.9	14.2	14.1	13.9	13.6	13.9	13.8
Others	21.5	21.8	22.8	23.1	23.0	23.0	23.3	23.2

Source: General Authority for Statistics-Saudi Arabia.

Saudi Arabia acceded to the WTO in 2005 after many years of negotiation. Saudi Arabia is also a founding member of OPEC and GCC, and is a member of different free trade agreements like Free Trade Agreement (FTA) with European Free-trade Association, and the Greater Arab Free Trade Area (GAFTA). Adopting free trade regime is a part of efforts to diversify economy and attract foreign direct investment in the country [3].

There are significant differences between Saudi Arabia and the countries that acceded to WTO prior to it in terms of natural resources, socio-cultural, agriculture, industrial and technological bases besides the education and skill levels of national workforce [4]. Accession of Saudi Arabia to the WTO is expected to lead to reorganization and restructuring of Saudis national economy specially production and service sectors. WTO accession is important step to revitalize the Saudi private sector on sounder footing [5]. The integration of the Saudi market system into a more open global system means that international forces such as foreign capital inflow, management experiences, competition mechanisms and instant information flows will increasingly play an important role in shaping Saudi domestic market and trade systems. This will allow the domestic market to be more transparent and accountable. A study of economic implication of Saudi Arabia's accession to the WTO [6] proved that trade patterns had changed in some areas and remained unchanged in others as a result of accession to the WTO. The study proved that accession to the WTO has resulted in a remarkable increase in trade share and that accession to the WTO has a positive and significant effect on economic activity.

The major objective of this paper is to analyze the impact of Saudi Arabia accession to the WTO on general trade performance with more emphasis on agricultural trade. Secondary data of GDP, exports and imports for the period 1995 to 2017 is collected mainly from General Authority for Statistics. Before and after analysis is used to achieve the objective of the paper. The data is divided into two period, first period before accession to the WTO from 1995 – 2005, and the second period after accession to the WTO from 2006-2017. In addition, other trade indicators like openness, relative trade balance and revealed comparative advantage indexes are measured.

II. Results and Discussion

2.1 *General Trade Performance of Saudi Arabia*

Trade performance indicators are good reference for economic performance and growth of individual countries [7]. In this part, the Saudi Arabia trade performance is conducted for two periods, first period from 1995 – 2005 the period before accession to the WTO, and second one from 2006 -2017 the period after accession to the WTO. The average total exports of the Saudi Arabia during the period 1995-2005 was about SR 301 billion representing

20% of the GDP, after accession to the WTO the average export rise to SR 1025 billion representing 46.7% of the GDP. Likewise, the total imports amounted, on average, to SR 131 billion with 9% share in the GDP before accession, rose to SR 490 billion with 22.3% share in the GDP after accession (Table 2 and Figure 2 and 3). Exports of Saudi Arabia are dominated by exports of oil and oil manufactured products with small share of non-oil exports which is about 11.4% during 1995-2005 and 15.5% for 2006-2017 (Figure 4).

There is a significant difference between the two periods (before and after accession) in terms of value of exports and imports and their share in the GDP. Part of this evolution of trade can be attributed to the WTO accession. There are other factors contributing to good performance of trade in the second period like rising of oil prices. Also, there is small improvement in exports diversification in the second period after accession to the WTO as non-oil exports share goes up.

Table 2. Total trade performance and its share in GDP of Saudi Arabia (Billion SR).

Years	Total Exports	Share in GDP (%)	Total imports	Share in GDP (%)
1995	187.4	14.3	105.2	8.0
1996	227.4	16.9	102.9	7.7
1997	227.4	16.7	107.6	7.9
1998	145.4	10.4	112.4	8.0
1999	190.1	14.1	104.9	7.8
2000	290.6	20.4	113.2	8.0
2001	290.6	20.7	116.9	8.3
2002	254.9	18.7	121.1	8.9
2003	349.7	23.0	156.3	10.3
2004	472.5	28.8	177.6	10.8
2005	677.1	39.1	222.9	12.9
Average	301.2	20.9	131	9.1
2006	791.3	44.5	261.4	14.7
2007	874.4	48.3	338.1	18.7
2008	1175.5	61.1	431.7	22.4
2009	721.1	38.2	358.3	19.0
2010	941.8	47.5	400.7	20.2
2011	1367.6	62.8	493.4	22.6
2012	1456.5	63.4	583.5	25.4
2013	1409.5	59.8	630.6	26.7
2014	1284.1	52.5	651.9	26.7
2015	763.3	30.0	650.2	25.5
2016	688.4	26.6	539.2	20.8

Years	Total Exports	Share in GDP (%)	Total imports	Share in GDP (%)
2017	831.9	32.4	541.0	21.1
Average	1025.5	46.3	490	22.3

Source: General Authority for Statistics-Saudi Arabia.

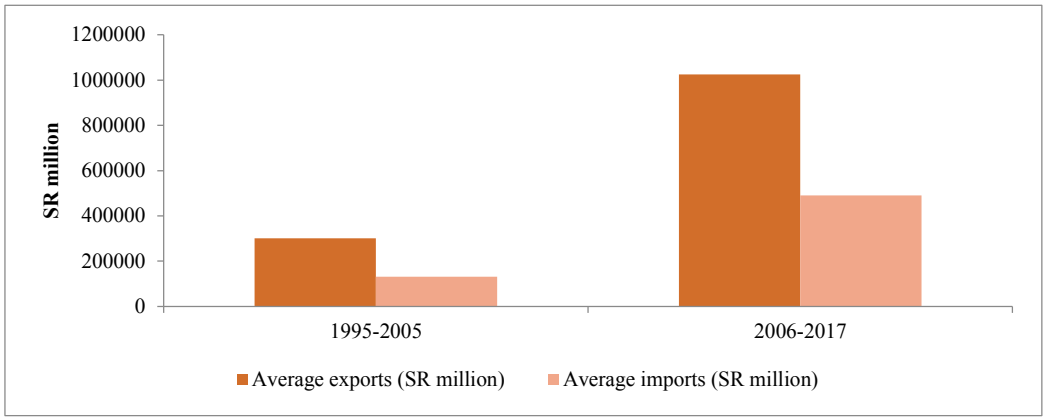

Fig. 2. Evolution of total trade value of Saudi Arabia (1995 – 2017).

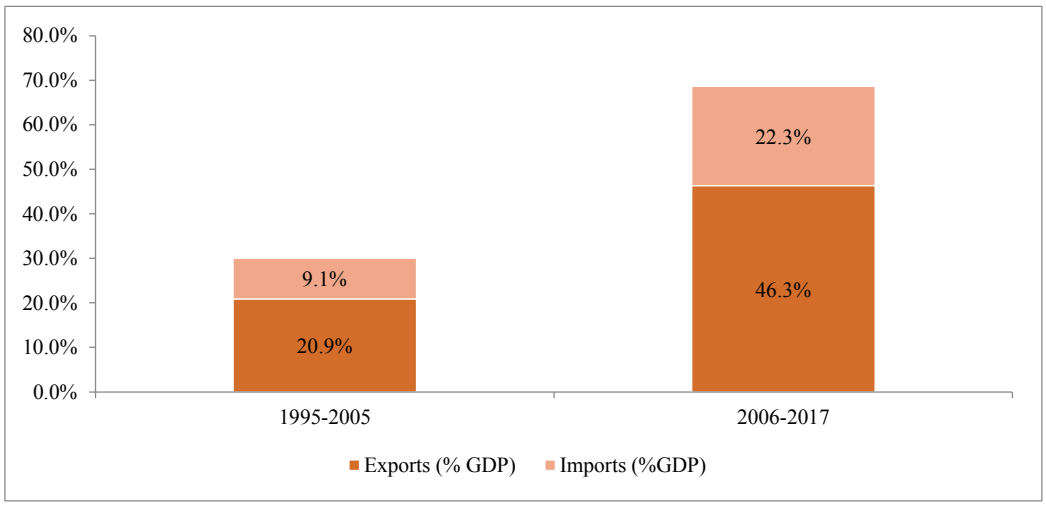

Fig. 3. Average share of total trade in the GDP (constant price) of Saudi Arabia (1995 -2017).

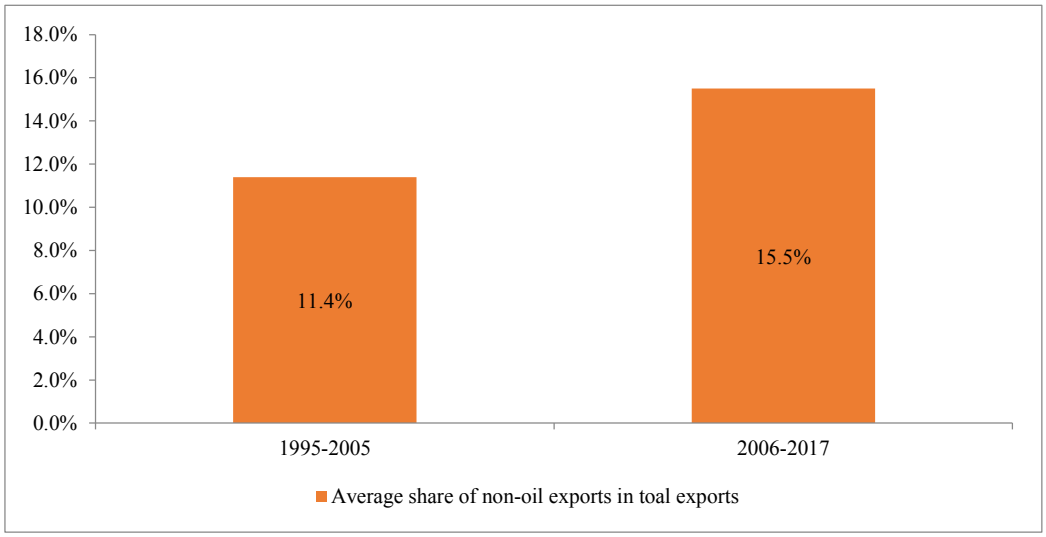

Fig. 4. Average share of non-oil exports in total exports (1995-2005).

2.2 *Growth and World Market Share of Saudi Arabia's Trade*

Figure (5) shows the average growth in value of total exports and imports of Saudi Arabia. The average growth in value of total exports and imports are 15.7% and 7.6%, respectively, during 1995-2005, and 5.3% and 8.7% in the second period 2006-2017. There is obvious decline in export growth in the second period after accession to the WTO while import growth rise. The decline in export growth in second period is mainly due to sharp decrease in oil prices in the last years.

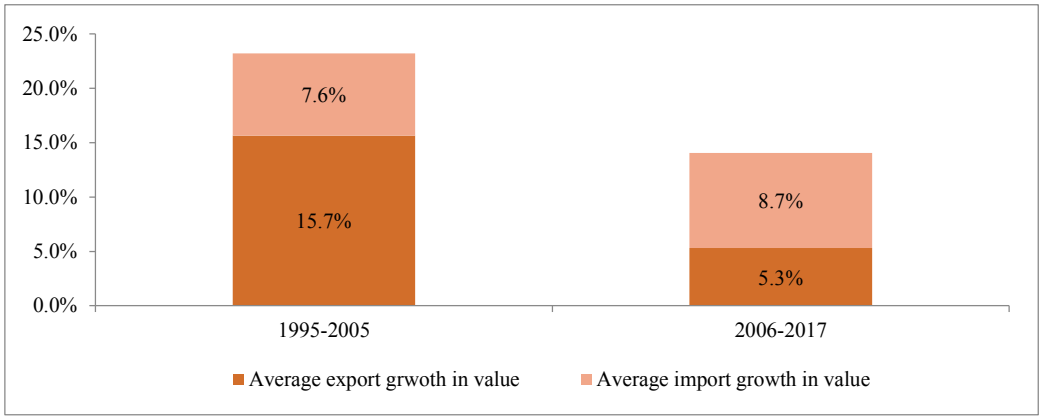

Fig. 5. Average annual growths in trade value of KSA (1995 -2017).

Figure (6) shows the share of Saudi Arabia's total trade in the world market from 1995 -2017. The average share of total exports and total imports of Saudi Arabia in the world market was 4.5% and 1.4% , respectively, during 1995-2005, and 6.4% and 3.5% for the second period from 2006- 2017. The share of Saudi Arabia's total trade in the world market is expanded after accession to the WTO due to improvement in openness and integration in the world market.

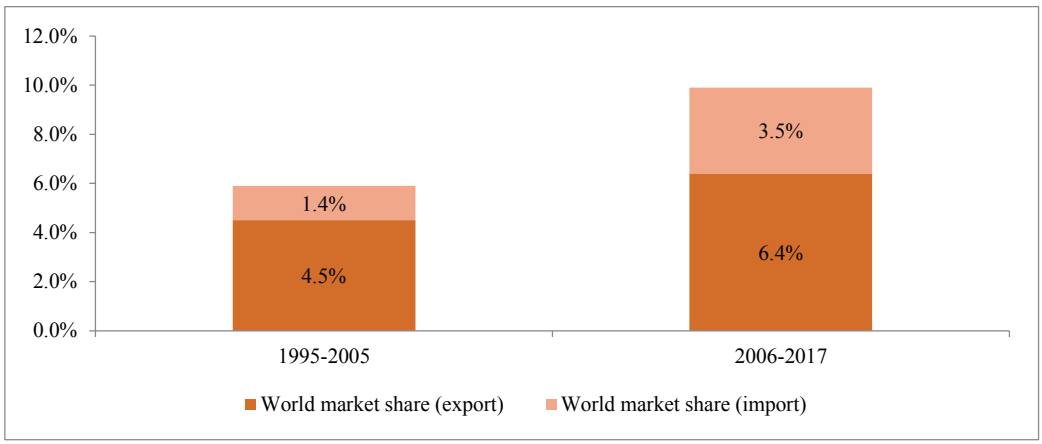

Fig. 6. World market share of Saudi Arabia's trade.

2.3 *Relative Trade Balance of Saudi Arabia*

Relative trade balance is a ratio between trade balance (exports - imports) and the total trade (exports + imports). This ratio has several advantages; first advantage it eliminates re-exports bias. A second advantage is that it takes into account the globalization of production processes (exported goods includes to some extents imported intermediate goods). Relative trade balance shows whether a country is net exporter (national production outweighs national consumption) or a net importer. It range between -100 and +100 (percent), positi-

-ve values indicate that a country is net exporter and negative values indicates that a country is net importer.

Figure (7) shows the relative trade balance of Saudi Arabia for two periods (before and after accession to the WTO). Both periods of calculated relative trade balance show that Saudi Arabia is net exporter, however, in the second period the average ratio dropped slightly from 39.4% to 35.3%.

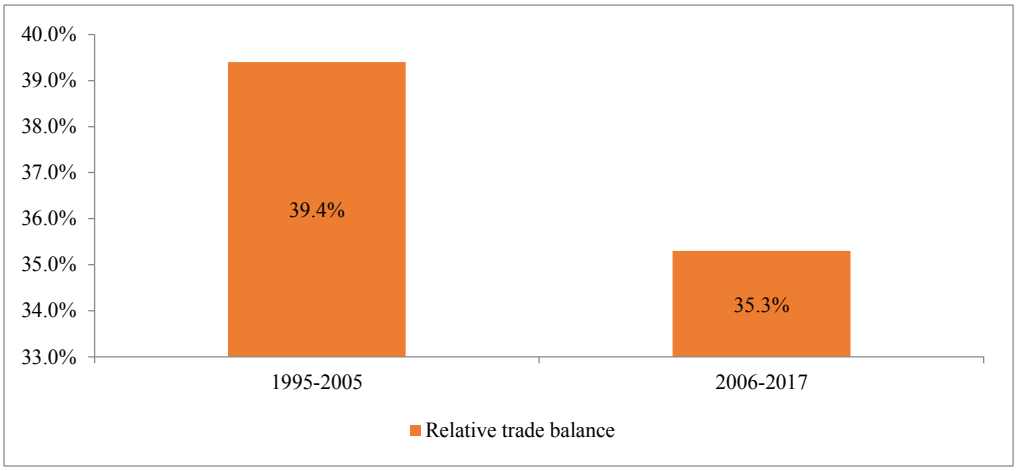

Fig. 7. Relative trade balance of Saudi Arabia (1995-2017).

2.4 *Overall Openness of Saudi Arabia's Economy*

Trade openness measures the ability of a country to integrate itself in the world trade circuit. To measure the openness of Saudi's economy and how is integrated in the world market after joining the WTO, the following openness index is calculated for the period before accession and after accession:

$$O = \frac{X+M}{Y} \quad (1)$$

Where O is overall openness, X is the total exports, M is total imports and Y is GDP. Higher O means more openness and vice versa.

The calculated overall openness index indicates improvement of country integration in the world market after accession to the WTO as the index rose from 0.29 before accession to 0.69 after accession (Figure 8). More open markets contribute to greater productive efficiencies, particularly for value chains, and foster competition that spurs investment and technological innovation [8].

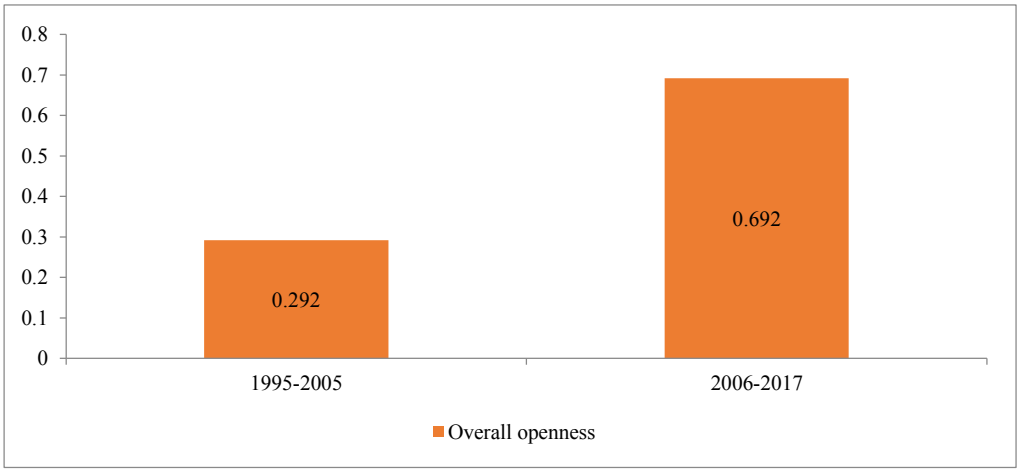

Fig. 8. Overall openness of Saudi Arabia (1995 – 2017).

In order to quantify the effect of accession to the WTO on overall openness of Saudi Arabia, regression analysis is conducted. Openness variable is regressed against dummy variable of accession to the WTO for the period 1995-2017. WTO" is a dummy variable that takes a value of zero for all years before the Saudi accession to the WTO, i.e., for the period (1995 - 2005) and a value of 1 for all years since the accession to the WTO, i.e., for the period (2006 - 2017). The results are presented in Table (3). The relationship between openness and accession to the WTO is best fitted by linear regression model. The model is tested for normality and serial correlation. The model result shows a positive significant relationship between openness and accession to the WTO.

Table 3 Regression analysis results.

Variables	Coefficient	Standard error	T-statistic	Probability
C	0.29	0.037	7.71	0.00
D	0.39	0.052	7.62	0.00
Adjusted R- squared	72.1			
F value	58.1			

*C = constant, D = dummy variables of accession to the WTO.

2.5 *Impact of Accession to the WTO on Agricultural Trade Performance*

Agricultural trade in Saudi Arabia has small share in total trade especially in the export side. Major agricultural exports are dates, dairy products, eggs, fish, poultry, fruits, vegetables and flowers [9]. Agricultural exports representing, on average, 0.7% of total exports and 6.5% of non-oil exports during 1995-2005, and 0.6% of total exports and 4% of non-oil exports during 2006-2017 (Table 4, Figure 9). There is a decline in the share of agricultural exports in total exports in the second period after accession to the WTO although in value term the agricultural export value increased from SR million 2226 in the first period to SR million 6412 in second period (Figure 10).

On imports side, agricultural imports representing, on average, 16% of total imports during 1995-2005, and 14% of total imports during 2006-2017 (Table 4, Figure 9). There is a decline in the share of agricultural imports in total imports in the second period after accession to the WTO although in value term the agricultural import value increased from SR billion 20 in the first period to SR billion 67 in second period (Figure 10). This is mainly due to improvement of overall openness and improvement of living standard.

Table 4. Performance of agricultural trade of Saudi Arabia (1995-2017).

Years	Agricultural Exports (SR billion)	Share in non-oil exports	Share in total exports (%)	Agricultural imports (SR billion)	Share in total imports (%)
1995	1.4	6.0	0.8	17.2	16
1996	1.5	6.1	0.7	17.9	17
1997	1.8	6.4	0.8	18.7	17
1998	1.7	7.5	1.2	17.2	15
1999	1.9	8.6	1.0	17.3	16

Years	Agricultural Exports (SR billion)	Share in non-oil exports	Share in total exports (%)	Agricultural imports (SR billion)	Share in total imports (%)
2000	1.7	6.9	0.6	19.8	17
2001	1.5	5.0	0.5	17.1	15
2002	1.8	5.7	0.7	18.9	16
2003	3.0	7.5	0.9	24.4	16
2004	3.7	6.4	0.8	26.1	15
2005	4.4	6.1	0.6	31.1	14
Average	2.2	6.5%	0.7	20.5	16
2006	5.2	6.1	0.7	33.5	13
2007	7.4	7.1	0.9	42.1	12
2008	8.9	7.3	0.8	58.3	14
2009	10.2	9.3	1.4	49.8	14
2010	10.9	8.1	1.2	59.0	15
2011	12.1	6.8	0.9	68.6	14
2012	12.4	6.5	0.8	73.9	13
2013	2.0	1.0	0.1	80.5	13
2014	2.3	1.1	0.2	80.9	12
2015	1.9	1.0	0.2	92.5	14
2016	1.8	1.0	0.3	87.2	16
2017	1.9	1.0	0.2	86.1	16
Average	6.4	4.0	0.6	67.7	14

Source: General Authority for Statistics-Saudi Arabia.

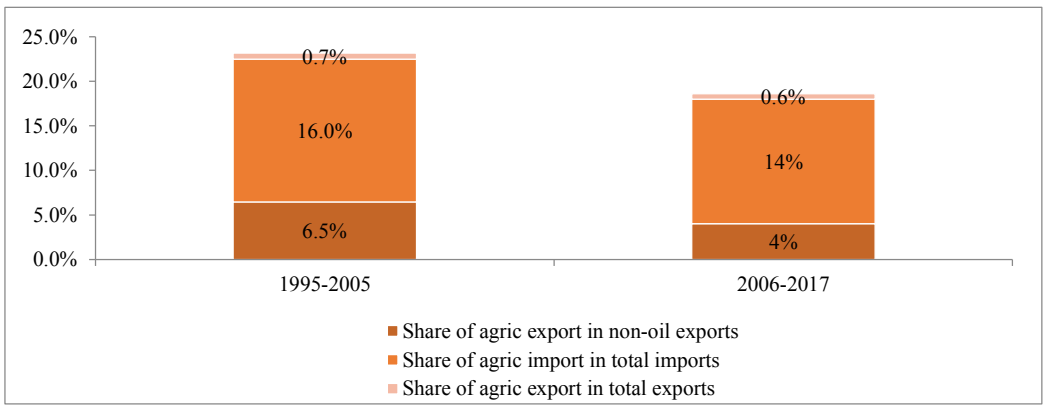

Fig. 9. Share of agricultural trade in total exports and non-oil exports.

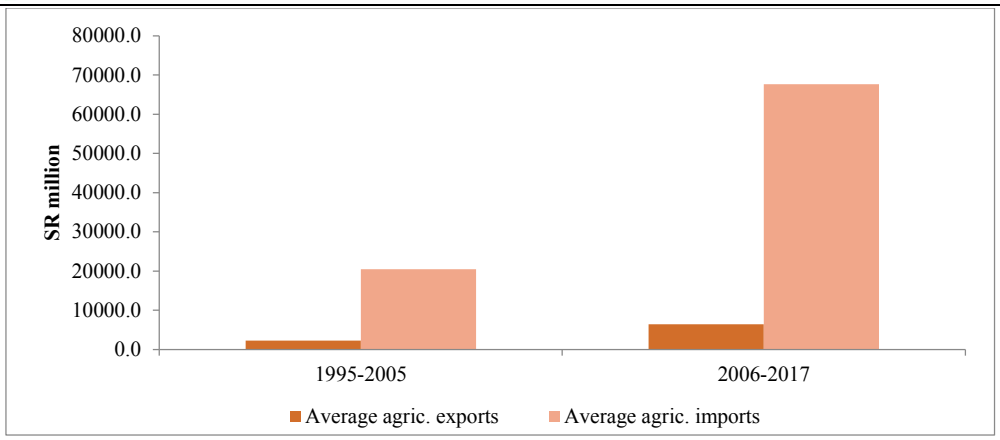

Fig. 10. Agricultural export and import values (1995-2017).

Figure (11) shows annual average growth of agricultural exports and imports during 1995-2017. The growth of agricultural exports (value) decline from 12.3% in first period (1995-2005) to 3% in the second period (2006-2017). This decline is mainly attributed to government policy of reducing agricultural production and exports to preserved water consumption. The agricultural imports growth slightly increased from 8% to 9% after accession to the WTO.

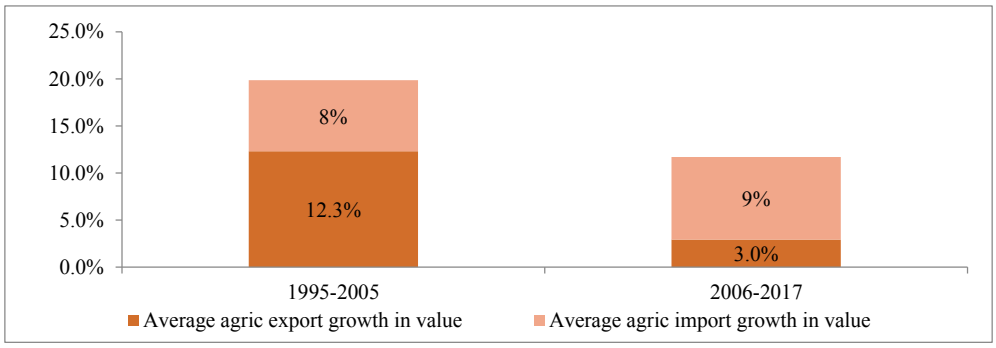

Fig. 11. Annual Average growths (in value) of Saudi agricultural trade.

2.6 *Relative Food Trade Balance*

Figure (12) shows the relative food trade balance of Saudi Arabia before and after accession to the WTO. Both periods of calculated relative food trade balance show that Saudi Arabia is net importer of food products, but in the second period the relative food trade balance is deteriorated as the ratio increase from -80.4% to -82.7%.

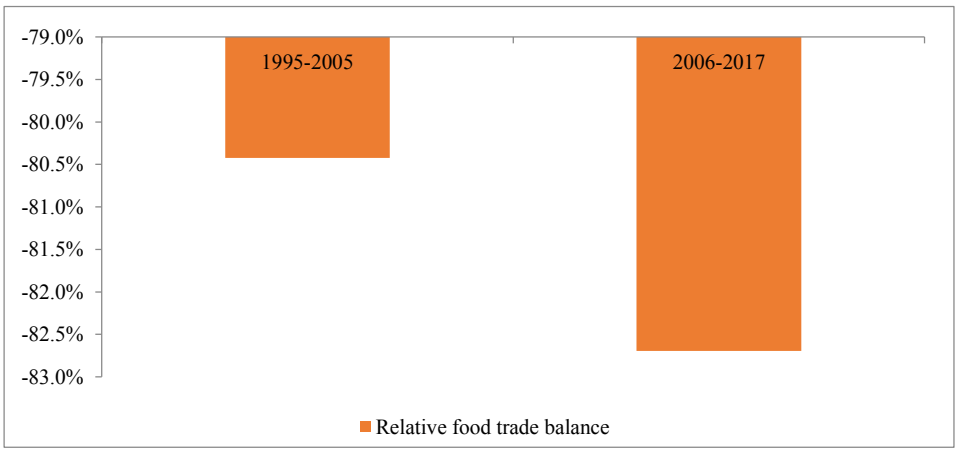

Fig. 12. Relative food trade balance of Saudi Arabia.

2.7 *Revealed Comparative Advantage of Agricultural Sector*

The revealed comparative advantage (RCA) index [10] is measured to identify the development of agricultural sector comparative advantage before and after accession of Saudi Arabia to the WTO. The RCA is a ratio of product K's share in country i's exports to its share in world trade, and it is calculated by the following equation:

$$RCA^{i}_{k} = \frac{X^{i}_{k}}{X^{i}} \Big/ \frac{X_K}{X} \quad (2)$$

Where X^{i}_{k} is country i's exports of good K (agricultural products), X^{i} is total exports of country i, X_K is world exports of good K, and X is total world export. A value of the RCA above one in good (or sector) k for country i means that country i has a revealed comparative advantage in that sector.

Figure (12) shows the calculated RCA of agricultural sector in Saudi Arabia for four periods (1995, 2005, 2010, and 2017). The measured RCA indexes for four periods are less than one which indicates Saudi Arabia has no comparative advantage in agricultural production. This confirms the reality that Saudi Arabia has no enough agricultural endowments specially water resources (underground water and rainfall). In fact, Saudi Arabia faces a severe water problem that lead to changing of country's agricultural policy and reduction of agricultural production and exports in general. Therefore, WTO accession has minimum or negligible effect on agricultural exports.

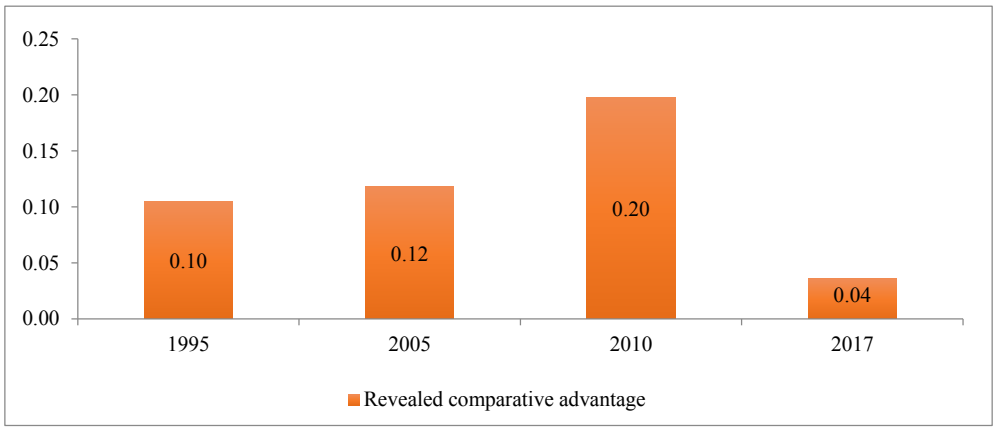

Fig. 12. Revealed comparative advantage of agricultural sector (for four periods).

III. Conclusion

Trade performance analysis showed that there is a significant positive difference between post accession to the WTO and prior period in terms of value of exports and imports and their share in the GDP. Also, the share of Saudis total trade in the world market is expanded after accession to the WTO. The measured overall openness index indicates improvement of country integration in the world market after accession to the WTO however, there is a decline in total export growth in the second period after accession to the WTO while total import growth rise. The decline in total export growth in second period is mainly due to sharp decrease in oil prices. On the Agricultural trade side, there is a decline in the share of agricultural exports in total exports after accession to the WTO although in value term both agricultural exports and imports increased. Saudi Arabia is a net importer of food products and this situation is more aggravated after accession. The comparative advantage of agricultural sector is deteriorated more in post WTO accession, but this is mainly attributed to other factors rather than accession to the WTO like shortage of underground water and changing of agricultural policy.

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