The Impact of Malaysia-Turkey Bilateral Trade Agreement on Palm Oil Industry

T.M. Olatunji,* A.H. Jaafar* and A.S. Adedokun**

** School of Economics, Faculty of Economics and Business, Universiti Kebangsaan Malaysia, Bangi, Selangor, Malaysia.*

***Department of Economics, University of Lagos, Akoka, Lagos.*

Abstract

This study examined the revenue and welfare impacts of bilateral trade agreement between Malaysia and Turkey (MTBTA) on the palm oil sector using partial equilibrium approach. SMART model was employed to simulate 30.0% reduction in tariff based on the MTBTA proposed, reduction in import tax on Malaysia palm oil by 50.0% and tariff elimination. The simulation result show ed that 30.0% tax reduction would bring forward a substantial positive growth in export revenues of 2.9 and 15.5% of crude palm and refined palm oil, respectively, for Malaysia. Malaysia would generate a trade creation of 99.0% for crude palm and 33.0% of refined palm products, while Turkish consumers' welfare would improve by US$2.05 million. Duty elimination would make Malaysia dominate refined palm oil exports to Turkey, and export revenues of crude palm oil and processed palm oil from Malaysia would grow by about 10 .0% and 56.0% respectively. The welfare of Turkish consumers would improve by US$5.42 million. The study threw light on the impacts of the bilateral trade agreement (BTA) on the Malaysian palm oil industry. The reaction of competitors to the profits of BTA could dwarf the gains of past agreements. Further research needs to explore the active reaction of strong competitors in the market towards the gains of BTA.

Keywords: Bilateral agreement, trade revenues, trade creation, welfare effects

JEL Classification: F13, F42, N75

1. Introduction

The effects of economic integration reflected in trade agreement s among countries are ambivalent and may require sectoral analysis of the economy in or der to capture the policy impacts and implications on the economy and welfare of consumers. Economic integration is anticipated to aid free trade, improve world output and societies' welfare, ease distribution of goods, services and factors with

the main objective of increasing economic growth and development. Sectoral analysis of the impacts of economic integration should be the major focus of policymakers and government before ratifying an agreement. This is because sectoral analysis disaggregates data and brings out salient information, which is not available when the economy is aggregated during analysis. It gives more information on the performance of each sector under investigation in order to develop policies and programmes required for improving performance of the sectors being analyzed.

Economic integration is the alliance of economic policies between different countries through limited or complete abolition of tariff and non -tariff barriers to trade, services, and unhindered mobility of factors bet ween partners. The short-term gains from integration can be strapped by the influence of domestic or international trade factors or elements outside the integration, whereas the long -term gains can affect the dynamic factors of domestic or international market (Joao, 2009).

The process of regional economic integration in South East Asia started with the establishment of Association of South East Asian Nations (ASEAN) in August 1964, saddled with the responsibility of accelerating economic growth, social progress, and political security among member states. Presently, Malaysia is a signatory to three regional economic integration arrangements and six bilateral free trade agreements. Two agreements are awaiting implementation, while others are under consideration. The country is a signatory and member of regional economic integration associations, such as the Association of South East Asian Nations (ASEAN), ASEAN Free Trade Area (AFTA), and Asia -Pacific Economic Corporation (APEC). Malaysia has bilateral free trade relations with Pakistan, New Zealand, Chile, Japan, Australia, and India, as well as regional ASEAN trade links with India, China, EU, and Korea (MITI, 2015). Bilateral free trade agreements with the EU and Turkey are currently awaiting implementation.

Turkey's strategic proximity to European and Middle East markets can enhance existing market access, and create new markets and consumers for Malaysian products. The bilateral free trade agreement between Malaysia and Turkey (MTFTA) was concluded in April 2014, after four years of negotiations. However, its implementation has not been announced. Theoretically, this agreement is expected to enhance bilateral trade, liberalization of commerce in goods and services; reduce or eliminate tariffs on substantial products, and promote economic relationship between both countries. The existence of

preferential tariff of 30 .0% reduction on Malaysia palm oil and products, as contained in MTFTA, has implications and impacts. The consequences are changes in the relative price of palm oil and products, and reduction in Turkey's imports of palm oil and products from the rest of the world, as well as its increase in market shares towards Malaysia. This is trade creation between the two countries, as demand is shifted from more expensive exports from the rest of the world in favour of Malaysia, a member of the bilateral trade agreement.

Palm oil is the most traded vegetable oil in the world, followed by soybean oil, sunflower oil, rapeseed oil, and others. Indonesia and Malaysia dominate global palm oil production and trade, and both account for over 85 .0% of global output and exports. Malaysia has dominated palm oil exports for over four decades, and the sector has contributed to employment generation, agriculture and industrial value chain, incomes and growth of the economy. The sector generated 0.61 million employment (Choo, 2012) and export revenues of RM80.4 billion, accounting for 9.1 % of gross domestic product in 2011. Export revenues of RM71.4 billion and RM61.3 billion were earned in 2012 and 2013; contributing 7.6 and 6.2 % to gross domestic products respectively (MPOB, 2015b). Major export destination of Malaysia palm oil are China, India, Netherland, USA, Pakistan, Japan, Iran, Egypt, Singapore, Benin, Bangladesh, Philippines, Turkey, and Russia. India led as the largest importers of Malaysia palm oil in 2014, with a market share of 19.0%, followed by China (16.0%), Netherland (9.3%), Pakistan (4.7%), USA (4.5%), and others 66.5% (table 1).

The purpose of this study is to examine the revenue and welfare impacts of bilateral trade agreement between Malaysia and Turkey (MTBTA) on the palm oil sector using partial equilibrium approach, SMART model, to simulate 30.0%, 50.0% and elimination of tariff based on the proposed MTBTA. This study also used literature to further analyze the anticipatory trade and welfare effects of bilateral trade agreement on crude palm oil and refined palm oil product, disaggregating data on these two products for more information. It is justified for a number of reasons. For example, earlier studies on Malaysia bilateral trade agreement with Turkey have neglected the welfare impact of such agreement and could not provide scientific evidence on simulation of possible impact of such agreement on trade, revenue and welfare implication before the agreement was fully implemented. The current study would provide proof of the expected outcome of MTBTA in the palm oil industry, which is an identified gap in existing literature in this area.

Table 1: Major importers of Malaysia palm oil (tonnes)

Country	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*
China	4,027,229	3,483,779	3,982,128	3,502,057	3,699,638	2,839,283
	(25.4%)	(20.9%)	(22.13%)	(19.9%)	(20.4%)	(16.4%)
Egypt	609,210	938,722	710,421	431,323	450,634	349,172
	(3.8%)	(5.6%)	(3.95%)	(2.5%)	(2.5%)	(2.0%)
India	1,354,429	1,169,998	1,667,908	2,639,930	2,325,386	3,229,965
	(8.5%)	(7.0%)	(9.3%)	(15.0%)	(12.8%)	(18.7%)
Iran	342,273	272,967	342,423	548,603	635,258	447,058
	(2.2%)	(1.6%)	(1.9%)	(3.1%)	(3.5%)	(2.6%)
Japan	538,878	551,614	541,439	559,449	501,452	513,483
	(3.5%)	(3.3%)	(3.0%)	(3.2%)	(2.8%)	(2.9%)
Netherlands	989,834	1,099,068	1,144,090	1,374,288	1,539,096	1,598,221
	(6.2%)	(6.6%)	(6.4%)	(7.8%)	(8.58%)	(9.3%)
Pakistan	1,769,321	2,134,604	1,821,009	1,343,254	1,435,217	812,191
	(11.1%)	(12.8%)	(10.1%)	(7.6%)	(7.9%)	(4.7%)
Singapore	353,477	401,340	477,264	563,124	492,138	481,455
	(2.2%)	(2.4%)	(2.7%)	(3.2%)	(2.7%)	(2.8%)
Turkey	19,589	17,604	106,574	35,572	83,589	77,564
	(0.1%)	(0.1%)	(0.6%)	(0.2%)	(0.5%)	(0.5%)
USA	859,401	1,028,048	1,054,997	1,029,427	1,026,989	783,105
	(5.4%)	(6.2%)	(5.9%)	(5.9%)	(5.7%)	(4.5%)

Source: MPOB (2015c). Market share in parenthesis

Besides, trade flows between the two countries (Malaysia and Turkey) is becoming significant for the whole region of Asia; hence, the result of this study will serve as policy guide to actions not only for Malaysia and Turkey but for all the countries in APEC to develop ties in order to increase intra-regional trade among members. Thus, the proposed agreement is a litmus test on the anticipatory benefits and welfare effects of the two countries. Also, the study will contribute to the stock of existing literature in this area by analysis the possible gains from this bilateral trade agreement between Malaysia and Turkey using disaggregated data of raw crude palm oil and refined palm oil for distilling policy relevance of each category of products in the palm oil industry.

The structure of this study is as follows: Section 1 is the introduction, while section 2 provides an overview of the literature reviews on regional and bilateral trade arrangements. Section 3 provides background information on the impacts of the previous bilateral trade agreement on Malaysia palm oil. In sections 4 and 5, the methodology and results are respectively presented. The conclusion and suggestions for policy are presented in section 6.

2. Literature Review

According to Yarbrough and Yarbrough (2006), the protectionist element of economic integration is called trade diversion, while the liberalization element is

trade creation. Trade creation occurs when reduction in tariff by a particular country on a commodity reduces the price of the product in the domestic market (Villa et al., 2012). The implications include a rise in the export of products as a result of the fall in domestic prices, expansion of the existing product market, creation of new product markets, and an increase in foreign income of domestic consumers as an outcome of lower cost of import. Trade diversion is the diversion of commerce from non-members to members, with the same total amounts of commodities imported. The concept of trade diversion and trade creation effects on regional economic integration started from the pioneering work of Viner (1950), called the Viner's theory. Viner defined trade diversion as the shifts in trade from less expensive to more expensive producers, while trade creation is the trade from most expensive to less expensive manufacturers (Wadim, 2013). He further opined that an increase in trade within members of the Custom Union may not translate to welfare improvement, but depends on the degree of direction of the trading increment towards trade creation or trade diversion.

When trade increases as a consequence of trade creation, economic integration increases member country's welfare; the reverse holds if trade increases as a result of trade diversion. The concept of trade creation and trade diversion depend on the source of welfare effects rather than on the basis of trade flows (Wadim, 2013). Several studies have been conducted on the impact of economic integration using different techniques, such as partial equilibrium model approach of Banga and Sahu (2015), Choudhry, Kallumml and Varma (2012), Lang (2006), Pereira et. al. (2012) and Veeramani and Saini (2010); computable general equilibrium model of Ahmed (2010); Lee and Song (2008); time series approach of Nekhay, Fllmann and Gay (2012), Rahman, Molla and Murad (2008); and gravity equation model of Sen, Srivastava and Pacheco (2013).

One of the major concerns of empirical analysis of trade integration policy impacts is the choice of a suitable model. A computable general equilibrium model takes into consideration the interlinks among sectors or markets, and is able to capture the long-run impacts. Significant limitations of the general equilibrium model are unrealistic assumption (full employment and constant trade balance), overvaluation of gains, overlooked short and medium-term effects, and inability to capture disaggregated market effects. A partial equilibrium model is capable of capturing disaggregated market impacts, use time series information, policy-driven analysis, comprehensive product analysis, and is able to measure the short and medium-term effects.

Pereira et al. (2012) employed a partial equilibrium model to examine the impact of a preferential trade agreement between Canada and Colombia. The impact of tariff reduction on imports from Colombia (Canada) by Canada (Colombia) generated an increased in the imports of $15.6 ($184.1) million dollars, trade creation and diversion of 9.2 ($114.1) million and 6.5 ($70) million dollars respectively. The study found that the agreement increased welfare in both countries; and as trade creation is more than trade diversion, trade creation accounted for about one and half times of trade diversion. Trade relations between the two countries increased by 10.0% in the beginning year of the accord. The country mostly affected by the agreement was the United State, followed by the European Union and Ecuador.

Lang (2006) adopted WITS-SMART partial equilibrium model to investigate the impact of Europe Economic Partnership Agreements (EPA) with Economic Communities of West African States (ECOWAS), and to simulate the effects of full liberalization of trade between the European Union and ECOWAS. The results showed that the EU was to gain $365 million as trade diversion, while domestic producers in ECOWAS were to lose $24.45 million to trade diversion. The analysis also revealed that EPA would lead to a decline in tariff revenues and countries such as Ghana and Guinea Bissau could lose about 19.0% of government tax income. The researchers thus recommended interregional liberalization prior to EPA and high capability to limit rents captured during the trade.

Moreover, using quantitative analysis, Balu (2011) investigated the impact of bilateral free trade agreement between Malaysia and five countries (Japan, Pakistan, Chile, India, and New - Zealand). They provided information on the importance of free trade agreement (FTA), feature of FTA and the involvement level of Malaysia. They discovered that the implementation of FTA between ASEAN and China had resulted in an increase in China's imports of palm oil products from 4.3 million tonnes in 2005 to 5.8 million tonnes in 2010, an increment of 34 .0%. China's imports of Malaysian palm oil between the periods increased by 17.7 %. The study revealed that the implementation of a bilateral free trade agreement between Pakistan and Malaysia resulted in 99.5 increase in palm oil import by Pakistan from Malaysia between 2007 and 2010. The volume of palm oil import increased from 1.07 million tonnes in 2007 to 2.13 million tonnes in 2010.

Choudhry et al. (2013) explored a sectoral-specific analysis to examine the impact of FTA between India and Sri Lanka. The study adopted Revealed

Comparative Advantage (RCA), Vertical Intra-Industry Trade (VIIT), Finger – Kreinin (FK), trade flows trend and unit value of exports and imports to identify key sectors, such as textiles, base metals and machinery equipment. The WITS-SMART model was used to determine trade creation and trade diversion. The results showed that the agreement mostly benefited textiles, metal products, electronic equipment, chemical s, machinery and equipment. Sri -Lanka's tariff relief for Indian textiles generated a trade creation of $555,000 and $249,000 in trade diversion. China and Thailand met the highest decline in textile sales to Sri -Lanka. However, India's tariff relief for Sri -Lankan base metals and machinery equipment generated $914,000 (that is, 622+33+258 thousand dollars) in trade creation and $425,000 (that is, 381+42+2 thousand dollars) in trade diversion. The United States, Germany and Italy had the highest fall in base metal and machinery equipment sales to India.

Sen et al. (2013) used the trade intensity indices and augmented gravity model to examine the effects of bilateral and regional preferential trade agreement between ASEAN members and Australia, New -Zealand, China, India, Japan and Korea for the period between 1994 and 2006. The results of the bilateral trade intensity indices found that there is no ground to argue that signing or relative to the world, except for ASEAN-5 bilateral trade with China, Australia, and New Zealand since 2003 and India-China bilateral trade from 2002. The gravity model used tow dummy variables to capture the economic grouping of APEC and ASEAN, and found that multilateral PTAs had more significant impact compared to bilateral PTAs among ASEAN and six other countries based on early years of new regionalism.

Rahman et. al. (2008) employed quantitative time series data from 1989 to 2007 to investigate the impact of bilateral trade agreement between Malaysia and Japan. They discovered the influence of China on Malaysia as an important factor responsible for the short-run impact of bilateral trade between Malaysia and Japan. Business growth was anticipated to be US$50.34 billion in 2010 and could decline during the twelve month.

Banga and Sahu (2015) conducted a comprehensive examination of the impact of Trans-Pacific Partnership Agreement (TPPA) on Malaysia's domestic value - added (DVA) trade with its partners. The study utilized a dynamic gravity model to estimate bilateral trade in value-added exports and imports among 12 TTPA member countries on Malaysia domestic value-added trade. It was discovered that TPPA would lead to an increase in domestic value-added exports of USA, Japan and New Zealand, while Malaysia would experience an annual average fall in domestic value added of US$17 billion. The study further examined the impact of tariff liberalization on Malaysia trade and sectors with the TPPA partners using a partial equilibrium model approach. The results showed that the effect of tariff liberalization on Malaysia was insignificant due to free trade agreements between Malaysia and TPPA partners. Malaysia's import would increase by about US$3 billion annually, while exp ort would expand by about US$1.5 billion per annum,

allowing a trade balance of US$1.5 billion per year. The bulk of the increase in import would come from a rise in demand from USA and Japan products.

Ahmed (2010) used computable general equilibrium model and SMART to examine the sectoral impact of tariff liberalization between India and ASEAN members. He found that tariff liberalization would lead to an increase in the export of processed food items and agricultural products from ASEAN members to India; the implication was a fall in employment and wages. The study thus stated that trade liberalization between India and ASEAN would lead to welfare gains, but weaken the terms of trade of India, and that loss of revenues might affect government projects.

The implication of the foregoing review is that although literature on bilateral trade between Malaysia and others, such as China, Japan, New Zealand, and USA are abundant, those that traced the welfare effects of the proposed bilateral trade agreement between Malaysia and Turkey were scarce. The current study is an attempt to fill this gap in literature. More so, most studies on bilateral trade agreements used aggregated data, but the current study used disaggregated data on crude palm oil and processed palm oil products. The study also used three scenarios to analyse the trade and welfare effects of tariff cut based on what is contained in MTBTA for the purpose of realistic simulation.

3. Stylised Facts

a. Impacts of previous bilateral trade agreement on Malaysia's palm oil

The bilateral trade accord between Malaysia and India has contributed to tariff reduction on palm oil and increase India demands for Malaysia palm oil. Japan entered into bilateral trade agreements with Malaysia in 2005, and the treaty was implemented in 2006. The impacts of the accord on Malaysia palm oil showed an annual growth rate of 0.95 of palm oil imported by Japan between 2005 and 2014, imports increased from 0.472 million tonnes in 2005 to 0.513 million tonnes in 2014 (MPOB).

China was the largest import destination of Malaysia's palm oil prior to 2014, with an annual market share of 20.0%. ASEAN-China trade agreement entered into in 2005 significantly impacted on China's demand for Malaysia's palm oil and products. The Chinese and Japanese demands of Malaysia's palm oil before BTA rose by 24 and 5.0% annually between 2000 and 2004, grew at 6.0 and 3.0% on the average per annum during the BTA between 2005 and 2009, and declined by 4.0 and 1.4% between 2010 and 2014 respectively. Pakistan reduced import tariffs on Malaysia's palm oil by 5.0% in 2008 for three consecutive years

based on a bilateral trade accord. Palm oil import by Pakistan increased after the implementation of the treaty by 41.0%, amounting to 1.76 million tonnes in 2009, and fell to 0.812 million tonnes in 2014. India and New Zealand's demand of Malaysia palm oil rose by 17.0 and 1.3% annually between 2005 and 2009, and grew at 23.0 and 1.1% on the average per annum during the BTA between 2010 and 2014 respectively. Primary concerns about the impact of previous bilateral trade agreements in the palm oil sector is that the largest growth occurred prior to BTA and in the second year of implementation of BTA; for it subsequently slowed down thereafter. The reaction of strong competitors, such as Indonesia, might have been responsible for the wrinkled gains of BTA.

Table 2: Malaysia's bilateral and regional trade agreements (2005–2014)

Partners	*Commerce*	*Concluded*	*Implemented*
Malaysia—Australia	April 2005	March 2012	1st January 2013
Malaysia—Japan	13th December 2005	13th July 2006	13th July 2006
Malaysia—Pakistan	8th Nov. 2007	1st January 2008	1st January 2008
Malaysia—India	24th Sept. 2010	18th Feb. 2011	1st July 2011
Malaysia-New Zealand	May 2005	30th May 2009	1st August 2010
Malaysia—Chile	-	13th May 2010	25th Feb 2010
Malaysia—EU	6th Dec. 2010	Negotiation at 7th round	Anticipating
Malaysia—Turkey	June 2010	April 2014	Anticipating
ASEAN—China	4th Nov. 2002	Nov. 2004	1st July 2005
ASEAN—Korea	8th Oct. 2003	13th Dec. 2005	1st July 2006

b. Bilateral trade between Malaysia and Turkey

Trade between Malaysia and Turkey grew by 13.0% on average from US$0. 59 billion in 2009 to US$1.09 billion in 2013.The annual average demand for Malaysia products of Turkey is US$1.23 billion and Malaysia imports of Turkey goods worth US$0.17 billion per annual between 2009 and 2013 respectively. Malaysia exports to Turkey rose by 13.0% from US$0.48 billion in 2009 to US$0.89 billion in 2013 while Turkey exports to Malaysia grew by 14 .0% from US$0.14 billion in 2009 to US$0.27 billion in 2013 (table 3). The rising trade profile between Malaysia and Turkey and the tendency to ratify the MTBTA between the two countries necessitate the need for the current enquiry. The proposed MTBTA paints some pictures of tariff reductions between the two countries ranging from 30.0%, 50.0% and complete elimination of tariff; it is expedient for studies of this nature to probe into the possible trade and welfare effects of such proposal for both countries.

The trade complementarity index measures the extent of association between export adequacy of one country to import demand of another country. An index of hundred demonstrates a case of perfect correlation between partners, i.e., the

values of import and export between trading partners are the same. High complementarity index indicates healthy trade between partners with the possibility of enhancing growth and welfare, while zero index indicate the existence of negative correlation. Malaysia holds a significant trade complementarity index with Turkey than Turkey has with Malaysia, with an annual average of 56.39 and 51.99 indexes respectively. However, the Turkey trade complementarity index grew by 1.2 %, while that of Malaysia declined at an average rate of 3.0% between 2009 and 2013 (table 3). Trade intensity indexes for both countries were greater than zero and less than forty, which implies that the value of commerce between them was encouraging but can be enhanced, considering their shares of global trade. The trade intensity index for Turkey, with regard to Malaysia, increased at an average rate of 2 .0%, while that of Malaysia, with respect to Turkey, grew at 3 .0% between 2009 and 2013. Malaysia has maintained a positive trade balance with Turkey, increasing at an average rate of 14.0% in 2009 to US$0.69 billion in 2013 (figure 1 and table 3).

Table 3: Bilateral trade between Malaysia and Turkey (2009 -2013)

Turkey's trade to Malaysia

Year	*Export US$ Billion*	*% of total export*	*Import US$ billion*	*% of total import*	*Total trade US$ billion*	*Balance of trade US$ billion*	*Trade intensity index*	*Trade Compliment arity Index*
2009	0.14	0.1	0.96	0.7	1.1	-0.82	13.31	49.64
2010	0.23	0.2	1.12	0.6	1.35	-0.9	16.91	51.34
2011	0.18	0.1	1.57	0.7	1.75	-1.38	12.15	54.21
2012	0.17	0.1	1.28	0.5	1.44	-1.11	9.09	52.17
2013	0.27	0.2	1.23	0.5	1.5	-0.96	14.66	52.59
Growth rate (2009–2013)	14.04	14.86	5.08	-6.5	6.4	-3.2	1.95	1.16

Malaysia's trade to Turkey

Year	*Export US$ billion*	*% of total export*	*Import US$ billion*	*% of total import*	*Total trade US$ billion*	*Balance of trade US$ Billion*	*Trade intensity index*	*Trade compliment arity index*
2009	0.48	0.3	0.11	0.09	0.59	0.36	30.52	60.14
2010	0.66	0.3	0.14	0.1	0.8	0.52	31.61	59.1
2011	1.01	0.4	0.18	0.1	1.19	0.83	39.4	60.41
2012	0.82	0.4	0.2	0.1	1.02	0.61	33.28	51.32
2013	0.89	0.4	0.2	0.1	1.09	0.69	35.1	50.97
Growth rate (2009–2013)	13.14	5.92	12.7	2.13	13.06	13.89	2.83	-3.25

Source: Authors' calculation from UNComtrade.

Figure 1: Turkey's total trade values with Malaysia (2009 -2013)
Source: Authors' calculation from (UNComtrade, 2015)

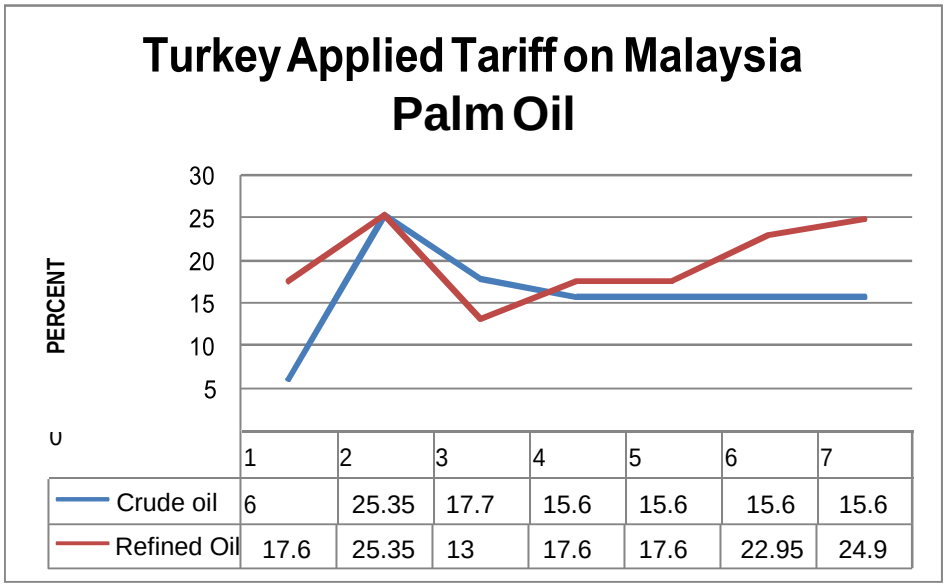

Figure 2: Turkey's applied tariff on Malaysian palm oil
Source: Authors' calculation from TRAINS and WTO database.

In 2013, mechanical, electrical and electronic products constituted approximately one-fourth of the values of Malaysia's exports to Turkey, followed by vegetable (product code HS06–15), with a market share value of 20.0% and value of US$0.241 billion. The values of crude palm oil (product code HS 151110) export was US$430,645, and refined palm oil products (HS 151190) was US$170.6 million. Textiles and clothing accounted for 16 .0% of the total market value (US$0. 197 billion), plastics and rubber products, 15 .0% (US0.184 billion), Metals (US$0. 115 billion), and chemicals and chemical products (US$0.

077 billion) (table 4). Also, import tariffs by Turkey on Malaysia's crude palm oil increased from 6.0% in 2006 to 15.6% in 2013. Refined palm oil tariff falls from 17.6% in 2006 to 13.0% in 2008, and subsequently grew to 24.9% in 2013.

Table 4: Turkey imports of Malaysian products (2013)

Product code	*Trade value in US$1000—end year*	*% of total—end Year*	*Compound annual growth rate*	*Rank*
01–05_Animal	112.21	0.01	-82.39	15
06–15_Vegetable	241,181.66	19.6	-19.36	2
16–24_FoodProd	40,303.39	3.27	100.04	7
25–26_Minerals	51.08	0.00	43.83	16
27–27_Fuels	1,770.64	0.14	-59.32	13
28–38_Chemicals	77,035. 37	6.26	-3.96	6
39–40_PlastiRub	184,124.45	14.96	-12.23	4
41–43_HidesSkin	1,778.23	0.14	60.23	12
44–49_Wood	16,471.35	1.34	23.65	9
50–63_TextCloth	197,240.48	16.03	6.49	3
64–67_Footwear	532.87	0.04	-44.14	14
68–71_StoneGlas	12,367.72	1.00	-10.67	10
72–83_Metals	115,181.37	9.36	66.3	5
84–85_MachElec	302,149.43	24.55	-13.27	1
86–89_Transport	5,413.96	0.44	-20.25	11
90–99_Miscellan	35,068.41	2.85	39.59	8
Total	1,230,782.62	100.0	74.54	15

Source: Authors' ranking from (UNComtrade, 2015).

4. Methodology

The World Bank Integrated Trade Solution (WITS) is a simulation tool used for tariff cut scenarios and global trade simulation. According to the World Bank (2016): The global (WITS) simulation model is developed by Professors Joseph Francoise and Keith Hall. The model is a partial equilibrium analysis of global trade policy changes at the industry (product) level. The framework employs national product differentiation, and allows for the simultaneous assessment of trade policy changes, at the industry level, on a global, regional, or national level. Results allow the assessment of importer and exporter effects related to trade values, tariff revenues, exporter (producer) surplus, and importer (consumer).

SMART is a partial equilibrium modelling technique imbedded in WITS. It is used for market access and analysis of an importing country with her exporting

trading partner. It assess es essentially the impact of tariff change scenarios by estimating new values through simulation for a set of given variables. The model is inherent in the WITS. Sapir and Baldwin (1983) used the model to analyse the effects of the Tokyo Round on India. The current study employed a partial equilibrium approach to evaluate the potential impacts of the bilateral trade agreement between Malaysia and Turkey on the palm oil sector using the SMART model of World Bank Integrated Trade Solution (online database). The model has been applied to test the impacts of bilateral trade agreements by Choudhry et al. (2012) and Pereira et. al. (2012).

The data on trade and tariffs were taken from UNComtrade online database, WTO database and TRAINS online database. The study also estimated trade creation, trade diversion and the welfare and revenue impact of MTBTA on crude palm oil (HS 151110) and processed palm oil (HS 151190). Important parameters of importers and exporters in the model were export supply elasticity, import demand elasticity, and import substitution elasticity. Export supply elasticity was assumed to be infinitely elastic, treating Turkey as price takers, while the import demand elasticity for Turkey was endogenously calculated by the model. Following the positions of Cline (1978) and Stephen (2012)), the Armington import substitution elasticity was assumed to be 2.5%.

Using the WITS-SMART model, the study simulated the following three scenarios: Scenario I estimated the impact of 30.0% immediate reduction on the 2013 applied tariffs on crude palm oil (HS 151110) and refined palm oil (HS 151190) from Malaysia. Scenario II examined the impact of 50.0% tariff reduction, while scenario III estimated the effects of full liberalization of Malaysia crude palm oil and processed palm oil to Turkey. These scenarios were informed by the content of the proposed agreement between Malaysia and Turkey in MTBTA. The MTBTA provided for gradual elimination of tariff s between the two countries, in which a 30.0% reduction of tariff will be implemented, then 50.0% and, finally, 100.0% removal of tariff. The study modelled its simulation based on the three scenarios provided in the proposed Malaysia and Turkey bilateral trade document.

5. Results

The results from *Scenario I* showed that the impact of 30.0% tariff reduction by Turkey on Malaysia's palm oil would bring about a significant positive growth of 2.9 and 15.5% of crude palm and refined product export revenues respectively for Malaysia. Malaysia would also generate a trade creation of 99.0% for crude palm and 33.0% for refined palm products. Most of the trade creation of crude

palm oil is dominated by Malaysia, while Indonesia leads in refined palm oil products. Malaysia would generate a trade diversion of less than 1.0 % of crude palm oil and 67.0 % of processed palm oil, valued at $17.6 million. Consequently, Indonesia and others would have the highest loss in palm oil product sales to Turkey. Indonesia would lose US$17. 4 million, followed by the Netherlands ($125,200) and Singapore ($96,770). The requirement for crude palm oil and processed palm oil by Turkey would increase; while crude palm oil demand values would increase by about 3.0% and refined product by nearly 2.0%.

Table 5: Summarized result of scenario I

Country	*HS Code*	*Base year (2013) export value (US$ 000)*	*Percentage change in export value*	*Percentage of trade creation in total effect*	*Percentage of trade diversion in total effect*	*Total effect (US$ 000)*
Indonesia	151190	323,031.03	-5.40			-7,440.14
Malaysia	151110	430.64	2.86	99.31	0.69	12.32
Malaysia	151190	170,822.50	15.46	33.09	66.91	26,412.39
Other	151110	0.87	-9.79			-0.09
Other	151190	4,955.99	-4.69			-231.62
Total	151110	431.51	2.84	100	100	12.24
Total	151190	498,808.66	1.75	100	100	8,740.63

Source: WITS-SMART; authors' calculation

Note: 151110 = crude palm oil; 151190 = refined palm oil

Table 6: Trade, welfare and revenue effects

Welfare and revenues effect of 30.0% reduction in tariff on palm oil and product s

Product code	*Import effect (US$ 1000)*	*Tariff revenue loss (US$ 1000)*	*Consumer welfare (US$ 1000)*
151110	443.75	-18.822	1.623
	(2.8%)	(-27.9%)	
151190	507,549.29	-12,557.033	2049.553
	(1.8%)	(-10.1%)	

Source: WITS-SMART; authors' calculation

The result also showed that welfare effect of Turkey's consumers would improve by US$1623 and US$2. 04 million for crude palm oil and refined products respectively. Government revenues from import tax on crude palm oil and products would fall by 28 .0 and 10.0%, accounting for US$18, 822 and US12.5 million losses respectively. Total imports of crude palm oil would grow

by 2.8% to US$443,750, while that of refined palm products would increase by 1.75% to US$507.5 million.

Scenario II

The impact of 50.0% tariff reduction by Turkey on Malaysia's palm oil would bring about a significant positive growth of 4.8 and 26 .0% of crude palm and refined product export revenues respectively for Malaysia. Malaysia would generate a trade creation of 99 .0% for crude palm and 32.0% for refined palm products, and a trade diversion of less than 1.0% for crude palm oil and 68 .0% for processed palm oil, valued at $45 million. Indonesia and others would have the highest loss in palm oil product sales to Turkey.

Table 7: Summarized result of scenario II

Country	*HS Code*	*Base year (2013 export value (US$ 000)*	*Percentage change in ex-port value*	*Percentage of trade creation in total effect*	*Percentage of trade diversion in total effect*	*Total effect (US$ 000)*
Indonesia	151190	323,031.03	-9.34			-30163.08
Malaysia	151110	430.64	4.77	99.32	0.68	20.54
Malaysia	151190	170,822.50	26.39	32.31	67.69	45088.51
Other	151110	0.87	-16.01			-0.14
Other	151190	4,955.99	-7.22			-357.71
Total	151110	431.51	4.73	100	100	20.40
Total	151190	498,808.66	2.92	100	100	14567.72

Source: WITS-SMART; authors' calculation

Note: 151110 = crude palm oil; 151190 = refined palm oil

Table 8: Trade, welfare and revenue effects

Welfare and Revenues Effect of 50 .0% reduction in Tariff on Palm Oil and Products

Product Code	*Import -Effect (US$ 1000)*	*Tariff Revenue Loss (US$ 1000)*	*Consumer Welfare (US$ 1000)*
151110	451.911	35.306	
	(4.7%)	(-47.6%)	2.388
151190	513376.379	100,949.795	3245.971
	(2.9%)	(-18.7%)	

Source: WITS-SMART; authors' calculation

The results also showed that Indonesia would lose US$30.1 million, followed by others US$357,710. The demand for crude palm oil and processed palm oil by Turkey would increase by 5.0% and 3.0% respectively. Moreover, Turkey's consumers' welfare would improve by US$2 ,388 for crude palm oil and US$3.24 million for refined products. Government revenues from import tax on crude palm would reduce by 47.0% to US$35,306, while revenues from refined product would fall by 19 .0% to US100.9 million. Total imports of crude palm oil would increase by 4.7% to US$451,911 while that of processed palm products would increase by 2.9% to US$513.4 million.

Scenario III

The analysis from scenario III showed that impact of 100.0% tariff reduction by Turkey on Malaysia's palm oil would result in a significant positive growth of about 10.0 and 56.0% of crude palm and refined product export revenues respectively for Malaysia. Malaysia would generate a trade creation of 99 .0% for crude palm and 30.0% for refined palm products, and a trade diversion of less than 1.0% of crude palm oil and 70.0% for processed palm oil, valued at $67.1 million. Indonesia and others would have the highest loss (of US$66.7 million) in palm oil product sales to Turkey; this would be followed by the Netherlands ($292,496) and Singapore ($226,021). The demand for crude palm oil and processed palm oil by Turkey would increase, by about 10.0 and 6.0 % respectively. Full liberalisation of trade between Turkey and Malaysia on palm oil and processed products would make Malaysia dominate both the crude and refined palm oil demand in Turkey. Furthermore, Malaysia would experience trade creation of 30.0% of processed palm products, but would control above 50.0% of the market and the remaining balance for the rest of the world.

Table 9: Summarized result of scenario III

Country	*HS code*	*Base year (2013) export value (US$000*	*Percentage change in export value*	*Percentage of trade creation in total effect*	*Percentage of trade diversion in total effect*	*Total effect (US$ 000)*
Indonesia	151190	323,031.03	-20.63			-66,631.09
Malaysia	151110	430.64	9.53	99.35	0.65	41.06
Malaysia	151190	170,822.50	56.38	30.25	69.75	96,307.56
Other	151110	0.87	-30.65			-0.27
Other	151190	4,955.99				-479.16
Total	151110	431.51	9.45	100	100	40.79
Total	151190	498,808.66	5.84	100	100	29,135.45

Source: WITS-SMART; authors 'calculation

Note: 151110 = crude palm oil; 151190 = refined palm oil

Table 10: Trade, welfare and revenue effects

Welfare and revenues effect of 50.0% reduction in tariff on palm oil and products

Product code	*Import effect (US$ 1000)*	*Tariff revenue loss (US$ 1000)*	*Consumer welfare (US$ 1000)*
151110	472.31	0.094	3.186
	(9.5%)	(-99.9%)	
151190	527,944.11	64942.697	5419.347
	(5.8%)	(-47.7%)	

Source: WITS-SMART; authors' calculation

The result also showed that the welfare of Turkey's consumers would improve by US$3186 for crude palm oil and US$5.42 million for processed palm products. Government revenues from import tax on crude palm oil and products would fall by 99.9 and 48.0%, accounting for US$67,222 and US59.2 million loss respectively. The government would be able to generate revenue of $94 from crude palm oil tax and US$64.9 million from refined products. Total imports of crude palm oil would increase by 9.5% to US$472,310, while processed palm products would increase by 5.8% to US$527.9 million.

6. Conclusion

The primary objective of this paper was to examine the revenue and welfare impacts of Malaysia/Turkey Bilateral Trade Agreement (MTBTA) on the palm oil sector, using partial equilibrium model approach. The products, using HS six-digit classification codes, were disaggregated into crude palm oil (151110) and refined palm oil (151190). Purpose of the disaggregation was to determine the product that had significant impact. The SMART model was used to simulate three scenarios and examine trade effects, trade diversion, revenue effects, and welfare impacts.

The simulation results showed that 30.0% tax reduction would bring forward a substantial positive growth in export revenues of 2.9 and 15.5% of crude palm and refined palm oil respectively for Malaysia. Malaysia would generate a trade creation of 99.0% for crude palm and 33.0% of refined palm products, while Turkey's consumers' welfare would improve by US$2.05 million. Duty elimination on palm oil from Malaysia would make Malaysia dominates refined palm oil exports to Turkey, as it would control more than half of Turkey's palm oil market due to high trade diversion. The welfare of Turkey's consumers would improve by US$5.42 million. Export revenues of crude palm oil and processed palm oil from Malaysia would grow by about 10 .0 and 56.0% respectively. Indonesia would suffer the highest loss in refined palm oil sales to Turkey; this would be followed by the Netherlands and Singapore (tables 11-14). Based on the findings and conclusion of the study, which throws light on the impacts of the bilateral trade agreement (BTA) on the Malaysian palm oil industry, the followings are recommended:

1. Policymakers should look into rolling plan s that would allow regular revisions and adjustments of BTA agreement. The reaction of strong competitors to the profits of BTA can wrinkle the gains of previous agreements in the long-run.

2. The Malaysian government should always project BTA agreements that can penetrate multiple markets; for example, BTA agreement with Egypt could easily facilitate free flow of Malaysia n products into markets in MENA countries.
3. There should be more research in palm oil products, especially for penetrating Africa markets with new products and technologies.
4. There is the need for further research to explore the active reaction of competitors to BTA.

References

Ahmed, S. (2010). *India-ASEAN free trade agreement: A sectoral analysis .* SSRN Working paper, 1698849 . Accessed February 2015 from http://papers.ssrn.com.

Balu. N. and Ismail, N. (2011). Free trade agreement: The way forward for the Malaysian palm oil industry. *Oil Palm Industry Economic Journal* 11(2).

Choo, M. (2012). Malaysia palm oil industry: Enhancing competitiveness in meeting challenges. Paper presented at Malaysia-Romania palm oil trade fair and seminar (POTS) Bucharest, Romania.12 September.

Choudhry, S., Kallummal, M. and Varma, P. (2013). Trade creation and trade diversion in India-Sri Lanka free trade agreement. Working paper : A sector-specific analysis. Centre for WTO Studies, India n Institute of Foreign Trade.

Joao, P. (2009). *Economic Integration, Interna tional Trade and the Role of Foreign Direct Investment and International trade Theory*. Germany; Deutsche National Bibliothek.

Lang, R. (2006). A partial equilibrium analysis of the impact of the ECOWAS -EU Economic Partnership Agreement. Paper presented on Multilateralism, Bilateralism, and Development, 9th GTAP Annual Conference on Global Economic Analysis, 14–18 June, Addis Ababa.

MITI. (2015). Malaysia Ministry of Trade and Investment. Accessed 13th April 2015 from online

MBOB (2015a). Malaysia Palm Oil Board. Retrieved from www.mpob.gov.my

MBOB (2015b). Malaysia Palm Oil Board. Retrieved from www.bepi.mpob.gov.my

MBOB (2015c). Malaysia Palm Oil Board. Retrieved from www.bepi.mpob.gov.my

Nekhay. O., Fellman, T. and Gay, S. (2012). Free trade agreement between Ukraine and the European Union: Potential effects on agricultural market and farmers revenues. Accessed from https://ideas.repec.org/a/taf/pocoec.

Rahman. K., Molla R. and Murray, M.D. (2008). Japan—Malaysia free trade agreemen t: Expectations and achievements. *Journal of Comparative Management*, 11(1).

Rashmi, B. (2015). Trans-Pacific Partnership Agreement (TPPA): Implications for Malaysia's domestic value-added trade. Working paper of Centre for WTO Studies (CWS), New Delhi. No. CWS/WP/200/18.

Sangeeta. K, Kato, K. and Nicholas, P. (2009). Assessing the welfare effects of East African Community's Customs Union's transition arrangements on Uganda. *Journal of Economic Integration* 24(4): 685–708.

Sapir, A. and Baldwin, R.E. (1983). India and the Tokyo Round. *World Development*, 2(7).

Sen, R., Srivastava, S. and Pacheco, G. (2013). The effects of Preferential Trade Agreements (PTAs) on intraregional trade within ASEAN + 6 members. *Journal of Southeast Asia Economies*, 30(3): 237–249.

Veeramani. C. and Gordhan, K. (2010). Impact of ASEAN-India FTA on India's plantation commodities: A simulation analysis. A report of Indira Gandhi Institute of Development Research, Mumbai.

Villa, C., Abella. D., and Herrera, L. (2012). The Colombia-Canada Free Trade Area: A partial equilibrium simulation. *Semestre Económico* 15(31): 15–42.

Viner, J. (1950). *The Customs Union Issue*. New York: Carnegie Endowment for International Peace.

Wadim, S. (2013). Advanced economics of European integration: Microeconomic aspects. Lecture note on Viner's model of customs union. *Ies Fsv Cuni,* October 7.

World Integrated Trade Solution (WITS). (2013). Software developed by World Bank and United Nations Conference on Trade and Development (UNCTAD).

Yarbrough, B. and Yarbrough, R. (2006). *The World Economy, Trade and Finance*. Second Edition. 15: 259–261.

Appendix

Countries are assumed to have fixed World prices under SMART and any changes in the domestic price are as a consequence of the direct effect of tariff chan ges. Trade creation is calculated in SMART as the immediate increase in imports as a result of import tax reduction.

$$TC_{ijm} = M^1_{ijm} * \pi * \Delta t_{ijm}(1+\tau_{ijm}) * (1 - n/\beta)$$

TC_{ijm}—trade creation of commodity *i* imported from country *k* into country *j*

M_{ijm}—imports of commodity *i* to country *j* from exporting country *k*

Ó—import elasticity of demand in the importing country

t_{ijm}—tariff

α—export supply elasticity

Preferential tariff reduction granted by *j* to country *m* will induce substitution of imports away from other countries. This is called trade diversion effe ct, i.e the change in Malaysian duty paid relative to other prices from the *RoW* sources after the implementation of MTBTA. In SMART, the extent of trade diversion depends on the elasticity of substitution and is estimated to be:

$$TD_{ijm} = \frac{M^1_{me} * M^1_{row}\left(\left(\frac{1+t_1}{1+t_0}\right)-1\right) * \Lambda}{M^1_{me} + M^1_{row} + M^1_{row}\left(\left(\frac{1+t_1}{1+t_0}\right)-1\right) * \Lambda}$$

TD_{ijm}—trade diversion on commodity *i* imported from country *m* into country *j*

M_{me}—imports from Malaysia

M_{row}—imports from the rest of the world

t_{ijm}—tariff (t_1 & t_0 refer to post and pre integration tariffs)

δ—substitution elasticity

The net trade effect (TE) is a summation of total trade creation and trade diversion and represented as:

TE = TC + TD..... (3)

The net revenue effect (RE), which is the total differential of revenue with respect to import price and volume of imports after the tariff change, is:

$$\frac{\Delta R_{ijm}}{R_{ijm}} = \frac{\Delta t_{ijm}}{1 + t_{ijm}} * \text{ø} \left(\frac{1+\alpha}{\alpha - \text{Ø}}\right) \text{.....(4)}$$

R_{ijm}— revenue effect of tariff change

Ø—import elasticity of demand in the importing country

t_{ijm}— tariff

α—export supply elasticity

The welfare effect is defined as the summation of cons umers' and producers' surplus. The net welfare effect in the importing country is represented in (equation 5)

$$W_{ijm} = 0.5 (\Delta t_{ijM} * \Delta M_{ijmj}) \text{.....(5)}$$

M_{ijm}— imports of commodity *i* to country *j* from exporting country *m*,

t_{ijm}— tariff (adopted from Sangeeta et al., 2009).

Table 11: palm oil imports, pre and post-bilateral trade agreement (2005—2013) (in thousand tonnes)

Country	*China*	*Growth rate %*	*Japan*	*Growth rate %*	*India*	*Growth rate %*	*Pakistan*	*Growth rate %*	*New Zealand*	*Growth rate %*
2000	908.90		359.62		1545.67		1087		14.52	
2001	1148.71	26.38	380.35	5.76	1575.14	1.91	1251	15.09	15.48	6.61
2002	1697.65	47.79	410.13	7.83	1387.95	-11.88	1040	-16.87	21.18	36.82
2003	2432.27	43.27	424.15	3.42	1334.99	-3.82	1154	10.96	18.79	-11.28
2004	2692.59	10.70	462.23	8.98	808.92	-39.41	930	-19.41	21	11.76
Growth rate	24.25		5.14		-12.15		-3,07		7.66	
2005	2,960.50		472.5		619.63		957		20.92	
2006	3,577.80	20.85	517.1	9.44			968.4	1.19		
2007	3,840.40	7.34	527.3	1.97	511.17		1,070.00	10.49	21.783	
2008	3,794.50	-1.20	547.5	3.83	970.73	89.90	1,257.40	17.51	22.293	2.34
2009	4,027.23	6.13	538.88	-1.57	1,354.43	39.53	1,769.32	40.71	22.36	0.30
Growth rate	6.35		2.66		16.93		13.08		1.34	
2010	3,483.78	-13.49	551.61	2.36	1,170.00	-13.62	2,134.60	20.65	20.58	-7.96
2011	3,982.13	14.30	541.44	-1.84	1,667.91	42.56	1,821.01	-14.69	25.49	23.86
2012	3,502.06	-12.06	559.45	3.33	2,639.93	58.28	1,343.25	-26.24	22.75	-10.75
2013	3,699.64	5.64	501.45	-10.37	2,325.39	-11.91	1,435.22	6.85	22.44	-1.36
2014	2,839.28	-23.26	513.48	2.40	3,229.97	38.90	812.19	-43.41	21.71	-3.25
Growth rate	-4.01		-1.42		22.52		-17.57		1.07	

Source: Authors' calculation from MPOB (2005–2014), COMTRADE (2000–2004), Oil World (Pakistan) (2000–2004).

Note: Growth rate calculated at compound rate.

Table 12: 30% Tariff reduction

Reporter name	*Partner name*	*Product code*	*Applied duty rate*	*New duty rate*	*Exports before in 1000 USD*	*Exports after in 1000 USD*	*Export change in revenue in 1000 USD*	*Trade creation effect in 1000 USD*	*Trade diversion effect in 1000 USD*	*Trade total effect in 1000 USD*
Turkey	Belgium	151190	24.9	24.9	103.4	100.421	-3	0	-3.00	-3.00
Turkey	Germany	151190	24.9	24.9	2.389	2.32	-0.069	0	-0.07	-0.07
Turkey	Indonesia	151190	24.9	24.9	323031.	312664.2	-10367	0	-10366.82	-10367
Turkey	Italy	151190	24.9	24.9	85.11	82.641	-2.469	0	-2.47	-2.47
Turkey	Malaysia	151110	15.6	10.9	430.64	442.936	12.291	12.23	0.05	12.29
Turkey	Malaysia	151190	24.9	17.4	170822.5	190073.7	19251.2	8740.63	10510.6	19251.2
Turkey	Netherlands	151190	24.9	24.9	2678.46	2600.745	-77.722	0	-77.72	-77.72
Turkey	Philippines	151110	15.6	15.6	0.868	0.816	-0.052	0	-0.05	-0.05
Turkey	Singapore	151190	24.9	24.9	2070.39	2010.321	-60.074	0	-60.07	-60.07
Turkey	Sweden	151190	24.9	24.9	15.048	14.611	-0.437	0	-0.44	-0.44
Turkey	UK	151190	24.9	24.9	0.295	0.286	-0.009	0	-0.01	-0.01

Source: SMART

Table 13: 50% Tariff Reduction

Reporter name	*Partner Name*	*Product code*	*Applied duty rate*	*New duty rate*	*Exports before in 1000 USD*	*Exports after in 1000 USD*	*Export change in revenue in 1000 USD*	*Trade creation effect in 1000 USD*	*Trade diversion effect in 1000 USD*	*Trade total effect in 1000 USD*
Turkey	Belgium	151190	24.9	24.9	103.42	98.65	-4.776	0	-4.78	-4.78
Turkey	Germany	151190	24.9	24.9	2.39	2.28	-0.11	0	-0.11	-0.11
Turkey	Indonesia	151190	24.9	24.9	323031.0	305223	-17808	0	-17808.07	-17808
Turkey	Italy	151190	24.9	24.9	85.11	81.18	-3.93	0	-3.93	-3.93
Turkey	Malaysia	151110	15.6	7.80	430.65	451.13	20.484	20.40	8.62E-02	20.48
Turkey	Malaysia	151190	24.9	12.4	170822.5	203427.2	32604.6	14567.7	18036.98	32604.69
Turkey	Netherlands	151190	24.9	24.9	2678.47	2554.73	-123.74	0	-123.74	-123.74
Turkey	Philippines	151110	15.6	15.6	0.868	0.782	-0.086	0	-8.62E-02	-8.62E-02
Turkey	Singapore	151190	24.9	24.9	2070.395	1974.756	-95.639	0	-95.64	-95.64
Turkey	Sweden	151190	24.9	24.9	15.048	14.353	-0.695	0	-0.69	-0.69
Turkey	UK	151190	24.9	24.9	0.295	0.281	-0.014	0	-1.36E-02	-1.36E-02

Source: SMART

Table 14: 100% Tariff Reduction

Reporter name	Partner Name	Product code	Applied duty rate	New duty rate	Exports before in 1000 USD	Exports after in 1000 USD	Export change in revenue in 1000 USD	Trade creation effect in 1000 USD	Trade diversion effect in 1000 USD	Trade total effect in 1000 USD
Turkey	Belgium	151190	24.9	24.9	103.42	95.23	-8.19	0	-8.19	-8.19
Turkey	Germany	151190	24.9	24.9	2.39	2.2	-0.19	0	-0.19	-0.19
Turkey	Indonesia	151190	24.9	24.9	323031.0	284449.3	-38582	0	-38581.73	-38581.7
Turkey	Italy	151190	24.9	24.9	85.11	78.37	-6.743	0	-6.74	-6.74
Turkey	Malaysia	151110	15.6	0	430.65	471.61	40.965	40.79	0.17	40.96
Turkey	Malaysia	151190	24.9	0	170822.5	238932.6	68110.0	29135.4	38974.65	68110.09
Turkey	Netherlands	151190	24.9	24.9	2678.47	2466.05	-212.42	0	-212.42	-212.42
Turkey	Philippines	151110	15.6	15.6	0.87	0.70	-0.17	0	-0.17	-0.17
Turkey	Singapore	151190	24.9	24.9	2070.40	1906.24	-164.16	0	-164.02	-164.16
Turkey	Sweden	151190	24.9	24.9	15.05	13.86	-1.192	0	-1.19	-1.19
Turkey	UK	151190	24.9	24.9	0.30	0.27	-0.023	0	-2.34E-02	-2.34E-02

Source: SMART.