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# AZERBAIJAN COMPETITIVENESS AND TRADE (ACT) PROJECT

*Assessing the Impact of Tariff Liberalization on  
Priority Goods in Azerbaijan*

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# Azerbaijan Competitiveness and Trade (ACT) Project

Assessing the Impact of Tariff Liberalization on Priority Goods in Azerbaijan

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## Executive Summary

This analysis was conducted in response to the Ministry of Economic Development's (MOED) request for assistance in exploring the impact of reduction of import duties for an initial set of 14 agricultural and non-agricultural goods (priority products). After developing a Trade Reform Impact Simulation Tool (TRIST) for Azerbaijan, this report provides an in-depth analysis of all 14 priority products on a good-by-good basis. The analysis highlights the potential gains from a full free trade regime for Azerbaijan.

Assessing the impact of the WTO Accession is essential for a sound policy-making process. Proper analysis informs decision makers about the structure of incentives for designing an effective trade and competitiveness strategy. This understanding ensures a solid trade and competitiveness strategy and a uniform treatment of all industries in Azerbaijan. If properly designed and negotiated, the WTO Accession will maximize the welfare of Azerbaijani citizens. However, delays in joining the WTO have opportunity costs that diminish the aggregate potential gains from trade.

To prevent a retarded development, it is important that agriculture, manufacturing, and service experience a balanced growth which requires the true relative prices to guide resource allocation among various industries and economic activities. Trade liberalization enables economic forces to highlight the true costs and benefits of productive resources in the country and to propel Azerbaijan's economy to its long-term path for a rapid economic growth.

Along with the WTO members and those aspiring for accession, Azerbaijan has selected tariff liberalization as the center-piece of its long-term strategy for economic growth and development. Given the failure of the import-substitution strategy among agricultural and primary commodity exporting countries during 1940s-1960s era, trade liberalization has emerged as the alternative strategy towards sustainable economic growth. The successful experiences of Korea, Taiwan, and Singapore provide an excellent guide for designing a strategy for rapid economic growth.

The analysis of Azerbaijan's international trade data for the 14 priority goods shows that the 14 priority goods constitute a significant component of non-oil exports. While the total imports for the 14 priority goods were only about \$23 million in 2010, the exports of these goods were close to \$450 million the same year. With the exception of chicken and furniture, the exports of white sugar and plant-oil appear substantially higher than any other item within the 14 priority goods. Azerbaijan is the net importer of chicken and furniture.

Azerbaijan's Customs collections for 14 priority goods is about \$6-\$9 million, which is insignificant relative to the total state budget revenue of \$14.2 billion. Nonetheless, apart from the customs clearance fees, the import duty and VAT add 33% to the cost of imports. Thus, tariff, taxes, and other fees introduce considerable distortions in the non-oil market, but do not generate significant revenues. Market distortions are the main cause of welfare loss for consumers and producers in Azerbaijan.

Official Customs data shows that the collected VAT on tomato juice is only a fraction of collected import duty; although VAT is supposed to be applied to the imports after import duty and excise (if any) is levied on the imported product.

With the exception of tomato juice and hazel-nuts, the official statutory import duty rates for 14 priority goods are generally between 5%-15%. The *ad valorem equivalence* rate for tomato juice is 30%, and none could be found for hazel nuts.

After developing a standard World Bank Trade Reform Impact Simulation Tool (TRIST), this report provides an in-depth analysis of all 14 priority products on a good-by-good basis. The analysis highlights the potential gains from a full free trade regime for Azerbaijan.

The analysis shows that reducing the tariff rates by 10%, 50%, and 100% leads to the corresponding 0.3%, 1.3%, and 2.6% increase in imports. Thus, the impact of reducing tariff rates on imports is, at best, negligible.

The simulation results also show that reducing tariff rates by 10%, 50%, and 100% corresponds to reducing tariff revenue by 5.5%, 37.8%, and 100%. Given that Azerbaijan's collection from levying tariffs is not significant, the loss of tariff revenue due to full trade liberalization (100% tariff reduction) is negligible as well.

The total revenue from levying tax and duties on imports and domestic production also shows a relatively small decline in absolute value if the tariff rates are lowered towards zero. In particular, the total revenue loss due to instigating full free trade is only 3.8 million dollars. On the other hand lowering the tariff rate by 50% leads to an effective tariff rate of 8.5% and about 1.3 million dollars loss in total revenue.

Tariff liberalization will have a profound trade diversion impact. The CIS will be the net loser. Overall, trade will be diverted from the CIS trading partners (Russia, Belarus, Uzbekistan, and Ukraine) to the rest of the world, such as, Turkey, EU, and Iran. Under a full free trading regime, the exporter substitution effect is more pronounced for white sugar than for any other priority products. However, Azerbaijan will find it more beneficial to divert its imports of sunflower products, plant oil, sugar, ethylene, juice, and furniture from the CIS to the rest of the world as well.

The simulation also shows that a full free trade regime does not have an appreciable impact on the prices of aluminum, ethylene, polysulfide, cotton, and plant-oil. There are moderate price impacts for sunflower, white sugar and propane—the prices of these products are reduced between 3%-5.5%. The price reduction for tomato juice is about 7.5% and that for sunflower oil and fruit juices is between 10.5%-11%. The highest price declines are in the 13% range and are observed only for chicken (12.9%) and furniture (12.8%). Overall, the magnitudes of these price declines are not large and are within a manageable level for Azerbaijan's economy.

Lower prices lead to a demand effect due to the higher purchasing power of Azerbaijani citizens and higher production. Domestic supplies (\$1.3 million) and imports from the CIS (\$4.0 million)

and the rest of the world (\$16.2 million) efficiently satisfy the increased demand by the consumers.

The full domestic substitution effects of a full free trade scenario show that Azerbaijan will shift its imports from the CIS and increase its import from the rest of the world, while improving its production. The analysis shows that the share of the imports from the rest of the world to total imports declines from 78% to 75%. Similarly, the share of imports from the CIS declines from 21% to 19%. Consequently, this allows Azerbaijan to improve its relative domestic production by 6%.

Tariff liberalization leads to a reciprocal treatment among WTO members. Given that Azerbaijan's exports of the priority goods are 19 times its imports of similar goods, tariff liberalization works to Azerbaijan's advantage. Under any tariff liberalization scenario, Azerbaijan's export of priority goods will increase both in the short-run and the long-run. With the exception of chicken products, the priority goods will experience substantial increase in their exports in the long-run. Under a full free trade regime, Azerbaijan exports will grow from \$447.1 million to \$764.6 million in the long-run. Under the worst case scenario, the exports will grow only by \$4.4 million. Given that, a full free trade leads to the most plausible gains for Azerbaijan in the long-run, the annual long-run cost of delaying tariff liberalization is estimated to be a loss of \$317.4 million in exports of priority goods.

The impact of tariff liberalization is transmitted through changes in the prices of imports and domestically produced priority products. Lower prices are the cause of higher consumption of goods and hence, higher consumer welfare. Analysis shows that lower prices will increase the consumption level by 2.3%. This clearly indicates a significantly higher consumer welfare if a full free trade regime is adopted. A good-by-good analysis shows that the consumption of chicken and furniture will first rise by 5%, followed by fruit juice and sunflower consumption by 4% and tomato juice by 3%. However, apart from propane (2%) and white sugar (1%), consumption of other priority goods do not appear to change significantly.

In sum, the analysis shows higher welfare gains for Azerbaijani citizens across all priority goods if Azerbaijan liberalizes its tariff rates by joining the WTO. Conversely, welfare loss due to the delays in joining the WTO is indicated by lower consumption levels of the same priority goods, which is estimated to be about 2.3% per annum.

## **Introduction**

Azerbaijan has yet to unleash its economic growth potential in the non-oil sector. To achieve a viable and sustainable growth path, Azerbaijan will require trade and competitiveness strategies that would efficiently and effectively open its non-oil sector to the world market. Azerbaijan's World Trade Organization (WTO) accession will provide an effective and balanced approach to international trade, a key ingredient for rapid economic growth in the non-oil sector.

A balanced approach to international trade is the basic ingredient for rapid economic growth. Understanding the factor (capital or labor) intensity of imports and exports and how they link with comparative advantages is important for decision makers. Assessment of trade reform impact is at the core of evidence-based analysis that provides vital input to a sound policy making process. Proper analysis informs decision makers about the structure of incentives for designing an effective trade and competitiveness strategy. This understanding ensures a solid trade and competitiveness strategy that provides a uniform treatment of all industries in Azerbaijan and, thus, the maximum welfare for the citizens of Azerbaijan.

To prevent a retarded development, it is important that agriculture, manufacturing, and service experience a balanced growth which entails the true relative prices to guide resource allocation among various industries and economic activities. Trade liberalization enables economic forces to highlight the true costs and benefits of productive resources in the country and to propel Azerbaijan's economy to its long-term path for a rapid economic growth. On the other hand, protectionism and distorted relative prices (especially, that of imports and exports) can easily retard Azerbaijan's long-term growth and promising future. *Azerbaijan's goal is to aim at establishing a diversified free-market economy that will increase the country's competitiveness in all sectors and reduce its vulnerability caused by overdependence on the oil sector.*<sup>1</sup>

Given the failure of the import-substitution strategy among agricultural and primary commodity exporting countries during the 1940s-1960s era, trade liberalization has emerged as the alternative strategy towards sustainable economic growth. The successful experiences of Korea, Taiwan, and Singapore, who did not follow the 1940s-1960s failed import-substitution experiment, provide an excellent guide for designing a strategy for rapid economic growth.<sup>2</sup> Along with the WTO members and those aspiring for accession, Azerbaijan has selected tariff liberalization as the center-piece of its long-term strategy for economic growth and development.

Azerbaijan's strides in adopting new legislation on patent, import and export, technical barriers to trade, sanitary and phytosanitary measures and services are impressive moves towards effective trade liberalization and are in accordance with the WTO requirements as well. While the economic literature and evidence support trade liberalization as the engine of economic growth in the long-run, the short-run impacts of trade liberalization deserve its own quantitative assessment. However, unlike the low-income countries that are heavily dependent on revenues from tariffs, Azerbaijan's major sources of revenues are based on its oil-economy and its domestic taxes. Hence, Azerbaijan is in an excellent position to adjust its tariffs, join the WTO, and place its economy on the path to a higher equilibrium.

Analyses of trade reform are informative about the least cost pathways towards the higher planes of productivity and efficiency. A proper impact assessment of tariff liberalization efforts usually points to strategies and recommendations that enhance the short-run gains from trade

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1 See the statements by the Deputy Foreign Affairs Minister, Mahmud Mammad-Guliyev in the eighth meeting of Azerbaijan's Accession Working Party.

2 See also Anne O. Krueger (1998), 'Why Trade Liberalization is Good for Growth,' The Economic Journal 108 (September), 1513-1522.

while reducing their potential undesirable impacts. Impact assessment of tariff liberalization on revenues, prices, producers, and households contribute to improved strategies for openness, discussions, designs and implementation of optimum policies for achieving better economic standing and welfare.

The analysis in this report is a response to the request from the Ministry of Economic Development (MOED) for assistance in exploring the impact of reduction of import duties for an initial set of 14 agricultural and non-agricultural goods (priority products). Factors to be assessed include trade flow/diversion, domestic production, export, fiscal revenue, and consumer welfare.

In this report, a partial equilibrium model of Azerbaijan's economy is used to assess the impact of lowering tariff rates for the requested key agricultural and non-agricultural goods. The model estimates and analysis provide an objective and standard environment to assess the impact of tariff liberalization on domestic production, export, fiscal revenue, and consumer welfare.

## Azerbaijan's Trade

Azerbaijan has enjoyed a significant economic growth during the last decade. The major part of this growth has been due to the increased oil export and higher oil prices during the last several years. Table 1 depicts the dramatic changes in the non-oil and oil sector GDP over the last decade. This table shows that the non-oil sector GDP had shrunk from 217% of the oil sector GDP in 2001 to 80% in 2010. During the same period, the degree of openness of the economy to the world market either remained the same or declined (Figure 1). The exception to this was 2008, when exports sharply increased. While exports have been the driving force behind the high GDP growth in Azerbaijan, the ratio of imports to GDP declined from 40% in 2004 to 13% in 2010. Nonetheless, the declining trend in imports/GDP ratio is fairly aligned with the ratio of non-oil sector to oil sector GDP.<sup>3</sup>

To the degree that imports provide input for the non-oil sector economy, the observed association between these could be based on a causal relationship, which casts doubt on import-substitution as an effective method of promoting non-oil sector. Hence, restoring the non-oil sector share of the economic activities is a challenge that must be overcome within the open world markets. Adhering to international norms and operating based on the comparative advantages will ensure long-term prosperity and economic balance that Azerbaijan is seeking for.

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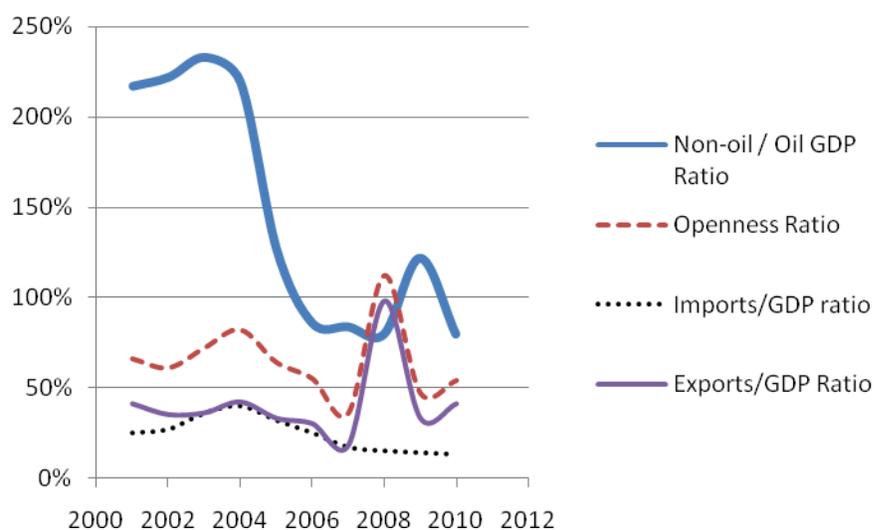
<sup>3</sup> A regression of Non-oil sector GDP/Oil sector GDP ratio on imports/GDP ratio yields an R2 of 73%, indicating a very high correlation between these two ratios.

**Table 1: Trends in GDP and International Trade (2001-2010)**

Year	GDP	Non-oil GDP / Oil GDP Ratio	Openness to Trade	Imports / GDP ratio	Exports / GDP ratio
2001	5,708.3	217%	66%	25%	41%
2002	6,236.2	222%	61%	27%	35%
2003	7,276.3	233%	72%	36%	36%
2004	8,704.3	219%	82%	40%	42%
2005	13,321.8	127%	64%	32%	33%
2006	20,985.3	86%	55%	25%	30%
2007	32,977.3	84%	36%	17%	18%
2008	48,852.4	80%	112%	15%	98%
2009	44,291.4	122%	47%	14%	33%
2010	51,800.0	80%	54%	13%	41%

Note: Openness to trade<sup>4</sup> is measured by (imports + Exports) / GDP

**Figure 1: Relative importance of Non-oil Sector to Oil Sector, and Measures of Openness to Trade (2001 – 2010)**



4 See, M. Mokhtari and F. Rassekh, 'Tendency Towards Factor Price Equalization in the OECD.' *Review of Economics and Statistics*, 1989, 71, 636-642.

## Priority Goods

The government has forwarded 14 products as priority goods that require trade reform (tariff liberalization) impact assessment. Table 2 presents a list of priority goods provided by the government.<sup>5</sup>

**Table 2: List of Agricultural and Non-Agricultural Priority Goods**

<b>1</b>	0702 00 000 0	Tomato juice, new or chilled/cooled
<b>2</b>	9403 50 000 0	– wood bedroom furniture
<b>3</b>	0207 13 600 0	Chicken and chicken additives shown in 0105 goods positions, fresh, cooled or frozen:– – carcasses and meat additives:– – – – ham and their parts
<b>4</b>	3901109000	Ethylene polymers, in initial forms: –polyethylene with special weigh less than 0,94:– – others apart from line polyethylene
<b>5</b>	5201009000	Cotton fiber, cardo or not combed-others apart from hygroscopic or bleached
<b>6</b>	2905 12 000 0	– – propane-1-ol (propyl spirit) and propane-2-ol (isopropyl spirit)
<b>7</b>	2009 80 990 0	Fruit juices
<b>8</b>	1701 99 100 0	White sugar
<b>9</b>	1516 20 980 0	– plant origin greases and oils and their fractions:– – – – others
<b>10</b>	1515 29 900 0	– sunflower oil and its fractions: processed – – – for technical or industrial application, production of products suitable as food
<b>11</b>	1512199000	– sunflower or safflower oil and their fractions: processed – – – for technical or industrial application, apart from production of products suitable as food
<b>12</b>	802220000	– hazel-nut ( <i>Corylus spp.</i> ):– – shelled
<b>13</b>	2818 20 000 0	– aluminum oxide, apart from artificial corundum
<b>14</b>	3911 90	Polysulfide, polysulfone and other products contained in remark 3 to this group and not mentioned or classified elsewhere, in its initial form

### State Customs Committee Data

In response to the request for official data, the State Customs Committee provided 14 observations for the 14 priority goods for 2010. The data provided reflects 2010 aggregate observations for the following variables: Customs Clearance, Import Duty, VAT, Excise, Exports and Imports. Table 3 depicts the State Customs Committee’s provided data set. Excise duty is excluded because no excise is imposed on these goods. It clearly shows that tomato juice is a significant source of revenue for Customs. However, the collected VAT is only a fraction of

<sup>5</sup> The original list in Azeri language is provided in APPENDIX E to this report.

collected import duty; although VAT is supposed to be applied to the imports after import duty and excise (if any) is levied on the imported product.

**Table 3: Customs Data on Fourteen Priority Goods for 2010**

CODE	Product	Thousand Manats				Thousand Dollars	
		Customs Clearance	Import Duty	VAT	Total by Code	Export	Import
20713600 0	Chicken	33.6	198.4	279.8	511.8	-	1,646.40
70200000 0	Tomato juice	114.3	1,102.00	817.5	2,033.80	17,986.50	4,130.10
80222000 0	Hazel-nut	87.8	0.4	16.4	104.6	35,172.20	3.5
15121990 00	Sunflower	140.8	68.3	243.9	452.9	44,567.00	1,428.80
15152990 00	Sunflower oil	80	204.9	350.1	635	21,946.30	2,069.70
15162098 00	Plant-Oil	284.4	1.7	83.9	370	87,563.20	226.1
17019910 00	White sugar	1,294.50	98.8	734.9	2,128.20	145,934.4 0	3,352.30
20098099 00	Fruit juices	101.4	161.4	241.2	504.1	13,164.10	1,347.00
28182000 00	Aluminum	3.7	0.1	3.9	7.7	668.2	22.4
29051200 00	propane	51.1	1.7	11.5	64.3	14,189.00	40.9
39011090 00	Ethylene	306.6	14.3	572.5	893.4	49,165.00	5,518.70
52010090	Cotton	25.8	-	4.6	30.4	5,086.20	-
94035000 00	Furniture	129.4	326.9	477.2	933.5	1,758.40	2,722.70
3911 90	Polysulfide	9.7	1.9	71.6	83.2	9,954.50	481.3
<b>TOTAL</b>		<b>2,663.1</b>	<b>2,180.8</b>	<b>3,909</b>	<b>8,752.9</b>	<b>447,155</b>	<b>22,989.9</b>

*NOTE: Customs Clearance appears to cover fees and other related charges for both imports and exports.*

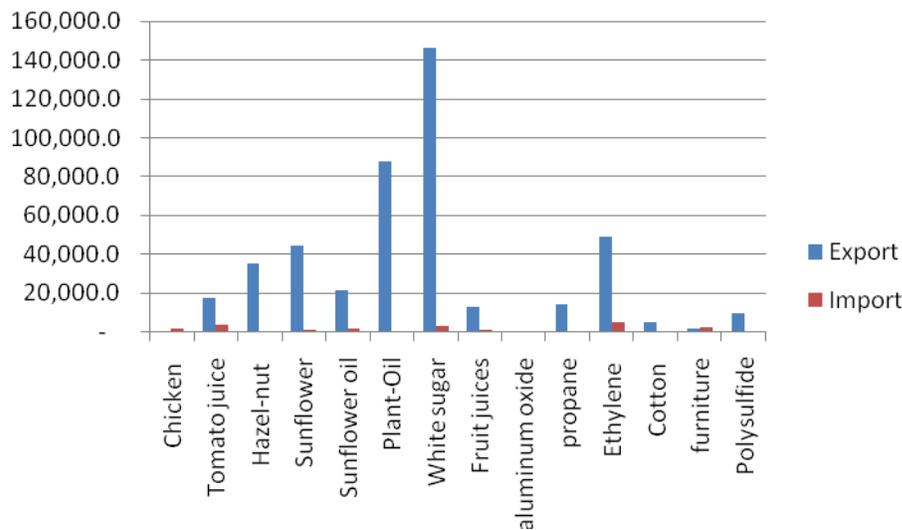
Table 4 shows that the total import for the priority goods was about 23 million dollars in 2010, a fraction of the reported 450 million dollars export value for the same 14 priority goods. Figure 2 compares the export and import values of these goods on a product-by-product basis. This figure clearly indicates that the export values, on good-by-good basis, are substantially higher than the import values for the same goods. In particular, the exports of white sugar and plant-oil appear to be substantially higher than any other products for Azerbaijan.

**Table 4: Fourteen Priority Goods and Customs Data for 2010**

Variables	Thousand Manats					Thousand Dollars	
	Customs Clearance (A)	Import Duty (B)	VAT (C)	Excise (D)	Total Import Duties and Taxes (E= B+C+D)	Exports	Imports
TOTAL	2,662.9	2,180.7	3,909.0	0	6,089.7	447,154.7	22,989.8
As share of Imports (%)	-	12%	21%	0%	33%	1,945%	100%

Note: For the computation of shares in columns B-E, the total import was converted to manats at 0.8 manats per one US dollar.

**Figure 2: Import and Export Values for 14 Priority Goods (2010)**



In Table 4, we calculate the total import duties and taxes to be one-third of the value of imports (after conversion to manats). Given that Azerbaijan’s regime of VAT collection from imports is based on the application of VAT to *import value (cif) + import duty + excise*, the collected VAT as a share of imported priority goods is calculated to be about 21%. Specifically, Table 4 shows that import duty and VAT are 12% and 21% of the total import values of the 14 priority products, respectively. Thus, import duty and VAT add 33% to the cost of imports for importers. Adding a proper proportion of the Customs Clearance—and other potential fees—may raise the cost of importing to Azerbaijan by a much higher percentage than it is indicated by simply adding the import duty and VAT to the *cif* price of goods. Table 4 also shows that the priority goods provide almost half a billion dollar (447 million dollars) worth of exports, which is more than 19 times higher than that of the imports (23 million dollars) of similar goods to Azerbaijan.

### **Production and Employment in Priority Good Industries**

Based on the State Statistical Committee data on production, hours of labor used in producing goods and reported traded values, we imputed production and employments for these 14 priority goods. The imputed values for production and employments by the International Standard of Industrial Classification of All Economic Activities (i.e., *ISIC code*) are reported in Table 5. Given the approximate nature of these reported estimates, one must exercise significant caution in interpreting and or generalization of any findings, which is based on the data in Table 5.

**Table 5: Imputed Production, Consumption, and Employment Value (thousand US dollars)**

<b>CODE</b>	<b>Products</b>	<b>Production</b>	<b>Employment</b>	<b>ISIC</b>
		<i>(thousand US dollars)</i>		<i>Number of Individuals</i>
207136000	Chicken	82,500.0	25000	151
702000000	Tomato juice	674,370.0	46769	261
802220000	Hazel-nut	83,980.0	27587	289
1512199000	Sunflower	82,705.0	283	151
1515299000	Sunflower oil	82,705.0	1231	153
1516209800	Plant-Oil	319,050.0	2921	151
1701991000	White sugar	213,502.5	19,55	154
2009809900	Fruit juices	24,722.3	137	151
2818200000	aluminum	9,157.0	510	272
2905120000	propane	17,744.9	387	241
3901109000	Ethylene	86,596.4	1703	241
5201009000	Cotton	159,500.0	52395	11
9403500000	furniture	44,625.0	337	361
3911 90	Polysulfide	66,875.0	3042	241
<b>TOTAL</b>		<b>1,948,033.1</b>	<b>162,302</b>	<b>2828</b>

**NOTE:** This is an initial approximation. The reported values should be replaced by the official numbers (or estimates).

Table 5 shows that the production of 14 priority goods is about two billion dollars. About 80% of the production of the 14 priority goods (=1,523,868.1 / 1,948,033.1) is consumed within Azerbaijan. The production – employment ratio indicates that output-labor ration is about 12 thousand dollars (=1,948,033.1 / 162,302). All of the production of the 14 priority goods takes place within eight industries. Table 5 indicates that the priority goods produced under the ISIC codes 151 and 241 have the highest frequency in Azerbaijan.

### **Tariff Lines and Trading Partners**

The International Trade Center provides trade data at the tariff lines (Harmonized System Code) for more than 150 countries. Using Trade Map (tradmap.org), we downloaded the relevant data for Azerbaijan by tariff lines (HS Codes) for 2010. Table 6 shows that, Azerbaijan engages 31 trading partners for its international trade in the 14 priority goods. Moreover, this table indicates that the total imports of the 14 priority goods are about 19.7 million dollars. This is 3.3 million dollars (=22,989,800 - 19,681,105) less than the import figure of about 23 million dollars reported by the State Customs Committee for the same 14 priority goods. Given that the source of the needed data for our modeling and analysis is from the International Trade Center, we use the reported 19,681,105 US dollars in our analysis for the sake of constancy.

**Table 6: Trading Partners and Total Imports Reported to the International Trade Center**

Number of tariff lines (HS Codes)	14
Number of Trading partners	31
Total Imports (in US dollars)	19,681,105

*Note: TRIST Aggregate Tool provides relevant descriptive statistics that could be directly imported to the reports.*

Table 7 shows that VAT provides about 64% of total collection from imported goods. Collected customs tariff provides the rest 36%. Since no excise duty is imposed, the reported collection is zero.

**Table 7: Statutory Tariff, Actual Tariff Collection, Excise and Actual VAT Collection (for Priority Goods)**

	Statutory Tariff (A)	Collected Tariff (B)	Excise Duty (C)	VAT (D)
Total Value (in US dollars)	1,428,513	2,725,413	0	4,782,063
Share Of Total Collection (A+B+C+D)		36.3%	0.0%	63.7%

Table 8 shows that the top ten trading partners of Azerbaijan are the source (exporter) of about 89% of the imports of the 14 priority goods to the Azerbaijan. With 56% share of the imports, Turkey, Russia, and Iran are the main sources of imports to Azerbaijan. Ukraine, Belarus, and Uzbekistan are among the CIS sources of exports of the 14 priority goods to Azerbaijan.<sup>6</sup>

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6 Eleven former Soviet Republics are known member of the Commonwealth of Independent States (CIS). However, some of these have a distinct membership status. Currently, the CIS charter has been ratified only by Armenia, Azerbaijan, Belarus, Moldova, Kazakhstan,

However, none of these countries (Ukraine, Belarus, and Uzbekistan) occupy a high position as the source of export to Azerbaijan. Clearly, Azerbaijan's economy appears to favor non-CIS imports to those from the CIS; although Russia is the source of about 20% of the imports currently.

**Table 8: Top Trading Partners of Azerbaijan (for Priority Goods)**

<b>Top 10 Import Partners</b>	<b>Import Value</b>	<b>Share Of Total Imports</b>
TUR (Turkey)	4,922,625	25.0%
RUS (Russia)	3,845,531	19.5%
IRN (Iran)	2,255,794	11.5%
ZZZ (unknown)	2,153,699	10.9%
CHN (China)	1,037,189	5.3%
FIN (Finland)	915,247	4.7%
DEU (Germany)	664,296	3.4%
GRC (Greece)	658,046	3.3%
SGP (Singapore)	642,160	3.3%
LVA (Latvia)	600,444	3.1%

Table 9 and Figure 3 show that apart from White sugar and Sunflower, the rest of the world is the main source of export to Azerbaijan. For the priority goods, imports from the CIS are only about 20% (=4,237,830 / 19,681,105) of the total imported priority goods to Azerbaijan.

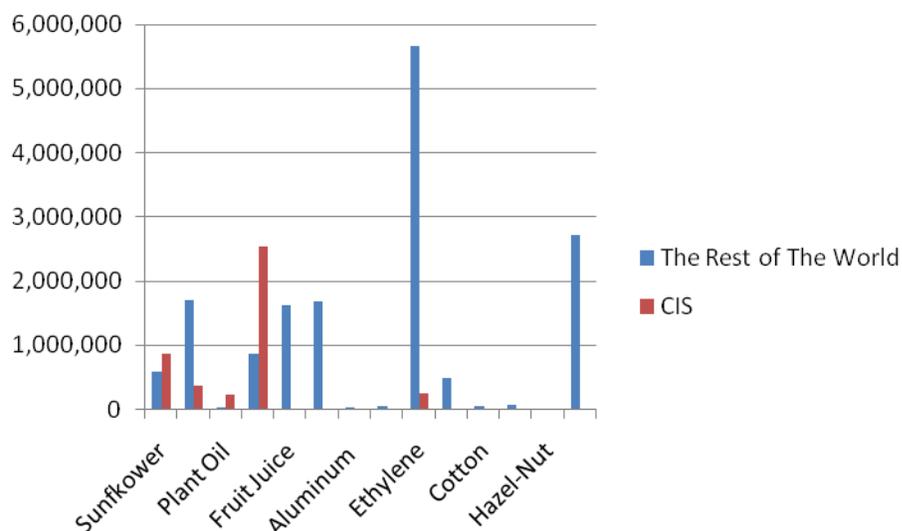
**Table 9: Imports by Goods and Trading Partner Groups (in US dollars)**

<b>HS Code</b>	<b>Goods</b>	<b>The Rest of The World</b>	<b>CIS</b>	<b>Actual Tariff / Statutory Tariff</b>
151219	Sunflower	568,537	860,298	100%
151529	Sunflower Oil	1,701,996	367,723	100%
151620	Plant Oil	24,679	210,192	58%
170199	White Sugar	865,262	2,541,093	95%
200980	Fruit Juice	1,608,173	4,996	84%
207136	Chicken	1,667,050	0	99%
281820	Aluminum	22,431	0	100%
290512	Propane	40,871	0	35%
390110	Ethylene	5,656,846	243,795	63%
391190	Polysulfide	481,253	0	100%
520100	Cotton	32,265	0	0%
702000	Tomato Juice	56,836	652	8079%
802220	Hazel-Nut	0	3,464	

Kyrgyzstan, Russia, Tajikistan, and Uzbekistan. Turkmenistan participates in the CIS as an associate member and Ukraine as a participating member. Georgia is no longer part of the CIS .

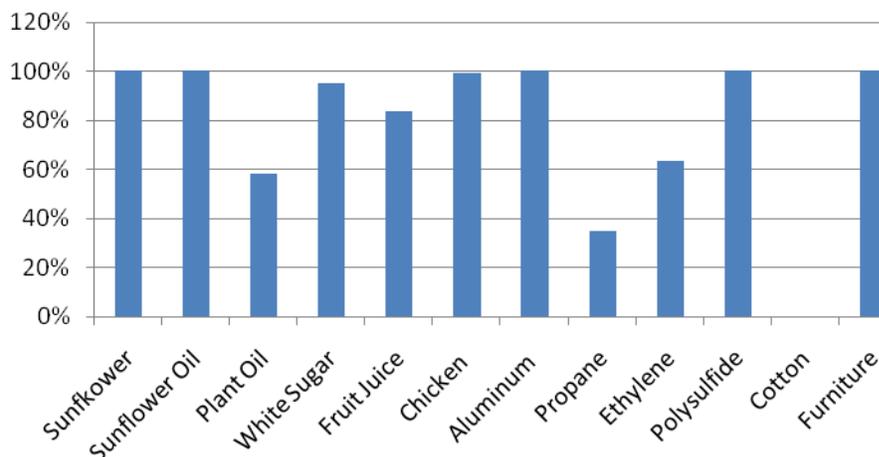
HS Code	Goods	The Rest of The World	CIS	Actual Tariff / Statutory Tariff
940350	Furniture	2,717,076	5,617	100%
<b>TOTAL</b>	<b>14 Goods</b>	<b>15,443,275</b>	<b>4,237,830</b>	

**Figure 3: Imports by Goods and Trading Partner Groups (in US dollars)**



Estimated tariff gaps on a good-by-good basis shows that tomato juice is heavily protected in Azerbaijan (see Table 9). The ratio of collected tariff to the statutory tariff for this product is more than 8,000%. After excluding tomato juice, a depiction of tariff gaps (values less than 100% in Figure 4) shows significant tariff gaps for cotton, propane, plant oil, and ethylene. Given that Azerbaijan import revenues (tariff and taxes) are very low, no substantial revenue is lost due to these tariff gaps. After excluding tomato juice, the overall tariff gap appears to be 5.7%, which implies a revenue loss of only 80 thousand US dollars (=1,428,513 – 1,347,962.5).

**Figure 4: Share of Actual Tariff Collected to Statutory Tariff**



## An Economic Framework

### *Partial Equilibrium Analysis*

To assess the impact of lowering tariff rates on the 14 priority goods, the latest analytical tool that uses the Partial Equilibrium (PE) framework is used. The international best practice in the PE modeling approach is based on the assumptions and the model forwarded by Armington (1969),<sup>7</sup> which has become an important component of applied trade policy analysis.<sup>8</sup>

PE analysis allows assessment of the effects of trade policy changes on individual products. A PE framework could also be used to gauge the dynamic impact of trade liberalization on the growth rate of output and employment as well.<sup>9</sup> PE modeling and analysis are standard trade policy analyses and have been extensively used for quantifying the impact of trade liberalization for the WTO Accession.

Following a recent World Bank approach to trade analysis, we develop a Trade Reform Impact Simulation Tool (TRIST) for Azerbaijan. TRIST is a PE modeling approach that is both transparent and efficient in gauging the impact of trade policy changes. The World Bank scholars, who

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7 Paul S. Armington (1969), 'A Theory of Demand for Products Distinguished by Place of Production.' IMF Staff Paper 16(1) (March): 159-178.

8 Standard literature on applied PE to trade modeling and analysis may be found in Chapter 5 of Applied methods in trade policy analysis: A Handbook, J.F. Francois and K.A. Reinert, eds., Cambridge University Press. Previous Project (predecessor to ACT Project) also used the framework that was expounded in the Chapter 5 of Francois and Reinert (ed.) handbook. It is worth noting that, the PE modeling, combined with econometric analysis (when the underlying data is available) appear to be the preferred framework in the applied trade analysis.

9 See Selcuk Caner, 2008, 'Estimates of the Effects of WTO Membership on Azerbaijan's Economy,' USAID - TRISP, Baku, Azerbaijan.

developed this approach, have successfully applied TRIST to many countries. In this study, we use Azerbaijan's trade data to develop a TRIST and use the estimates to assess the impact of lowering tariff rates on the 14 priority goods. This approach allows the impacts of tariff reform on trade diversion, fiscal revenue, production, and employment to be efficiently gauged for Azerbaijan.

### *General Setup*

A typical consumer usually maximizes utility (satisfaction) subject to its budget constraints (income), while facing certain prices in the market. This provides the basic framework for a large number of applied trade analysis.

Following Lim and Sborowski (2009), we assume that there are  $n$  goods and  $m$  trading partners. These goods are indexed by  $i$  and source  $j$ , such that,  $i=1, \dots, n$  and  $j=1, \dots, m$ . We also assume that a typical consumer's preference is represented by a utility function that may be expressed as (also, see, Armington, 1969):

$$U(q, q^*) = U(q_1, \dots, q_n, q_1^*, \dots, q_n^*), \quad (1)$$

where,  $q_i^* = (q_{i1}^* \dots q_{im}^*)$  is the vector of imports, and  $q_i = (q_{i1} \dots q_{im})$  is the vector of similar goods from domestic sources. The utility function (1) could be written as

$$U(q) = V(v_1(q_1, q_1^*), \dots, v_n(q_n, q_n^*)),$$

Where,  $v_i(q_i, q_i^*)$  represent indexes of consumption of domestic and foreign goods, which could be further indexed between domestic and trading partners:

$$v_i(q_i, q_i^*) = W(w_i(q_i), w_i(q_i^*)),$$

Under weak reparability assumption, the sub-indexing further allows to express  $w_i(q_i^*)$  by:

$$w_i(q_i^*) \equiv w(q_{i1}^*, \dots, q_{im}^*).$$

### *Specifications for Applied Analysis*

Assuming the standard constant elasticity of substitution between domestic and imported goods for  $v_i(q_i, q_i^*)$  and  $w_i(q_i^*)$  then,

$$w_i(q_i^*) = w[\beta_{i1}(q_{i1}^*)^{-\rho} + \dots + \beta_{im}(q_{im}^*)^{-\rho}]^{\frac{1}{\rho}} \quad (2)$$

where  $\sum_m \beta_i = 1$  and  $\rho > -1$ . Further, assuming that a typical consumer possesses limited income  $Y$  and faces market prices  $P$  for the domestic and imported goods, where,

$P = (p_{11} \dots p_{1m} \dots p_{n1} \dots p_{nm})$ , then the consumer will maximize (2) subject to the budget constraint ( $pq = Y$ ), which leads to demand function.

$$q_{ij} = \beta_{ij}^{\frac{1}{1+\rho}} q_i \left( \frac{p_{ij}}{p_i} \right)^{-\frac{1}{1+\rho}} \quad (3)$$

Where,  $q_i$  is index of goods and  $p_i$  index of prices. The elasticity of substitution between various exporters of good  $i$  is estimated by  $\sigma^{ESE} \equiv \frac{1}{1+\rho}$ .

### Source of Variation in Prices

It is important to note that to assess the impact of tariff liberalization adjustment, the source of variation in prices will be changes in the tariff rates. Thus, assuming everything else constant, the growth rate of the price of a product is due to change in tariff rate. If we denote the old price of a product by  $P^\circ$  and its tariff-inclusive price by  $P$ , then:

$$P = P^\circ + t P^\circ$$

where,  $t$  is the tariff rate. Change in the price  $\Delta P$  can be computed by:

$$\begin{aligned} \Delta P &= \Delta(P^\circ + t P^\circ) \\ &= \Delta P^\circ + t \Delta P^\circ + P^\circ \Delta t \end{aligned}$$

Assuming that the only source of change is that of tariff rate ( $\Delta P^\circ = 0$ ), then:

$$\Delta P = P^\circ \Delta t$$

Since percentage change in the price  $P$  is:

$$\% \Delta P = \Delta P / P,$$

then,

$$\Delta P / P = P^\circ \Delta t / P$$

Which by replacing  $P$  on the right hand side with  $P = P^\circ (1 + t)$

$$\% \Delta P = P^\circ \Delta t / [P^\circ (1 + t)]$$

or,

$$\% \Delta P = \Delta t / (1 + t).$$

## Trade Reform Impact Simulation Tool (TRIST)

TRIST is based on Armington's assumption that asserts products from different origins are imperfect substitute for each other (see, Armington, 1969, Brenton, et. al, 2009, and Lim and Sborowski, 2009). TRIST can be adopted to analyze and model the adjustment implication of tariff liberalization scenarios in Azerbaijan (see Brenton et al., 2009).<sup>10</sup>

In an open world economy, supply of imported products (or exports from trading partners) is infinitely responsive to the changes in the world prices. Thus, as long as Azerbaijan does not have a high degree of monopolistic (single- buyer) power for any product, assuming an infinitely elastic supply curve for those exporting to Azerbaijan is justified. Among other things, this allows changes in tariff to pass along to their final consumers.

Tariff liberalization leads to a change in prices and subsequent impact on traded products. For a given exporter, the trade impact on a product because of tariff liberalization is estimated based on the growth rate (percentage change) in tariff inclusive price of the product. Azerbaijan imposes tariff (TAR) as a percentage of import value, which is the cost, insurance, and freight (cif) of import (denoted as cif import price). In the case of excise tax on imports, Azerbaijan imposes excise (excise ad valorem equivalence rate, XAR) on the tariff inclusive of cif import value. Subsequently, Value Added Tax Rate (VAR) is imposed on tariff and excise inclusive of cif import value. Assuming that the only source of change is tariff liberalization policy, and then percentage change in price of product could be approximated by the percentage change the tariff rate. Using the calculation steps Brenton, et al., 2009, as our guide, we take the following steps in the computations of tariff liberalization impact in Azerbaijan:

$$\begin{aligned} \Delta P_{ij} / P_{ij}^{Old} &= \frac{(P_{ij}^{new} - P_{ij}^{Old}) / P_{iworld}}{P_{ij}^{Old} / P_{iworld}} \\ &= \frac{(1 + TAR_{ij}^{new})(1 + XAR_{ij})(1 + VAR_{ij}) - (1 + TAR_{ij}^{old})(1 + XAR_{ij})(1 + VAR_{ij})}{(1 + TAR_{ij}^{old})(1 + XAR_{ij})(1 + VAR_{ij})} \\ &= \frac{TAR_{ij}^{new} - TAR_{ij}^{old}}{(1 + TAR_{ij}^{old})} \\ &= \frac{\Delta TAR_{ij}}{(1 + TAR_{ij}^{old})} \end{aligned}$$

Where, a tariff change for product  $i$  from exporter  $j$  is shown to be gauged by a percentage change in price. In the above,

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10 See Paul Brenton, Christian Saborowski, Cornelia Staritz and Erik von Uexkul (2009), 'Assessing the Adjustment Implications of Trade Policy Changes Using TRIST (Tariff Reform Impact Simulation Tool)', World Bank, Washington Dc. The World Bank scholars have successfully developed and used TRIST for many countries. However, no TRIST for Azerbaijan exist currently. Thus, our efforts is the first attempt in developing an Azerbaijan TRIST.

$i$  : Product, import  $i$   
 $j$  : Country, trading partner, exporter  $j$   
 $\Delta$  : Change  
 $\Delta TAR_{ij}$  : Change in tariff (tariff reform)  
 $\Delta p_{ij}$  :  $\Delta$  in price of  $i$  from  $j$   
 $p_{ij}^{Old}$  : Price of  $i$  from  $j$  before  $\Delta TAR_{ij}$   
 $p_{ij}^{new}$  : price of  $i$  from  $j$  after  $\Delta TAR_{ij}$   
 $P_{world}$  : world market price (dictated by perfectly elastic supply curve)  
 $TAR_{ij}^{Old}$  : tariff rates applied to  $i$  from  $j$  before  $\Delta TAR_{ij}$   
 $TAR_{ij}^{new}$  : tariff rates applied to  $i$  from  $j$  after  $\Delta TAR_{ij}$   
 $XAR_{ij}$  : excise tax rate (*ad valorem equivalence rate*) applied to  $i$  from  $j$   
 $VAR_{ij}$  : VAT rate applied to  $i$  from  $j$

The impact of tariff liberalization on demand for product  $i$  can be decomposed to three sequential stages:

#### *Stage 1: The Exporter Substitution Effect*

Tariff liberalization may lead to relative price change based on the sources (suppliers) of imports. Thus, reallocation of expenditure on imports of a product from various exporters (suppliers), based on the ‘exporter substitution elasticity ( $\sigma^{ESE}$ )’ will take place when tariff liberalization is instigated. The exporter substitution effect (denoted here by  $q^{*ESE}$ ) reflects substitution of imports from, say, Turkey for imports from, say, Russia when the relative price—the price of import from Turkey relative to the price of import from Russia—declines. A hypothetical example of relative price change that may lead to ‘exporter substitution effect’ might be the potential signing of the free trade agreement among CIS countries in October 2011.<sup>11</sup>

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11 On April 15, 1994 Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kirgizstan, Moldova, Russia, Ukraine, Uzbekistan and Tajikistan signed the CIS multilateral free trade agreement. The long-term intention of this agreement was to create an economic union. This agreement is yet to be ratified by all of the signing parties. Currently, a new framework for a free trade agreement among the CIS countries is being negotiated. This agreement in making allows for the equivalent annulment of customs fees, taxes and payments, as well as, the elimination of quantitative restrictions and other barriers to international trade of goods and services within the CIS countries. Nonetheless, on July 20, 2002, Georgia, Ukraine, Azerbaijan and Moldova (denoted as the GUAM) signed an agreement on the creation of a free trade zone. The intention of this agreement is very similar to that of 1994 agreement; but, this only applies to GUAM.

In TRIST, the export substitution component of imports due to tariff liberalization is estimated by:

$$q_{ij}^{*ESE} = \left[ 1 + \sigma_j^{ESE} \frac{\Delta p_{ij}}{p_{ij}^{old}} \right] q_{ij}^{*old} \left\{ \frac{\sum_n q_{ij}^{*old}}{\sum_n q_{ij}^{*old} \left[ 1 + \sigma_j^{ESE} \frac{\Delta p_{ij}}{p_{ij}^{old}} \right]} \right\}$$

Where:

\* : in the superscript indicates an import related variable

Old : in the superscript indicates values related to before reform (before tariff liberalization)

$q_{ij}^{*ESE}$  : imports of  $i$  from  $j$  after exporter substitution step

$q_{ij}^{*old}$  : imports of  $i$  from  $j$  before tariff liberalization

$\sigma^{ESE}$  : exporter substitution elasticity for imports from  $j$

While estimating  $q^{*ESE}$ , one must keep total import constant, so that, the exporter substitution effect could be properly isolated and gauged. In the above, this is achieved by deflating the

post-substitution imports from each exporter, *i.e.*,  $\left[ 1 + \sigma_j^{ESE} \frac{\Delta p_{ij}}{p_{ij}^{old}} \right] q_{ij}^{*old}$ . This is done by

multiplying  $\left[ 1 + \sigma_j^{ESE} \frac{\Delta p_{ij}}{p_{ij}^{old}} \right] q_{ij}^{*old}$  to the ratio of total old imports of the product before tariff

reform  $\sum_n q_{ij}^{*old}$  to the sum of imports of the product from all exporters (suppliers) after the

substitution effects  $\sum_n q_{ij}^{*old} \left[ 1 + \sigma_j^{ESE} \frac{\Delta p_{ij}}{p_{ij}^{old}} \right]$ .

### Stage 2: The Domestic Substitution Effect

A reaction to trade liberalization will be to shift demand between domestic production and imports. This is because trade liberalization may change the relative prices of domestic goods to imported goods. A change in tariffs leads to a change in aggregate price of imports of the good, thus, causing a propensity towards substitution between domestic production and imported good. Any change in the demand for imports may be distributed across all sources of imports (exporters or suppliers of the good). In practice, the change in imports may be distributed according to the import shares of different suppliers (exporters, trading partners)<sup>12</sup>.

In TRIST, elasticity of substitution between domestic products and imports ( $\sigma^{ESDI}$ ) is used to adjust substitution between domestic products and imports. Using a two step procedure, TRIST provides a computation of the domestic substitution effects by: First, estimating relative demand changes due to changes in the weighted average price of imports. This is adjusted

12 That is, if a unit demand (expenditure) elasticity for various exporters is assumed.

by  $\sigma^{ESDI}$ . Second, the aggregate change in the demand for the good is distributed across suppliers according to their share of imports. Since changes in total imports and domestic demands are mirror images of each other, the total domestic demand (consumption) remains unchanged for this computation. Total imported quantity after substitution with domestic output,  $Q_{import}^{DS,new}$ , is obtained by:

$$Q_{i,import}^{DS,new} = \left[ 1 + \sigma^{ESDI} \frac{\Delta \bar{P}_{import}}{\bar{P}_{import}^{old}} \right] Q_{i,import}^{old}$$

Where:

*New*: in the superscript indicates values related to after reform (after trade liberalization)

$Q_{i,import}^{old}$ : the initial total imports of  $i$

$Q_{i,import}^{DS,new}$ : total imports of  $i$  after substitution with domestic output

$\sigma^{ESDI}$ : elasticity of substitution between imports and domestic production

$$\frac{\Delta \bar{P}_{import}}{\bar{P}_{import}^{old}} = \sum_n \left[ \frac{q_{ij}^{old}}{\sum_n (q_{ij}^{old})} \frac{\Delta p_{ij}}{p_{ij}^{old}} \right] : \text{percentage change in the aggregate price of imports}$$

And, quantity imported from supplier  $j$  after substitution between imports and domestic output,  $q_j^{DS}$ , is obtained by:

$$q_{ij,import}^{DS,new} = q_{ij,import}^{ES} + (Q_{i,import}^{DS,new} - Q_{i,import}^{old}) \left[ \frac{q_{ij}^{old}}{\sum_n q_{ij}^{old}} \right]$$

Where:

$Q_{i,import}^{old} = \sum_m \sum_n q_{ij,import}^{old}$ : is the initial aggregate import (before tariff liberalization)

$Q_{i,import}^{DS,new}$ : imports after substitution with domestic output

$q_{ij,import}^{DS,new}$ : imports from supplier  $j$  after substitution between imports and domestic output

### Stage 3: The Demand Effect

Tariff liberalization leading to the change in price of imports causes a general change in the average price of the good, which is approximated by the change in the aggregate price of imports while being weighted by the share of imports in domestic consumption. A change in the price usually has an income (or demand) effect i.e., a product with the price elasticity of

demand  $\eta^D$  reaches a new consumption level  $Q_{i,TD}^{new}$ . In particular, lower prices lead to a higher purchasing price and thus, higher consumption. Using the initial shares of total consumption of good  $i$ , TRIST distributes this increase in consumption across imports and domestic production. Similarly, the import shares are used to distribute the change in imports across individual suppliers (exporters, trading partners). In TRIST, the demand effect computations are as follows:

$$Q_{i,TD}^{new} = Q_{i,TD}^{old} \left[ 1 + \eta^D \frac{\Delta \tilde{P}}{\tilde{P}^{old}} \right]$$

$$Q_{i,import}^{new} = Q_{i,import}^{DS} + [Q_{i,TD}^{new} - Q_{i,TD}^{old}] \left[ \frac{Q_{i,import}^{old}}{Q_{i,import}^{old} + Q_{i,Domestic}^{old}} \right]$$

$$q_{ij,import}^{new} = q_{ij,import}^{DS} + [Q_{i,import}^{new} - Q_{i,import}^{DS}] \left[ \frac{q_{ij,import}^{old}}{\sum_n q_{ij,import}^{old}} \right]$$

Where:

$\sim$  : indicating a post-reform (after tariff liberalization) value

$\eta^D$  : the price elasticity of demand for  $i$

$Q_{i,TD}^{old} = \sum_m \sum_n q_{ij}$  : Initial demand for domestic output

$Q_{i,TD}^{old}$  : the initial (before reform) total demand for  $i$

$Q_{i,TD}^{new}$  : total demand after the change in the overall price of  $i$

$Q_{i,Domestic}^{old}$  : the initial (before reform) quantity of demand for domestic output

$Q_d^n$  : is the final demand for domestic output

$Q_{i,import}^{new}$  : the final demand for imports of  $i$

$q_{ij,import}^{new}$  : the quantity imported from  $j$  after all 3 effects have taken place

$\frac{\Delta \tilde{P}}{\tilde{P}^{old}} = \frac{\Delta \bar{P}}{\bar{P}^{old}} \left[ \frac{Q_{import}^{old}}{Q_{import}^{old} + Q_{domestic}^{old}} \right]$  : the percentage change in aggregate price of imports

TRIST operationalizes partial equilibrium framework through simple spreadsheet modeling. Generally, TRIST overcomes three main problems in trade reform analysis:

- 1) TRIST accounts for the exemptions from the statutory tariff regime;
- 2) TRIST takes into account the interaction among tariff and other taxes, e.g., excise duties and VAT<sup>13</sup>; and,

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13 If tax harmonization (a requirement of the WTO Accession) is successful, then harmonized taxes are less distortionary than customs tariffs.

3) TRIST allows for detailed product analysis that are absent from the studies, which use aggregated models and data.

However, TRIST is not suitable for simulating the aggregate impact of tariff reform on production and employment. Rather, TRIST is designed to identify vulnerable sectors to tariff reform and competition, and to assist in informing policies that are intended to mitigate the impact of short-term adjustments. By linking TRIST to household survey (budget data), one can make an assessment of the impact of price changes (due to tariff liberalization) on household demands. Below, we use the available trade data for Azerbaijan and the TRIST model to assess the impact of lowering tariff rates on the 14 priority goods identified by the government.

### ***TRIST Methodology and Manual***

A lucid step-by-step approach for developing TRIST is provided by the developers of TRIST in the World Bank (see Brenton et al., 2009). However, this report provides a detailed explanation (an application manual) of the steps taken to develop a TRIST model for Azerbaijan. Thus, the officials may input their own datasets and develop their own scenarios for the trade reform issues.

## **Results: Tariff Liberalization Impact Assessment**

TRIST allows for a large number of scenarios to be considered. Tariff rate could be adjusted, capped, and/or become subject to an adjustment process (e.g., Swiss Formula).

Table 10 summarizes the current statutory tariff rates applied to imports in Azerbaijan. For tomato juice, the specific tariff rate was converted to an ad valorem equivalence using averaged import prices for its tariff line.

**Table 10: Current Statutory (or Ad Valorem Equivalence) Tariff Rates**

151219	Sunflower	15.0%
151529	Sunflower oil	15.0%
151620	Plant-Oil	15.0%
170199	White sugar	15.0%
200980	Fruit juices	15.0%
207136	Chicken	15.0%
281820	Aluminum	0.5%
290512	Propane	15.0%
390110	Ethylene	0.5%
391190	Polysulfide	0.5%
520100	Cotton	5.0%
702000	Tomato juice	30.0%

802220	Hazel-nut	-
940350	Furniture	15.0%

NOTE: Specific Tariff for tomato juice was converted to ad valorem equivalence rate

### **Revenue Impact Assessment of Lowering Tariff Rates by 10%, 50%, or 100%**

Table 11 provides overall simulated results for:

- A) Lowering Tariff Rates by 10%
- B) Lowering Tariff Rates by 50%
- C) Lowering Tariff Rates by 100% (full free trade),

Each of the above scenarios can be compared with the current law (no tariff change).

Table 11 shows that reducing the tariff rates by 10%, 50%, and 100% (i.e., setting tariff rate to zero) lead to the corresponding 0.3%, 1.3%, and 2.6% increase in imports. That is, Azerbaijan might increase its imports of priority goods by 51 – 517 thousand dollars. In particular, reducing tariff rates by 50% on all priority goods leads to less than 260 thousand dollars increase in imports. Thus, the impact of reducing tariff rates on imports is, at best, negligible (also, see Figure 5).

Reducing tariff rates by 10%, 50%, and 100% corresponds to reducing tariff revenues by 5.5%, 37.8%, and 100%. The revenue loss will range between 151 thousand dollars to 2.7 million dollars. Given that, Azerbaijan’s collection from levying tariffs is not substantive, the loss of tariff revenue due to full trade liberalization is negligible as well.

Reducing tariffs towards zero leads to the maximum of 51% loss in the tax revenue collected from levying tariff and VAT on imports. That is, a maximum of 3.8 million dollars will be lost if all tariff rates is set to zero. On the other hand, reducing tariff rates by 10% - 50% leads to 173 thousand dollars to 1.3 million dollars loss in the tariff and VAT revenues.

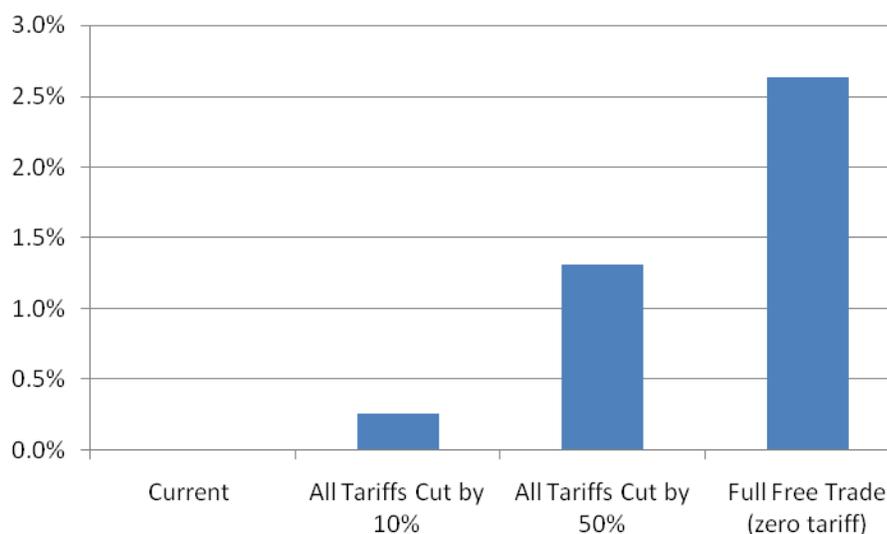
The total revenues from levying tax and duties on imports and domestic production also show relatively small decline in absolute value if the tariff rates are lowered towards zero. In particular, total revenue loss due to instigating full free trade is only 3.8 million dollars. On the other hand lowering tariff rate by 50% leads to an effective tariff rate of 8.5% and about 1.3 million dollars loss in total revenue.

**Table 11: Trade Impact of Selected Trade Reform Scenarios**

	<b>Current Law</b>	<b>All Tariffs Cut by 10%</b>	<b>All Tariffs Cut by 50%</b>	<b>Full Free Trade (zero tariff)</b>
<b>Impact on imports:</b>				
Imports pre	19,681,105	19,681,105	19,681,105	19,681,105
Imports post	19,681,105	19,732,594	19,939,136	20,198,468
Change in imports	0	51,489	258,031	517,363
% change in imports	0.0%	0.3%	1.3%	2.6%

	<b>Current Law</b>	<b>All Tariffs Cut by 10%</b>	<b>All Tariffs Cut by 50%</b>	<b>Full Free Trade (zero tariff)</b>
<b>Impact on imports:</b>				
<b>Impact on revenue:</b>				
Tariff revenue pre	2,725,413	2,725,413	2,725,413	2,725,413
Tariff revenue post	2,725,413	2,574,707	1,695,484	0
Change in tariff revenue	0	-150,705	-1,029,929	-2,725,413
% change in tariff revenue	0.0%	-5.5%	-37.8%	-100.0%
<b>Total Tax Revenues on Imports</b>				
Total revenue pre	7,507,475	7,507,475	7,507,475	7,507,475
Total revenue post	7,507,475	7,333,817	6,170,405	3,705,051
Change in Total revenue	0	-173,658	-1,337,070	-3,802,424
% change in Total revenue	0.0%	-2.3%	-17.8%	-50.6%
<b>Total Tax Revenues on Imports and Domestic Production</b>				
Total tax revenue pre	8,110,464	8,110,464	8,110,464	8,110,464
Total tax revenue post	8,110,464	7,934,572	6,762,272	4,284,176
Change in total tax revenue	0	-175,892	-1,348,192	-3,826,288
% change in total tax revenue	0.0%	-2.2%	-16.6%	-47.2%
<b>Collected Tariff rate:</b>				
Collected applied tariff rate pre trade reform	13.8%	13.8%	13.8%	13.8%
Collected applied tariff rate post trade reform	13.8%	13.0%	8.5%	0.0%
% change in collected applied tariff rate	0.0%	-5.8%	-38.6%	-100.0%

**Figure 5: Percent Changes in Imports due to Reducing Tariff Rates**



***Domestic Price Impact Assessment of Lowering Tariff Rates by 10%, 50%, or 100%***

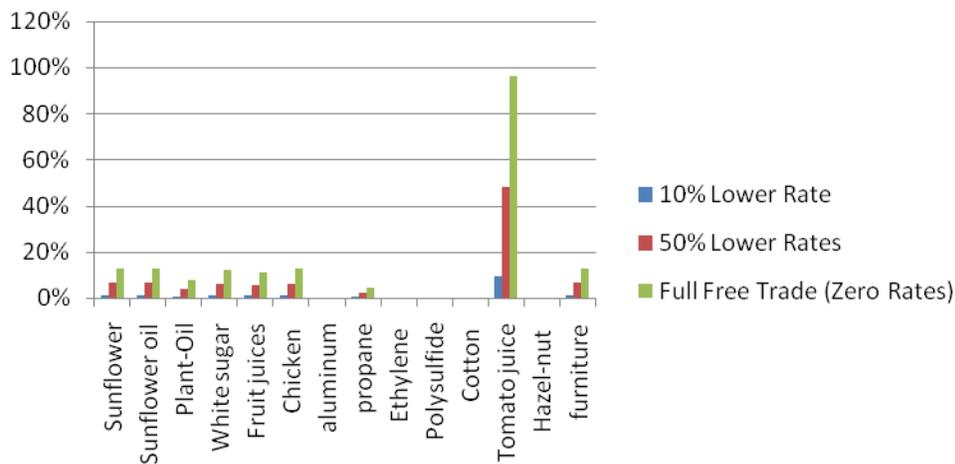
Lowering tariff rates leads to lower prices in the domestic market. Table 12 and Figure 6 show the percentage decline in the prices of priority goods on good-by-good basis for three scenarios. Table 12 shows that the domestic prices do not change significantly if tariff rates are lowered by 10%. Tomato juice appears to be the only good that will experience proportional (i.e., 10%) decline in price. Reducing tariff rates by 50% lowers domestic prices less than 7%. The exception is tomato juice price that drops by 48% (See Figures 6 and 7). Similarly, lowering tariff rates by 100% (setting the tariff rates to zero) lowers domestic prices, in general, by 13% or less. The tomato juice prices is an exception since it sharply drops by 96%. Given that, lowering prices by tariff reduction leads to improved competitiveness while improving consumers’ purchasing power, they tend to significantly improve consumer welfare.

**Table 12: Domestic Price Impact of Lowering Tariff Rates towards Zero.**

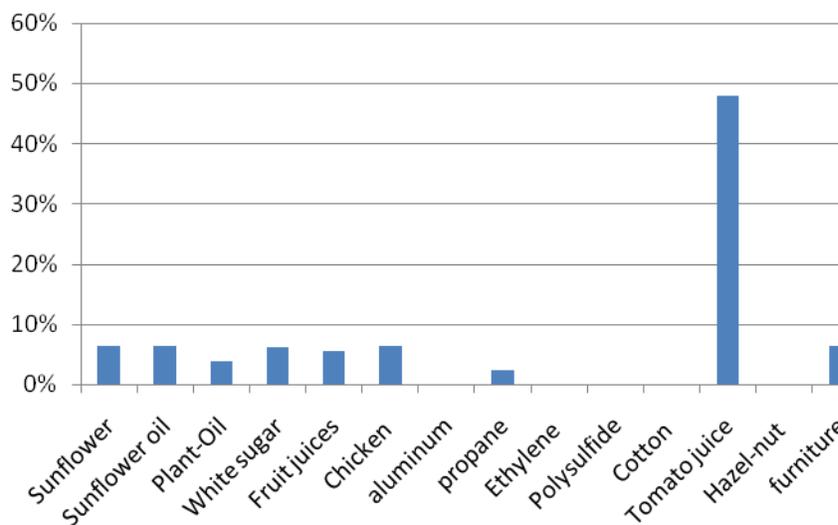
HS Code	Goods	Reducing Tariff Rates by 10%	Reducing Tariff Rates by 50%	Setting Tariff Rates to Zero
151219	Sunflower	-1%	-6.5%	-13%
151529	Sunflower oil	-1%	-6.5%	-13%
151620	Plant-Oil	-1%	-4.0%	-8%
170199	White sugar	-1%	-6.2%	-12%
200980	Fruit juices	-1%	-5.6%	-11%
207136	Chicken	-1%	-6.5%	-13%
281820	Aluminum	0%	-0.2%	0%
290512	Propane	0%	-2.5%	-5%

HS Code	Goods	Reducing Tariff Rates by 10%	Reducing Tariff Rates by 50%	Setting Tariff Rates to Zero
390110	Ethylene	0%	-0.2%	0%
391190	Polysulfide	0%	-0.2%	0%
520100	Cotton	0%	0.0%	0%
702000	Tomato juice	-10%	-48.0%	-96%
802220	Hazel-nut			
940350	Furniture	-1%	-6.5%	-13%

**Figure 6: Percentage Change (Decrease) in the Domestic Price of Priority Goods**



**Figure 7: Percentage Change (Decrease) in the Domestic Price of Priority Goods**



## Further Assessment of Lowering All Tariffs by 10%

- *Exporter Substitution Effect (Trade Diversion)*

For certain goods, a 10% cut in all tariffs dramatically changes the source of imports from the CIS (mainly, Russia, Belarus, Ukraine, and Uzbekistan) to the rest of the world for Azerbaijan. In particular, Azerbaijan will find it more beneficial to import sunflower products, plant oil, sugar, ethylene, juice, and furniture from the rest of the world rather than the CIS (See Table 13).

**Table 13: Trade Diversion Due to 10% Reduction in All Tariffs**

		Rest Of the World	CIS
151219	Sunflower	32242.75	-32242.75
151529	Sunflower oil	27447.12	-27447.12
151620	Plant-Oil	1319.09	-1319.09
170199	White sugar	59045.77	-59045.77
200980	Fruit juices	384.43	-384.43
207136	Chicken	0.00	0.00
281820	Aluminum	0.00	0.00
290512	Propane	0.00	0.00
390110	Ethylene	550.91	-550.91
391190	Polysulfide	0.00	0.00
520100	Cotton	0.00	0.00
702000	Tomato juice	271.18	-271.18
802220	Hazel-nut	0.00	0.00
940350	Furniture	500.65	-500.65

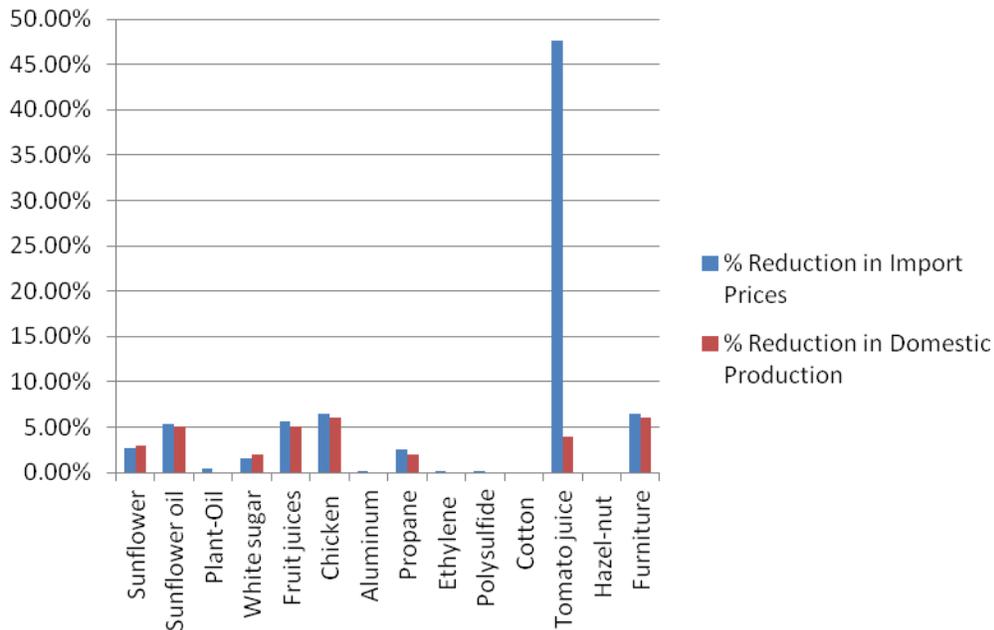
- *Domestic Substitution Effect*

The domestic substitution effects of reducing tariff rates by 10% are depicted in Table 14 and Figure 8. The largest price change is observed for tomato juice (-47.6%). On the other hand, the largest adjustments in the domestic production are the 6% reductions in chicken and furniture productions. Domestic productions of sunflower oil, fruit juices, and tomato juice will be reduced only by 4-5%. The resilience of tomato juice production despite an almost 50% decline in the price of imported tomato juice is notable. Overall, the price of imports and domestic production react modestly to a 10% reduction in tariff rates.

**Table 14: Domestic Substitution Effect**

HS Code	Goods	% Reduction in Import Prices	% Reduction in Domestic Production
151219	Sunflower	2.7%	3%
151529	Sunflower oil	5.4%	5%
151620	Plant-Oil	0.4%	0%
170199	White sugar	1.6%	2%
200980	Fruit juices	5.6%	5%
207136	Chicken	6.5%	6%
281820	Aluminum	0.2%	0%
290512	Propane	2.5%	2%
390110	Ethylene	0.2%	0%
391190	Polysulfide	0.2%	0%
520100	Cotton	0.0%	0%
702000	Tomato juice	47.6%	4%
802220	Hazel-nut	0.0%	0%
940350	Furniture	6.5%	6%

**Figure 8: Percentage Reduction in Domestic Production and Import Prices**



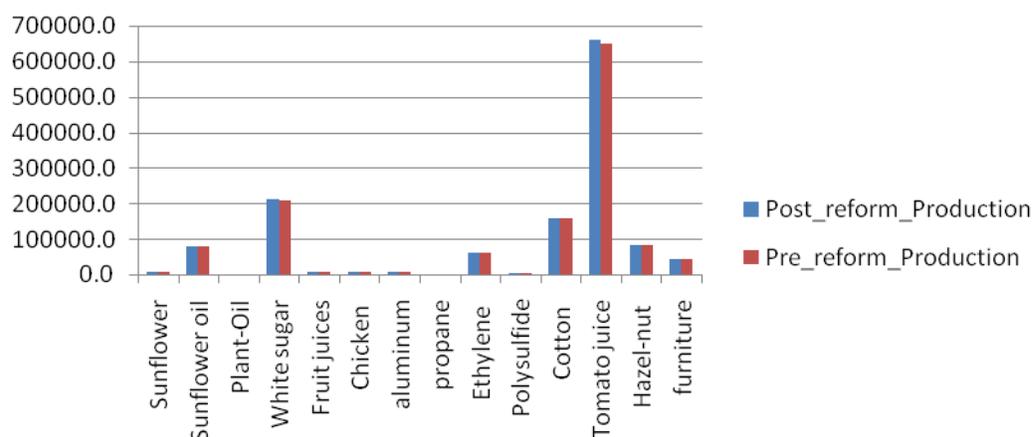
- *Demand Effect*

A 10% reduction in tariffs leads to lower prices for priority goods. An impact of lower prices is to improve purchasing power of consumers of these products. Hence, a higher demand for the priority goods due to higher purchasing power will be observed. The higher demand for priority goods leads to higher production of these goods (Table 15 and Figure 9).

**Table 15: Domestic Substitution Effect: Percentage Change in Domestic Production and Import Prices**

HS Code	Goods	Post-reform Production	Pre-reform Production	% Increase in Production
151219	Sunflower	7030.3	6,960	1.0%
151529	Sunflower oil	80656.3	78,608	2.6%
151620	Plant-Oil	1172.0	1,169	0.2%
170199	White sugar	211880.0	210,258	0.8%
200980	Fruit juices	7855.3	7,644	2.8%
207136	Chicken	8083.9	7,832	3.2%
281820	Aluminum	9148.9	9,141	0.1%
290512	Propane	420.4	415	1.2%
390110	Ethylene	61392.7	61,347	0.1%
391190	Polysulfide	5004.7	4,999	0.1%
520100	Cotton	159500.0	159,500	0.0%
702000	Tomato juice	662220.1	650,070	1.9%
802220	Hazel-nut	83980.0	83,980	0.0%
940350	Furniture	43279.2	41,933	3.2%

**Figure 9: Post and Pre Domestic Production – Demand Effect of 10% Reduction in Tariffs**



## Further Assessment of Lowering All Tariffs by 100%: Full Free Trade

- *Exporter Substitution Effect (Trade Diversion)*

A full free trade regime can be achieved only if all tariff rates are set to zero. That is, a 100% cut in all tariffs (and any non-tariff barriers). Non-tariff barriers need to be converted to their equivalence tariff rates (tariffication). Otherwise, a full free trade does not take place, and the economy will not fully benefit from the unhindered international trade, whose impact is usually transmitted through relative price changes. Tariff liberalization leads to relative price change based on the sources (suppliers) of imports. Using the 'exporter substitution elasticity ( $\sigma^{ESE}$ ), the relative price change allows for the reallocation of expenditure on imports of a product from various exporters (suppliers).

Reported simulation results in Table 16 show that under a fully free trade system, there will be a net transfer of trade from the CIS to the rest of the world. Full free trade dramatically changes the sources of imports from Russia, Belarus, Ukraine, and Uzbekistan to the rest of the world for Azerbaijan.

Under a full free trade regime, the exporter substitution effect is more pronounced for white sugar than for any other priority products. However, Azerbaijan will find it more beneficial to divert its imports of sunflower products, plant oil, sugar, ethylene, juice, and furniture from the CIS to the rest of the world as well. Qualitatively, this is fairly similar to the first scenario where Azerbaijan would cut all tariff rates by 10%. However, the magnitude of trade diversion is much smaller, if all tariff rates are cut to zero.

**Table 16: Exporter Substitution Effect: Trade Diversion due to Full Free Trade (US Dollars)**

	Goods	Imports Before Full Free Trade		Imports AFTER Full Free Trade		Trade Diversion	
		Rest Of the World	CIS	Rest Of the World	CIS	Rest of the World	CIS
151219	Sunflower	568,537	860,298	630,693	798,142	62,156	-62,156
151529	Sunflower oil	1,701,996	367,723	1,753,077	316,642	51,081	-51,081
151620	Plant-Oil	24,679	210,192	27,301	207,570	2,622	-2,622
170199	White sugar	865,262	2,541,093	980,672	2,425,683	115,410	115,410
200980	Fruit juices	1,608,173	4,996	1,608,887	4,282	714	-714
207136	Chicken	1,667,050	0	1,667,050	0	0	0
281820	Aluminum	22,431	0	22,431	0	0	0
290512	Propane	40,871	0	40,871	0	0	0

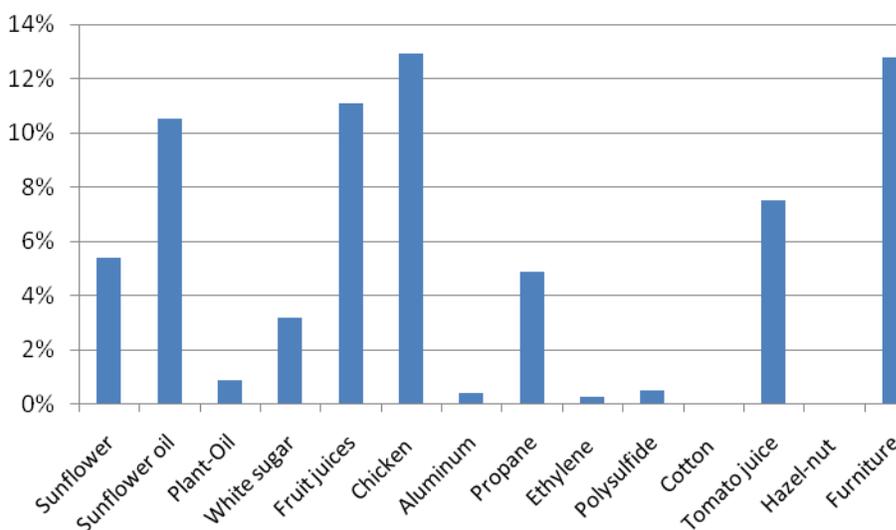
		Imports Before Full Free Trade		Imports AFTER Full Free Trade		Trade Diversion	
390110	Ethylene	5,656,846	243,795	5,657,945	242,696	1,099	-1,099
391190	Polysulfide	481,253	0	481,253	0	0	0
520100	Cotton	32,265	0	32,265	0	0	0
702000	Tomato juice	56,836	652	57,219	269	383	-383
802220	Hazel-nut	0	3,464	0	3,464	0	0
940350	Furniture	2,717,076	5,617	2,717,995	4,698	919	-919

- *Domestic Substitution Effect*

A full free trade changes the aggregate price of imports, thus leading to substitution between domestic and imported goods, where the elasticity of substitution between domestic products and imports plays an important role. In TRIST, the elasticity of substitution between domestic products and imports is used to adjust substitution between domestic and imports. To compute the domestic substitution effect, first, relative demand changes due to changes in the *weighted average price of imports* are obtained after which the aggregate change in the demand for the good is distributed across suppliers according to their share of imports.<sup>14</sup>

The impact of a full free trade regime on import prices is depicted in Figure 10. This figure shows that under a full free trade regime, the import prices of chicken, furniture, fruit juices, and sunflower oil will be reduced by about 10%-13%. Similarly, the import price of tomato juice will be reduced by less than 8%. The import prices of other products also decrease, but by less than 6% (Figure 10).

**Figure 10: Negative Growth (reduction) in Import Prices**



14 Note that, since changes in total imports and domestic demands are mirror image of each other, then total domestic demand (consumption) remains unchanged.

*NOTE: Percentage change in import prices are shown in absolute term*

The full domestic substitution effects of a free trade scenario are collected in Table 17. This table shows that, under a full free trade regime, Azerbaijan will shift its imports from the CIS and increase its import from the rest of the world. The reported sum of imports from the rest of the world and the CIS and domestic production indicates that the share of the imports from the rest of the world to total imports declines from 78% to 75%.<sup>15</sup> Similarly, the share of imports from the CIS could decline from 21% to 19%. This allows Azerbaijan to improve its domestic production by 6%.<sup>16</sup>

Figure 11 captures the dynamic of changes due to domestic substitution impact. Table 17 and Figure 11 show that a full free trade regime impacts tomato juice more than other priority goods. Under this regime, tomato juice experiences 25% (=4,706/5,617) decline in imports from the CIS, and 82% (=489/652) increase from the rest of the world. Table 17 also shows that, Azerbaijan's production of the priority goods will replace some of the imports (see Figure 12).

**Table 17: Domestic Substitution Effect: Imports and Production Changes Under Full Free Trade Regime**

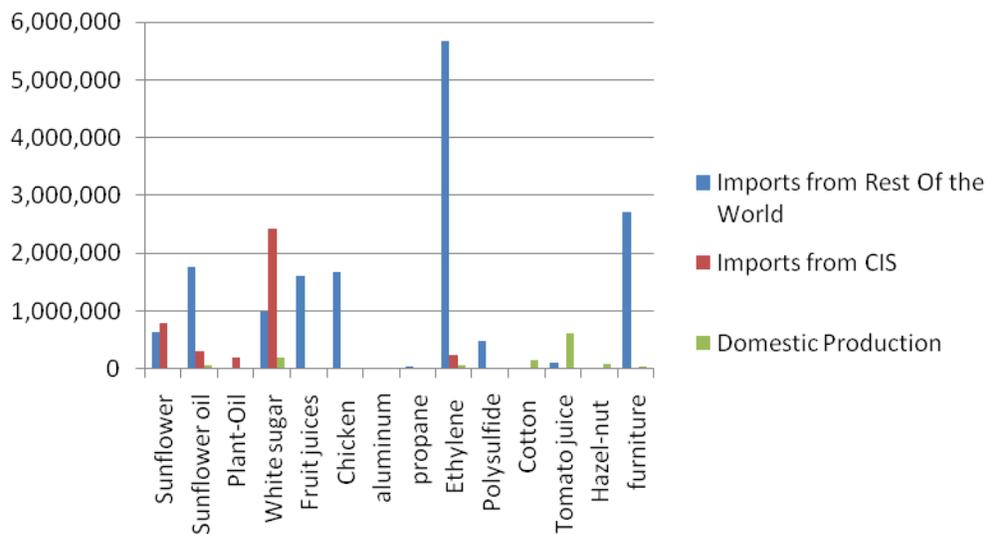
HS Code	Goods	Original Imports Prior to Tariff Liberalization		Imports Price Change	Imports and Production After Substitution		
		Rest Of the World	CIS		Rest Of the World	CIS	Domestic Production
151219	Sunflower	568,537	860,298	-5.4%	630,856	798,348	6,776
151529	Sunflower oil	1,701,996	367,723	-10.5%	1,759,732	317,843	74,848
151620	Plant-Oil	24,679	210,192	-0.9%	27,302	207,579	1,164
170199	White sugar	865,262	2,541,093	-3.2%	982,568	2,430,374	206,915
200980	Fruit juices	1,608,173	4,996	-11.1%	1,609,688	4,284	7,263
207136	Chicken	1,667,050	0	-12.9%	1,668,001	0	7,385
281820	Aluminum	22,431	0	-0.4%	22,463	0	9,125
290512	Propane	40,871	0	-4.9%	40,891	0	406
390110	Ethylene	5,656,846	243,795	-0.3%	5,658,121	242,703	61,255
391190	Polysulfide	481,253	0	-0.5%	481,278	0	4,986
520100	Cotton	32,265	0	0.0%	32,265	0	159,500
702000	Tomato juice	56,836	652	-7.5%	103,951	489	627,418
802220	Hazel-nut	0	3,464	0.0%	0	3,464	83,980

15 The 78% and 75% ratios are obtained by computing  $[15,443,275 / (15,443,275 + 4,237,830)] = 78\%$  and  $[15,740,180 / (15,740,180 + 4,009,790 + 1,290,569)] = 75\%$ , respectively.

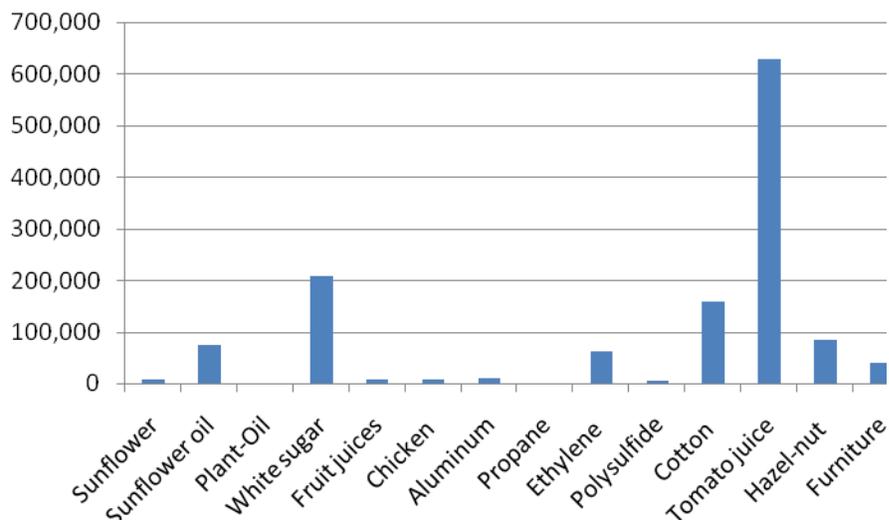
16 This is obtained by computing  $[1,290,569 / (15,740,180 + 4,009,790 + 1,290,569)] = 6\%$ .

		Original Imports Prior to Tariff Liberalization			Imports and Production After Substitution		
940350	Furniture	2,717,076	5,617	-12.8%	2,723,064	4,706	39,548
<b>TOTAL</b>		<b>15,443,275</b>	<b>4,237,830</b>	<b>-100%</b>	<b>15,740,180</b>	<b>4,009,790</b>	<b>1,290,569</b>
<b>% Total Initial Imports</b>		<b>78%</b>	<b>22%</b>				
<b>% Total Domestic Substitution Effect</b>					<b>75%</b>	<b>19%</b>	<b>6%</b>

**Figure 11: Domestic Substitution Effect: Imports and Production Changes**



**Figure 12: Magnitude of Azerbaijani Productions of the Priority Goods Replacing Imports**

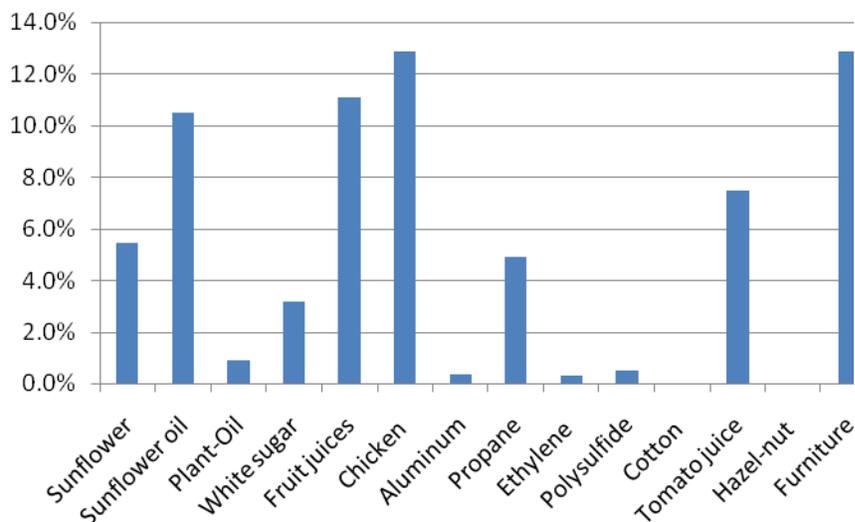


- *Demand Effect*

Full free trade leads to lower prices of priority goods. An impact of lower prices is improving the purchasing power of consumers of these products (this is known as the income or demand effect). Higher purchasing power of consumers leads to higher demand for the priority goods. Hence, the higher demand for priority goods leads to higher production of these goods.

The impact of tariff liberalization on the average price of a good is approximated by the change in the aggregate price of imports while being weighted by the share of imports in domestic consumption. Figure 13 shows that a full free trade regime does not have an appreciable impact on the prices of aluminum, ethylene, polysulfide, cotton, and plant-oil. There are moderate price impacts for sunflower, white sugar and propane—the prices of these products are reduced by 3%-5.5%. The price reduction for tomato juice is about 7.5% and those of sunflower oils and fruit juices are between 10.5%-11%. The highest price declines are in the 13% range and are observed only for chicken (12.9%) and furniture (12.8%). Overall, the magnitudes of these price declines are not large and are within a manageable level for Azerbaijan's economy.

**Figure 13: Percentage Change (Reduction) in the Price of Imports (in absolute values)**



A change in the price leads to a demand (income) effect that can be measured by its new consumption level. Using the shares of the good (i.e., a measure of its importance) in total consumption and imports, one can distribute this increase in consumption across imports and domestic production. Similarly, the import shares are used to distribute the change in import across individual suppliers (exporters, trading partners).

Table 18 shows that the demand effects lead to higher production than the domestic substitution effects. Based on the estimated values in Table 18, the demand effects lead to 2%-3% increase in production relative to the domestic substitution, and 2%-4% increase relative to the exporter substitution.

**Table 18: Demand effects Lead to Higher Production than the Domestic Substitution Effects**

Effects	The Rest of the World Production	CIS Production	Domestic Production
Demand (A)	16,247,226	4,083,528	1,324,958
Domestic Substitution (B)	15,740,181	4,009,792	1,290,568
Exporter Substitution (C)	<b>15,677,660</b>	<b>4,003,445</b>	
Ratio (A/B)	3%	2%	3%
Ratio (A/C)	4%	2%	

**Figure 14: Demand Effect: Distribution of Consumption across Imports and Domestic Production**

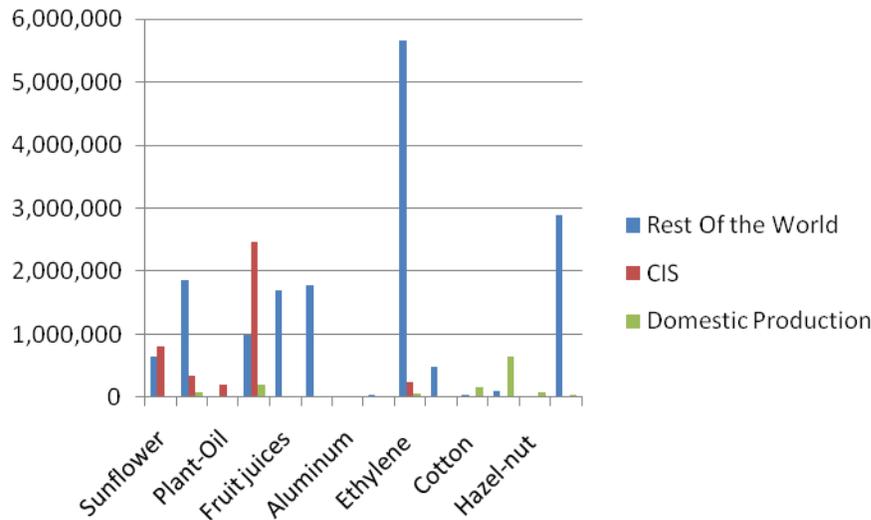
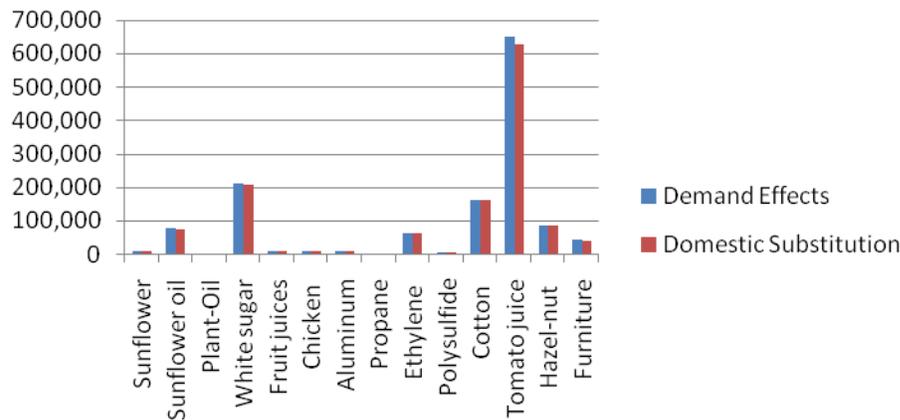


Figure 15 shows that the full free trade regime leads to a slightly higher role for the rest of the world in Azerbaijan’s consumption, especially, relative to the domestic substitution effect. Similarly, Figure 16 shows that the demand effects lead to higher domestic production than the domestic substitution effect.

**Figure 15: Demand Effect vs. Domestic Substitution: the Rest of the World because of contributing to the Azerbaijan’s consumption.**



**Figure 16: Demand Effect vs. Domestic Substitution: Domestic Production Contributions to the Consumption in Azerbaijan**

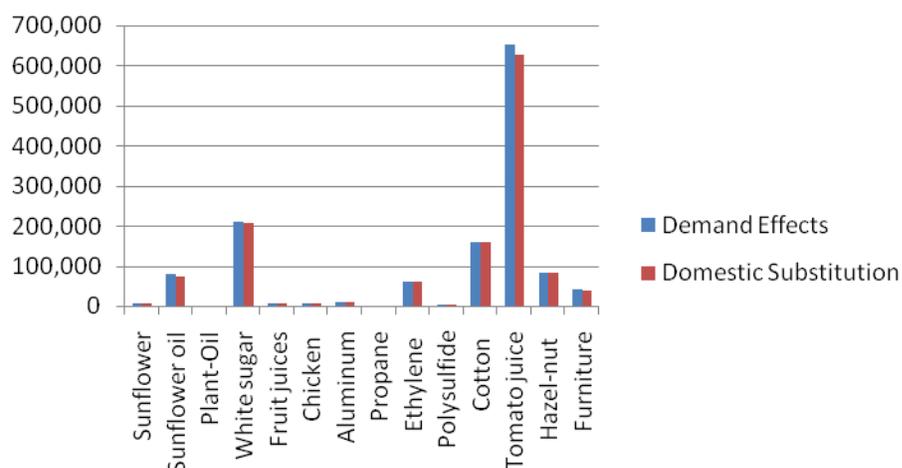


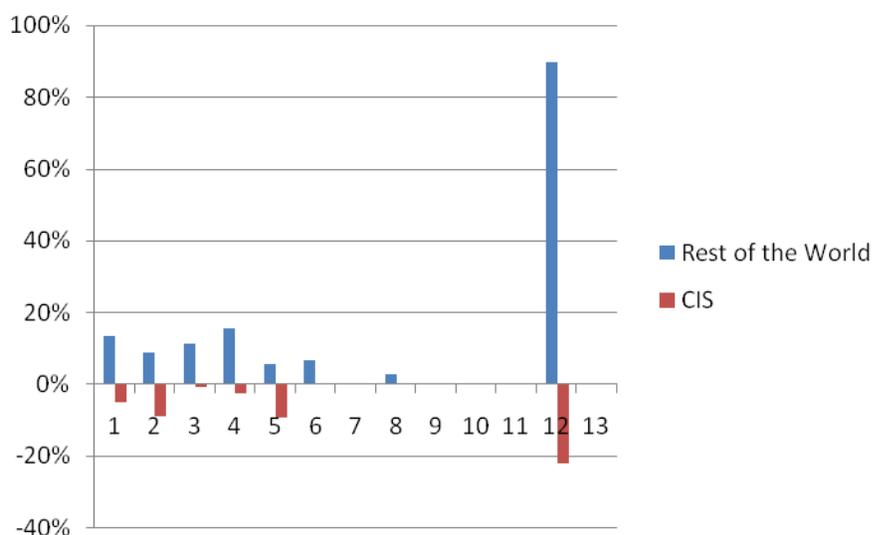
Table 19 summarizes the demand effect of adopting a full free trade regime on a good-by-good basis. A comparison of the estimated imports from Table 19 to those of the initial imports (before trade reform) clearly shows that the CIS share of imports to Azerbaijan will significantly shrink, if a fully free trade regime is adopted. In particular, tomato juice imports from the CIS will decline by 22% (see Figure 17), while the imports of the same product from the rest of the world increases by 90%. The CIS share of fruit juices and sunflower oil also declines, but only by close to 10%. Sunflower and white sugar imports from the CIS decline by 3% and 5% as well. On the other hand, imports from the rest of the world for the same products increase by 7%-15%. In this respect, the imports of white sugar (15%), sunflower (13%), plant-oil (11%), sunflower oil (9%), chicken (7%), fruit juices (6%), and propane (3%) relative to their initial values experience significant growth.

**Table 19: Demand Effect: Distribution of Consumption across Imports and Domestic Production**

HS Code	Goods	Import Price Change	Rest Of the World	CIS	Domestic Production
151219	Sunflower	-5.4%	643,917	814,877	6,916
151529	Sunflower oil	-10.5%	1,852,090	334,525	78,777
151620	Plant-Oil	-0.9%	27,422	208,495	1,169
170199	White sugar	-3.2%	998,210	2,469,064	210,209
200980	Fruit juices	-11.1%	1,698,720	4,521	7,665
207136	Chicken	-12.9%	1,775,449	0	7,860
281820	Aluminum	-0.4%	22,503	0	9,141

HS Code	Goods	Import Price Change	Rest Of the World	CIS	Domestic Production
290512	Propane	-4.9%	41,897	0	416
390110	Ethylene	-0.3%	5,666,577	243,066	61,347
391190	Polysulfide	-0.5%	482,466	0	4,999
520100	Cotton	0.0%	32,265	0	159,500
702000	Tomato juice	-7.5%	107,841	507	650,894
802220	Hazel-nut	0.0%	0	3,464	83,980
940350	Furniture	-12.8%	2,897,870	5,009	42,086
<b>TOTAL</b>			<b>16,247,225</b>	<b>4,083,527</b>	<b>1,324,958</b>
<b>%Total Demand Effects</b>			75%	19%	6%

**Figure 17: Demand Effect: Growth Rate of Imports under Full Free Trade Regime relative to the Initial Imports (before trade reform).**



## The Impact of Lowering Tariff Rates on Exports

Tariff liberalization often leads to a reciprocal treatment among WTO members. The WTO Accession process allows for negotiation and reduction of tariff rates in importing countries. Given that Azerbaijan's export of priority goods is 19.4 times (=447,155/22,989.9) higher than its imports of the same products, tariff liberalization works to Azerbaijan's advantage. Table YYY shows increased exports of priority goods in the short-run and in the long-run under two reciprocal tariff reduction scenarios of 10% and 100% (full free trade) in importing countries. For our estimation, we use the IMF estimates for Azerbaijan's export price elasticities, which are estimated to be 0.1 in the short-run and 1.71 in the long-run (see Stephen Tokarick, 2010).

Table 20 shows that with the exception of chicken products, the rest of the priority goods will experience substantial increase in their exports in the long-run. Under the best case scenario (full free trade in the long-run), exports will grow from 447,155 thousand dollars to 764,635 thousand dollars. Under the worst case scenario (10% reduction in export costs in the short-run), the exports will grow by 4,471 thousand dollars. Given that a full free trade leads to the most plausible gains for Azerbaijan in the long-run, the annual long-run cost of delaying tariff liberalization is estimated to be a loss of 317,480.05 thousand dollars (=764,635 - 447,155) in the export of priority goods.

**Table 20: Reciprocal Tariff Liberalization Impact on Azerbaijani Exports of Priority Goods (in Thousand Dollars)**

HS CODE	Goods	Actual Export	Short-Run Change in Exports (Export Price Elasticity: 0.1)	Long-Run Change in Exports (Export Price Elasticity: 1.71)	Short-Run Change in Exports (Export Price Elasticity: 0.1)	Long-Run Change in Exports (Export Price Elasticity: 1.71)
			10% Reduction in the Tariff Rates of Trading Partners (Lowering Import Costs from Azerbaijan)		100% Reduction in the Tariff Rates of Trading Partners (Lowering Import Costs from Azerbaijan)	
207136000	Chicken					
702000000	Tomato juice	17,986.50	179.87	3,075.69	1,798.65	30,756.92
802220000	Hazel-nut	35,172.20	351.72	6,014.45	3,517.22	60,144.46
1512199000	Sunflower	44,567.00	445.67	7,620.96	4,456.70	76,209.57
1515299000	Sunflower oil	21,946.30	219.46	3,752.82	2,194.63	37,528.17
1516209800	Plant-Oil	87,563.20	875.63	14,973.31	8,756.32	149,733.07
1701991000	White sugar	145,934.40	1,459.34	24,954.78	14,593.44	249,547.82
2009809900	Fruit juices	13,164.10	131.64	2,251.06	1,316.41	22,510.61
2818200000	Aluminum	668.2	6.68	114.26	66.82	1,142.62
2905120000	propane	14,189.00	141.89	2,426.32	1,418.90	24,263.19
3901109000	Ethylene	49,165.00	491.65	8,407.22	4,916.50	84,072.15
5201009000	Cotton	5,086.20	50.86	869.74	508.62	8,697.40
9403500000	Furniture	1,758.40	17.58	300.69	175.84	3,006.86
3911 90	Polysulfide	9,954.50	99.55	1,702.22	995.45	17,022.20
<b>TOTAL</b>		<b>447,155</b>	<b>4,471.55</b>	<b>76,463.51</b>	<b>44,715.50</b>	<b>764,635.05</b>

## The Impact of Lowering Tariff Rates on Consumer Welfare

The impact of tariff liberalization is usually transmitted through changes in the prices of imports and domestically produced priority products. Consequently, the consumption of priority goods changes as well. Lower prices lead to higher consumption of goods and, thus, higher consumer welfare. The price elasticity of demand (-0.38), Table 21 and Figure 18 show potential new consumption levels after implementing a full free trade regime.

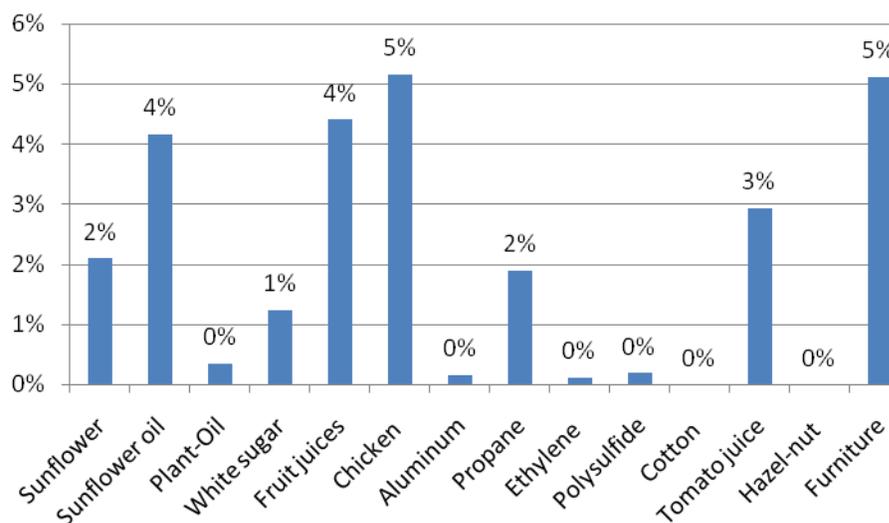
Table 21 shows that the new consumption level will be 2.3% higher than before, indicating a higher welfare level for the Azerbaijani consumers if a full free trade regime is adopted. Figure 18 shows that consumption of chicken and furniture will rise by 5% which is more than the consumption growth for any other good that is identified as a priority good. Next, fruit juice and sunflower consumption rise by 4%, followed by tomato juice by 3%. Apart from propane (2%) and white sugar (1%), consumption of other priority goods do not appear to change significantly. Overall, higher consumption levels across all priority goods are indicative of higher consumer welfare if Azerbaijan joins the WTO. Conversely, welfare loss due to delays in joining the WTO is indicated by lower consumption level. In aggregate, the consumers in Azerbaijan are losing about 2.3% higher consumption opportunities that they could have under a full free trade regime.

**Table 21: Imputed New Consumption Levels and Growth after Instigating a Full Free Trade Regime (in manats)**

HS Code	Goods	%change Price Change	Old Consumption (imputed)	New Consumption (Imputed)	% increase in Consumption
151219	Sunflower	-5.40%	1,435,633.63	1,465,710.00	2.1%
151529	Sunflower oil	-10.50%	2,175,002.86	2,265,392.00	4.2%
151620	Plant-Oil	-0.90%	236,275.17	237,086.00	0.3%
170199	White sugar	-3.20%	3,632,764.81	3,677,483.00	1.2%
200980	Fruit juices	-11.10%	1,638,739.98	1,710,906.00	4.4%
207136	Chicken	-12.90%	1,695,891.19	1,783,309.00	5.2%
281820	Aluminum	-0.40%	31,595.90	31,644.00	0.2%
290512	Propane	-4.90%	41,525.13	42,313.00	1.9%
390110	Ethylene	-0.30%	5,964,183.07	5,970,990.00	0.1%
391190	Polysulfide	-0.50%	486,538.82	487,465.00	0.2%
520100	Cotton		191,765.00	191,765.00	
702000	Tomato juice	-7.50%	737,603.60	759,242.00	2.9%

HS Code	Goods	%change Price Change	Old Consumption (imputed)	New Consumption (Imputed)	% increase in Consumption
802220	Hazel-nut	0.00%	87,444.00	87,444.00	0.0%
940350	Furniture	-12.80%	2,801,721.90	2,944,965.00	5.1%
<b>TOTAL</b>			<b>21,156,685.07</b>	<b>21,655,714.00</b>	<b>2.3%</b>

**Figure 18: Percentage Increase in Consumption of Priority Goods after Instigating a Full Free Trade Regime**



## Azerbaijan TRIST Manual<sup>17</sup>

The main input to TRIST is the customs data at the tariff line level, where detailed data on trading partners and selected products are needed to provide evidence-based policy input to the decision makers (see Table 22). Customs data on imports, tariffs, VAT, excise, and other taxes are sufficient to initiate preliminary analysis and training. Customs data at the tariff line level by trading partner (country of origin) and goods allow for substantive analysis while using TRIST as a vehicle of tariff liberalization impact assessment.

To develop a TRIST for Azerbaijan, customs data on imports to that was reported to international bodies was used. Trade Map, which was developed by the International Trade

17 For a comprehensive manual and other highly useful training materials and write-ups see: <http://go.worldbank.org/2P8FPC0760>

Centre UNCTAD/WTO (ITC), provides detailed data on import and export quantities and values by tariff lines.<sup>18</sup>

### *Software*

TRIST uses Microsoft Excel to develop the tool for applied trade analysis. However, to reshape data for use in TRIST, one may need to use other software with versatile data management capabilities. In this case, Microsoft ACCESS could prove useful as well (see The World Bank Manual for the Tariff Reform Impact Simulation Tool, and Brenton et al., 2009).

### *Formatting Data for Fitting into TRIST*

TRIST requires data to be provided in five Excel tables. The first column in each table is devoted to the HS Code, where each row of this column identifies one product. The second column and thereafter are devoted to the trading partners. The same order for entering trading partners should be followed in each table.

For a country with  $J$  trading partners, each table will have  $J+1$  column. But, each table must contain observations for only one of the variables of interest, which are:

- 1) Imports
- 2) Collected Tariff
- 3) Statutory Tariff Revenue
- 4) Excise Revenue
- 5) VAT Revenue

To create the relevant five tables, we extract a subcomponent of the variables/ data, which includes the above variable to MS Access. Table 3 provides sample of the data prior to importing to MS Access.

**Table 22: A Sample of the Data Prior to Importing to MS Access**

HSCODE	ORIGIN	IMPORTS	COLLECTED_TARIFF	STATUTORY_TARIFF	EXCISE	VAT
702000	GBR	1258	30142.5	377.4	0	22361.7
702000	zzz	6624	158715.3	1987.2	0	117746.0
940350	BLR	2311	346.8	346.6	0	506.3
940350	CHN	1031251	154785.5	154687.6	0	225935.9
151219	IRN	205320	12259.1	30798.0	0	43804.3
151219	zzz	13035	778.2	1955.2	0	2780.9
151219	RUS	670210	40016.7	100531.5	0	142987.2
151219	ARE	587	35.0	88.0	0	125.2
151219	TUR	349595	20873.5	52439.2	0	74585.0
151219	UKR	190088	11349.7	28513.2	0	40554.6
151529	ARG	13375	1654.8	2006.2	0	2828.1

<sup>18</sup> See <http://www.trademap.org/>

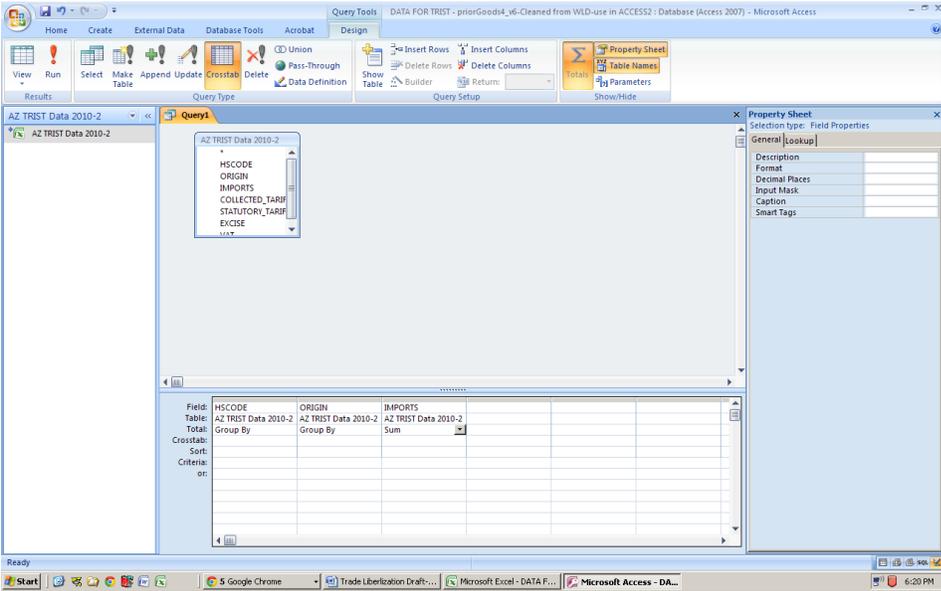
HSCODE	ORIGIN	IMPORTS	COLLECTED_TARIFF	STATUTORY_TARIFF	EXCISE	VAT
151529	zzz	13863	1715.2	2079.4	0	2931.3

NOTE: In the above table, unknown origins are coded by 'zzz.'

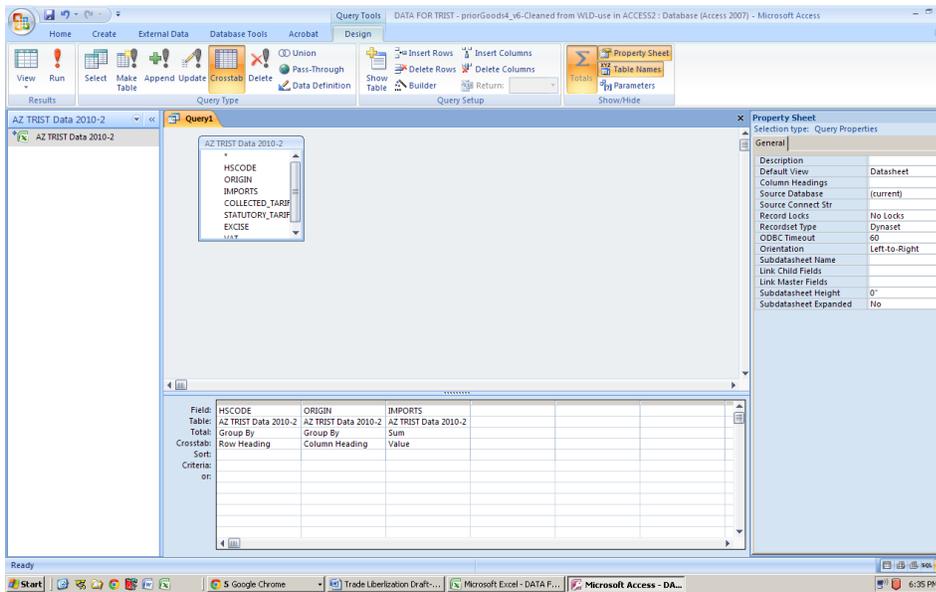
Importation of the data to MS Access can be accomplished by launching MS Access and opening the relevant worksheet from the Excel spreadsheet.

After launching MS Access and opening the Excel worksheet, we follow the following process:

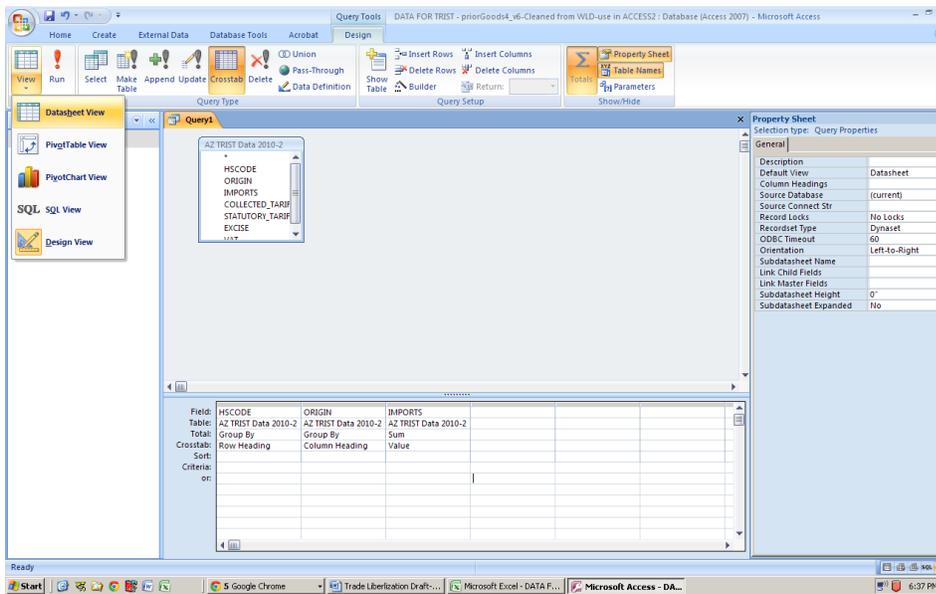
- a) In the 'Create' pane, click on 'Query Design' and 'Add' a query; and click on the 'Close.'
- b) Then, put the cursor in the area to the right of the 'Query,' and right-click. This will provide a menu, where, the 'Crosstab Query' from the 'Query Type' can be selected.
- c) In the small table towards the bottom of screen, by clicking in the right-hand-side of the 'Field,' we select HSCODE as the Field. In the second column of the same small table we select ORIGIN as the 'Field,' and in the third column, IMPORTS should be selected as the 'Field.' Under the IMPORTS select 'SUM' (see the PrintScreen below).



For 'Crosstab,' which is in the fourth row, select 'Row Heading' for HSCODE and ORIGIN, and 'VALUE' for IMPORTS. See below:



Now, we use 'VIEW' (on top left corner) to select 'DataSheet View.'



This shows the table for IMPORTS that we have created.

HSCODE	ARE	ARG	AUT	BEL	BLR	BRA	CHN	CZE	DEU
20713							171500		
80222									
151219	587								
151529		13375							
151620	351								
170199	721								461
200980	1438		3073						14289
281820							2719		
290512									596
390110	148500		260802	368109					3917
391190									47116
520100									
702000			143				3219		48
940350					2311		1031251	1360	

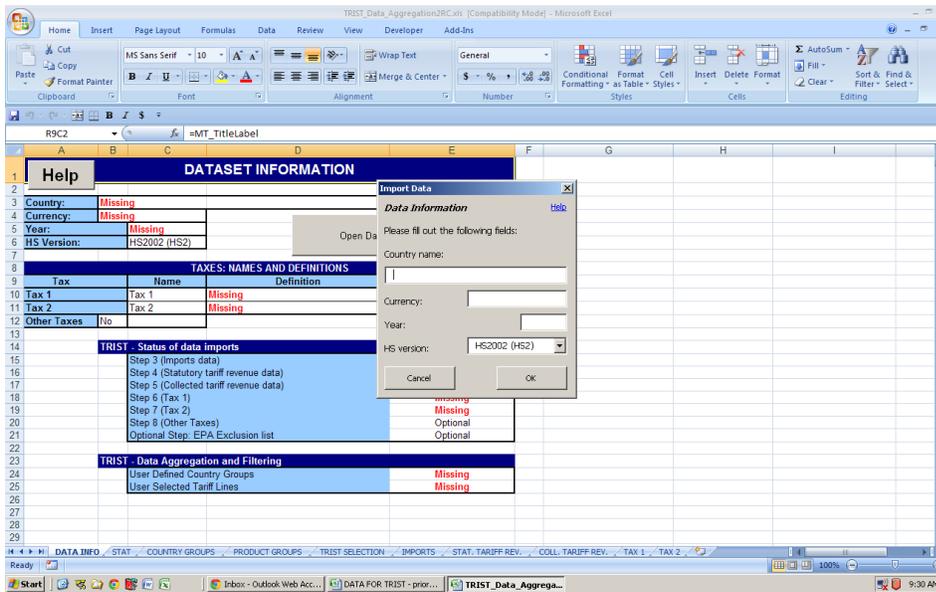
Copy and Paste this in an Excel worksheet for importing to TRIST. Follow the steps below for properly reshaping the copied data:

- It is important to 'delete' the extra 'blank' row that appears under the abbreviated name of countries (see above screenshot, which shows the second row to be blank).
- Add the leading zeros that might be missing from HS Codes. Each HS Code needs to have 6 digits. If it is reported by 5 digits, then add one zero to its right-hand-side (e.g., 20713 should be entered as 207130).
- Sort the data from small to large by HSCODE.

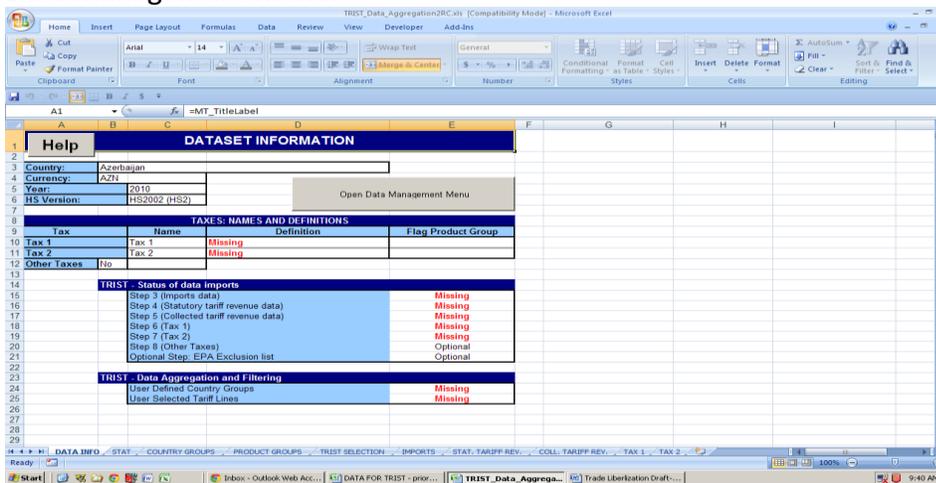
We will repeat the above procedure for other four variables, i.e., COLLECTED\_TARIFF, STATUTORY\_TARIFF, EXCISE, and VAT.

### *Importing Data to TRIST: DATA AGGREGATION TOOL*

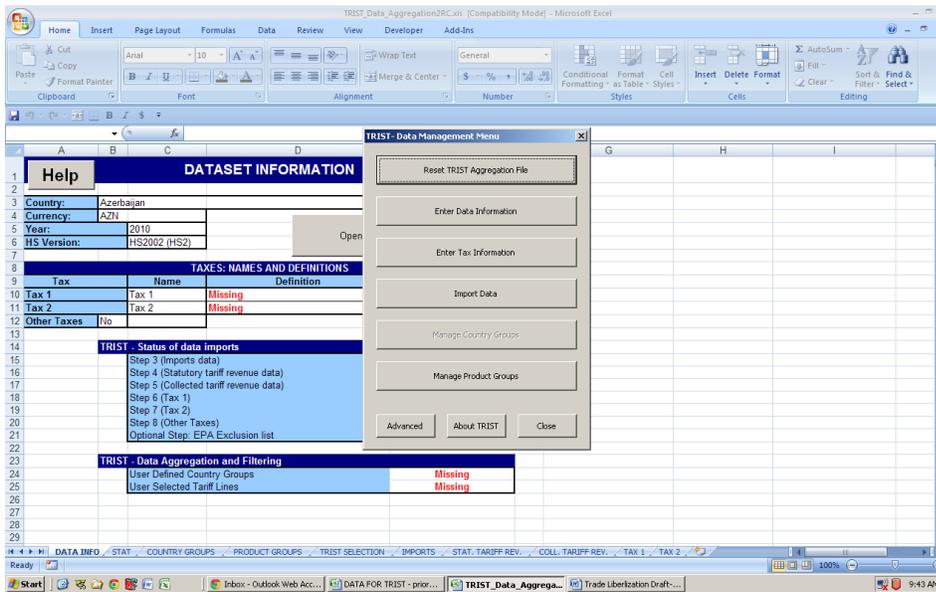
Importing data to TRIST requires the use of 'data aggregation tool,' which is an integral part of TRIST suite for trade reform analysis. The following screenshot (PrintScreen) clearly shows that this tool guides the researcher for inputting the required data. The requested information on the 'Country name,' 'Currency,' and 'Year' will be filled with Azerbaijan, AZN, and 2010, in our case. A drop-down menu allows for appropriate choices of HS version (HS Code) as well.



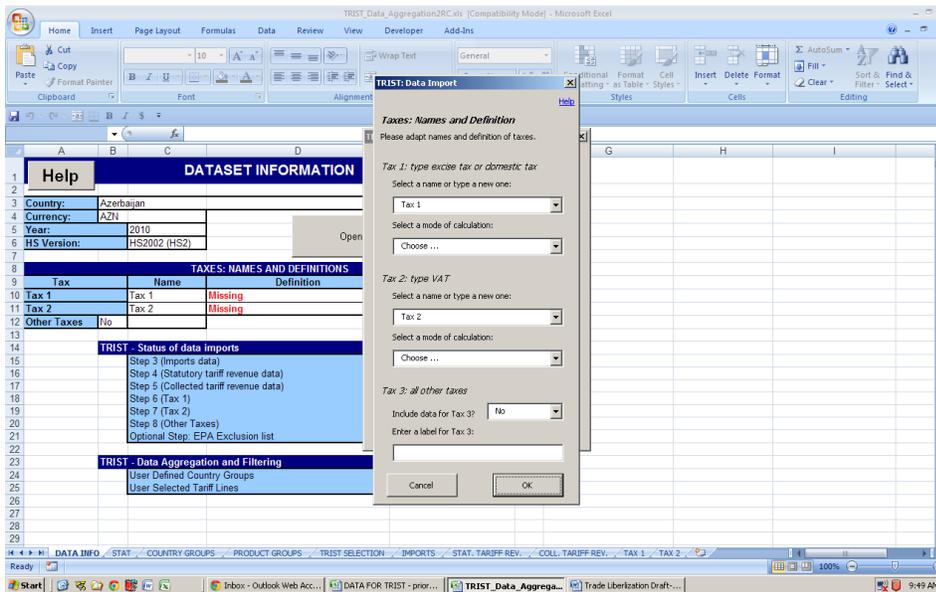
After inputting the required data, clicking on the 'OK' button leads to the next screen, which shows the included data, while allowing for inclusion of more data by clicking on the 'Open Data Management Menu.'



Clicking on the 'Open Data Management Menu,' provides us with the 'TRIST - Data Management Menu' shown below.



From the 'TRIST - Data Management Menu,' we select 'Enter Tax Information.'



From dropdown menu:

For 'Tax 1,' we select:

“Excise duty”

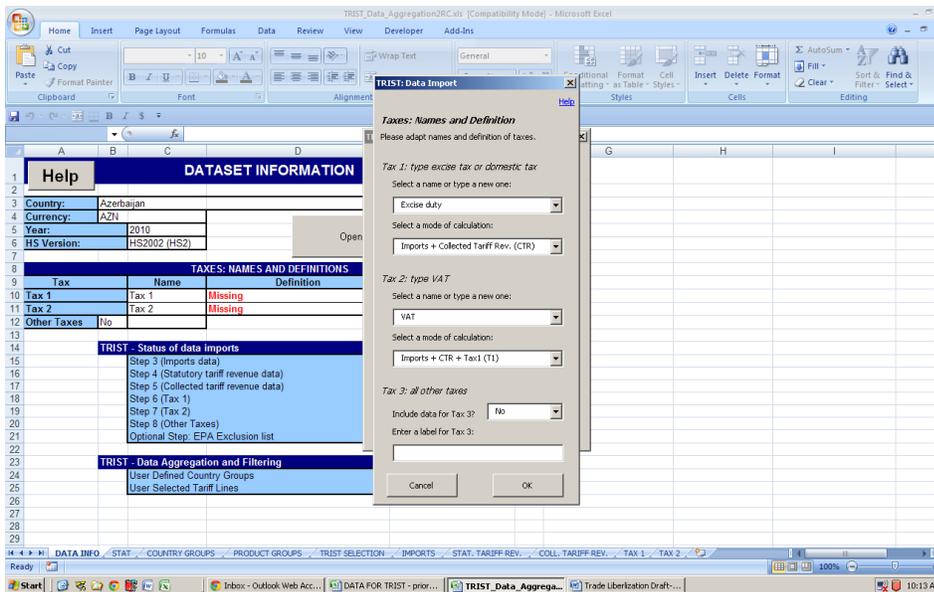
For 'Select a mode of calculation' of 'Tax 1,' we select:  
"Imports + Collected Tariff Rev. (CTR)"

For 'Tax 2,' we select:  
"VAT"

For 'Select a mode of calculation' of 'Tax 1,' we select:  
"Imports + CTR + Tax1 (T1)"

For 'Tax 3,' we select:  
"No"

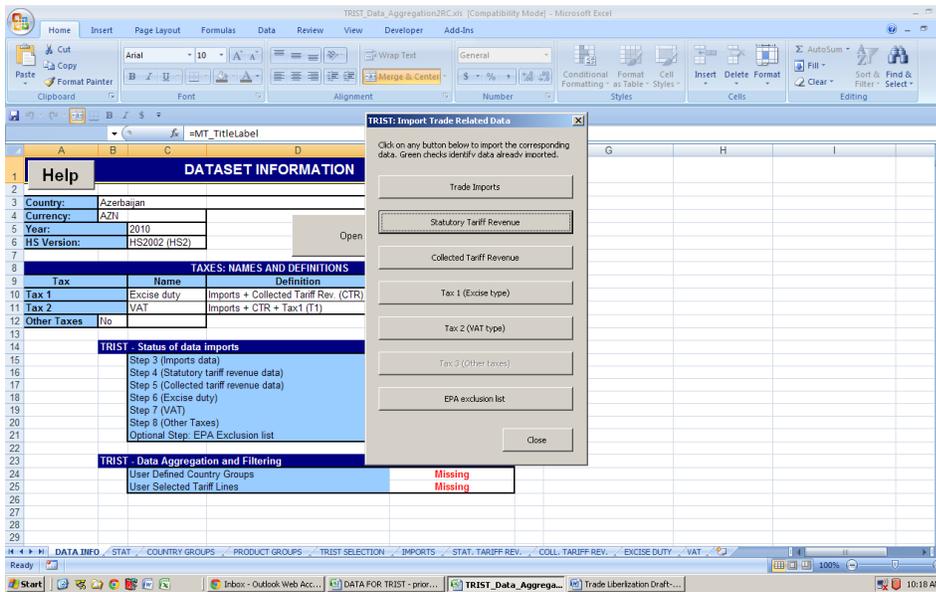
Following Screenshot shows our selections:



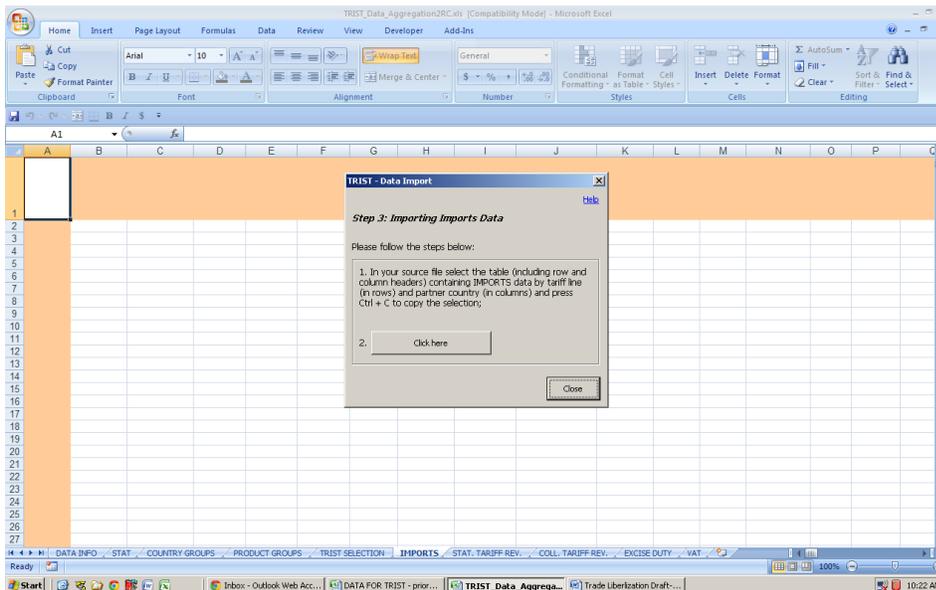
Clicking 'OK' incorporates the tax information in the 'Dataset Information' and takes us back to the 'TIRST - Data Management Menu.'

Now we can import our five datasets that we created using Microsoft Access and copied to five the Microsoft Excel worksheets.

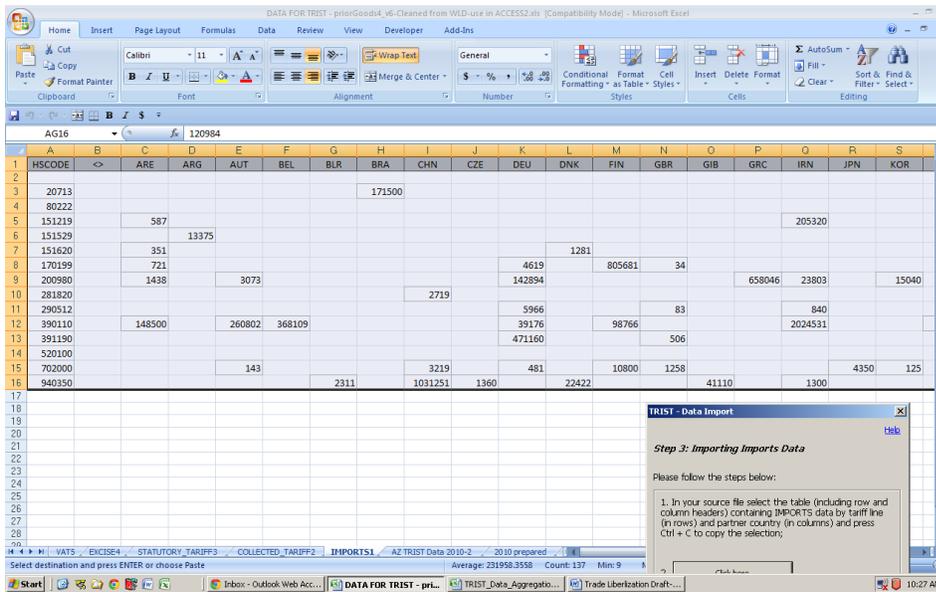
On the 'TIRST - Data Management Menu,' we click 'Import Data'. The following screenshot shows that, this action provides with 'TRIST: Import Trade Related Data.'



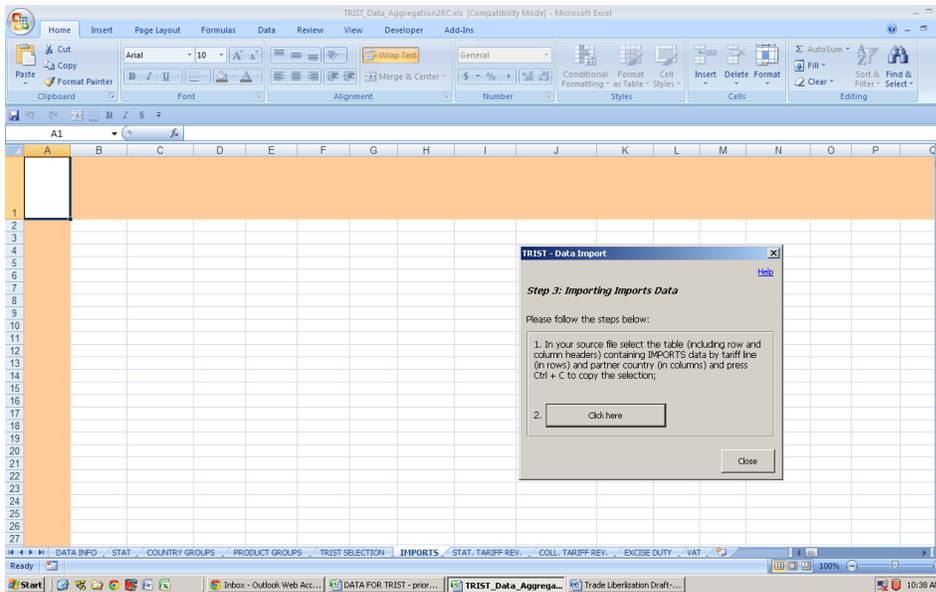
We select 'Trade Imports' button. This provides us with "Step 3: Importing Imports Data," which is shown in the following screenshot.



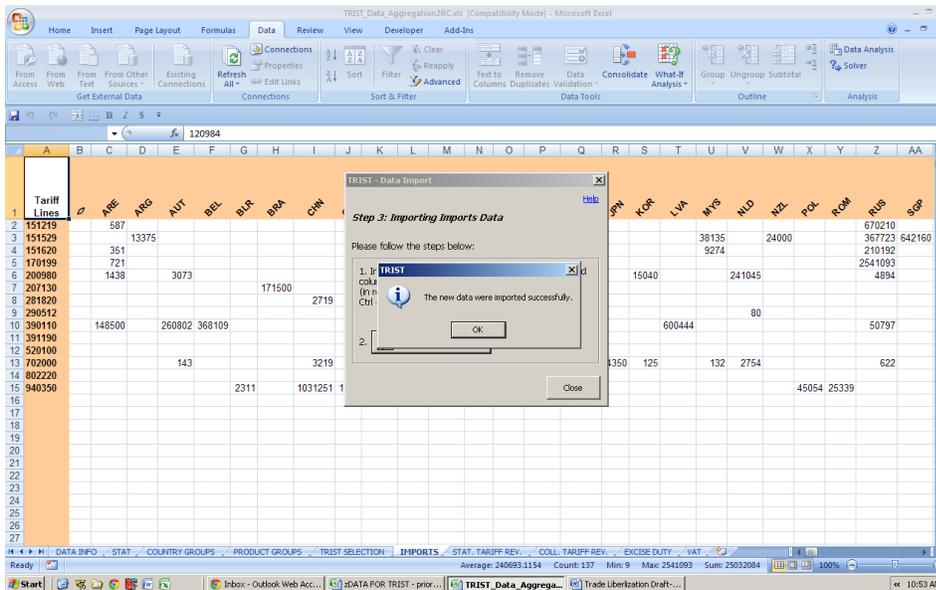
In Excel, we copy the data on imports from the worksheet that contains this (in the above screenshot, this called Imports1). In following screenshot, we show that copying the imports data with all headers (abbreviated names for trading partners) and HS Codes is accomplished by 'Control+C.'



In TRIST's 'data aggregation tool,' we click on "Click here." See below:



If the data is successfully imported, then TRIST will acknowledge it. Otherwise, TRIST identifies the problem and recommend the required steps needed for correcting the format of the data.



‘OK,’ and close the ‘Step 3: Importing Imports Data’ by clicking ‘Close’.

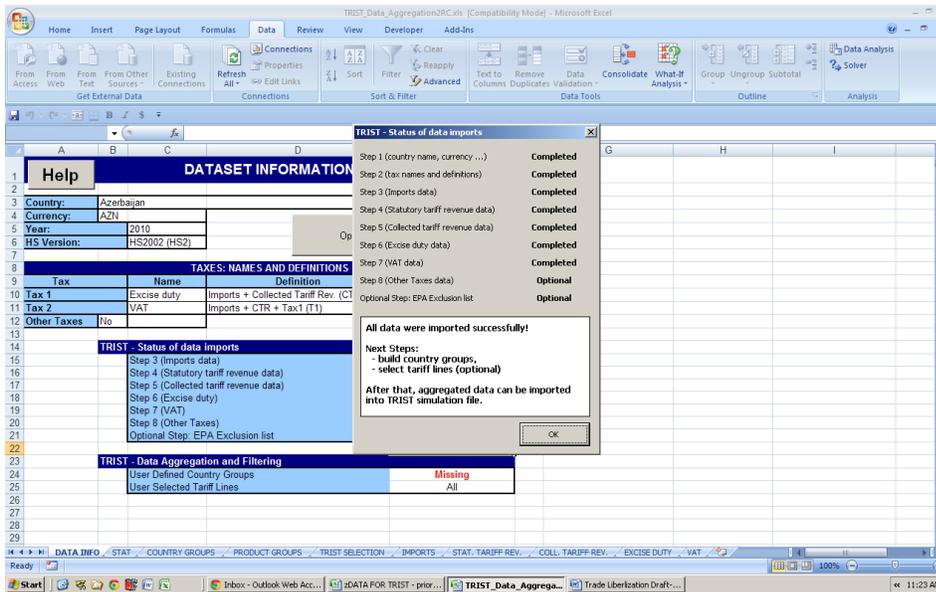
Next, we repeat the same procedure for importing:

- “Statutory Tariff Revenue,”
- “Collected Tariff Revenue,”
- Tax1 (Excise type)
- Tax 2 (VAT type)

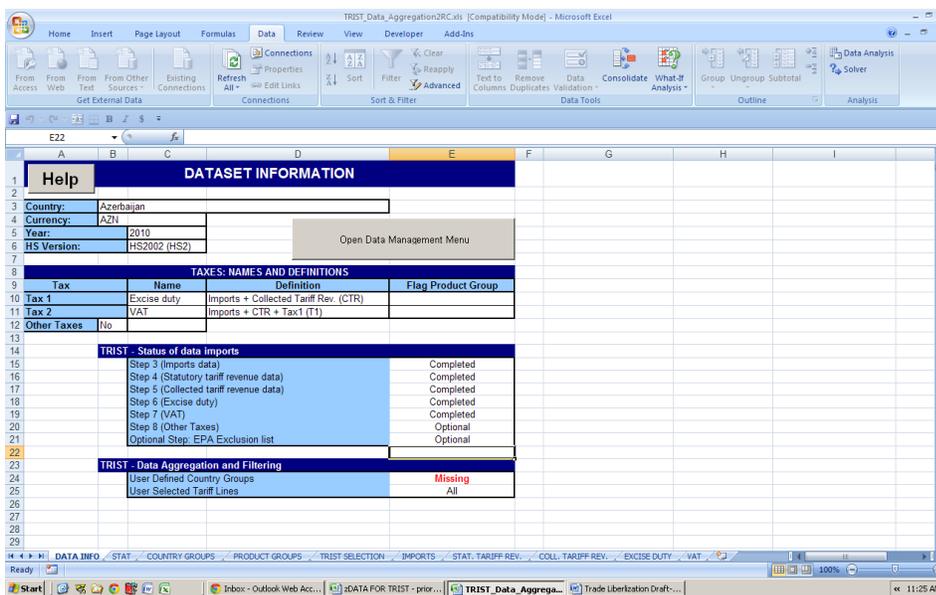
Successful importation of the data to TRIST is indicated by the green check marks.

Note: Economic Partnership Agreement (“EPA Exclusion List”) is used for a scenario that may exclude a list of products. Clicking on this button allows including the list of HS codes you wish to exclude.

Clicking on ‘Close’ takes us back to ‘TRIST Data Management Menu,’ where, clicking on ‘Close,’ will show ‘TRIST – status of data imports,’ which indicates our completed data import tasks.



Clicking on 'OK,' shows the 'DATASET INFORMATION' screen.



The 'STAT' worksheet provides information on the imported data.

	Statutory tariff	Collected tariff	Excise duty	VAT	Other Taxes
8 Total Value	2,028,935	2,725,938	0	4,802,563	
9 Share Of Total	36.2%	36.2%	0.0%	63.8%	
10 Simple Average	14.2%	378.8%	0.0%	33.5%	
11 Weighted Average	10.3%	13.9%	0.0%	21.4%	

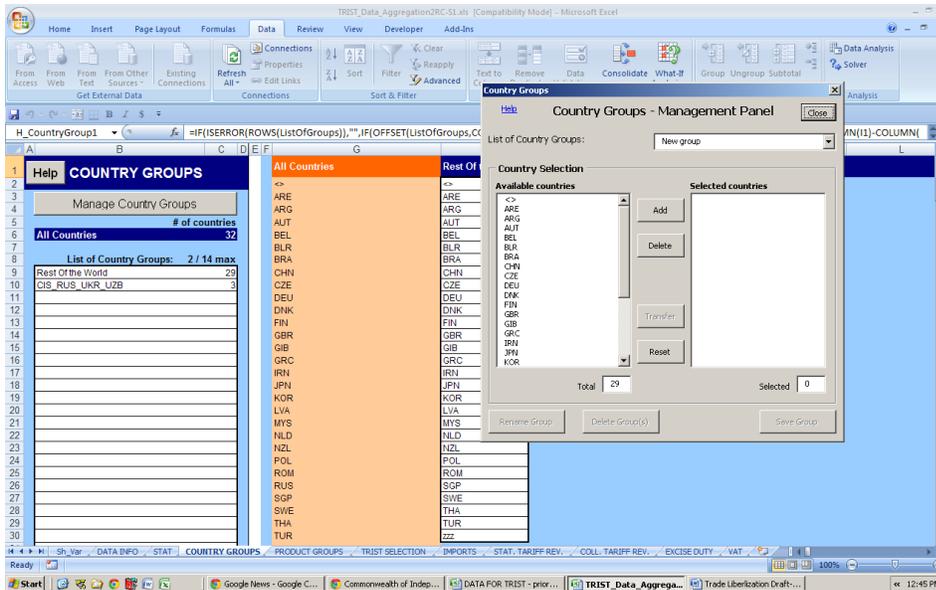
Top 10 Import Partners	Import Value	Share of Total Imports
14 TUR	4,922,625	25.0%
15 RUS	3,845,531	19.5%
16 IRN	2,255,794	11.5%
17 zzz	2,153,699	10.9%
18 CHN	1,037,189	5.3%
19 FIN	915,247	4.7%
20 DEU	664,296	3.4%
21 GRC	658,046	3.3%
22 SGP	642,160	3.3%
23 LVA	600,444	3.1%

TRIST allows for defining groups of countries that we may be subject to certain trade policies (than others). This is may be done in the worksheet with the name of 'COUNTRY GROUPS'.

Country	Group
ARE	All Countries
ARG	All Countries
AUT	All Countries
BEL	All Countries
BLR	All Countries
BRA	All Countries
CHN	All Countries
CZE	All Countries
DEU	All Countries
DNK	All Countries
FIN	All Countries
GBR	All Countries
GIB	All Countries
GRC	All Countries
IRN	All Countries
JPN	All Countries
KOR	All Countries
LVA	All Countries
MYS	All Countries
NLD	All Countries
NZL	All Countries
POL	All Countries
ROM	All Countries
RUS	All Countries
SGP	All Countries
SWE	All Countries
THA	All Countries
TUR	All Countries
Rest of the World	Rest of the World

Example: Grouping the trading partners for the 'Priority Goods' in the CIS into one group:

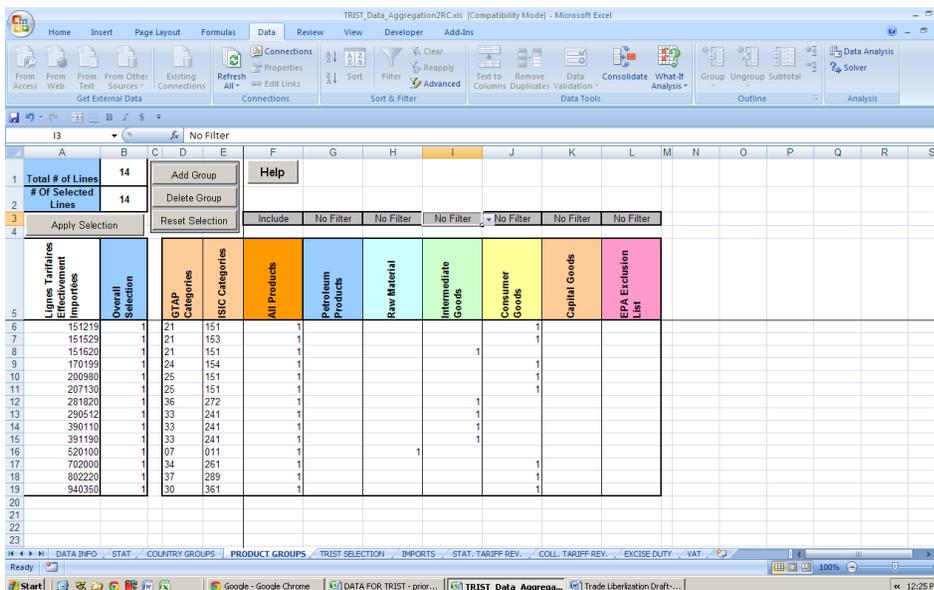
By clicking on 'Manage Country Groups,' and using the 'Country Groups Management Panel,' we include the CIS trading partners for the Priority Goods into a group that we name: CIS\_RUS\_UKE\_UZB. For this, we use 'Add' and 'Save Group' buttons in the 'Country Groups Management Panel.' TRIST also allows for naming the groups of trading partners and providing a description for them as well. Naturally, TRIST includes the remaining trading partners for the Priority Goods in the 'Rest of the World' group. Clicking on 'Close' leads to closing the 'Country Groups Management Panel.'



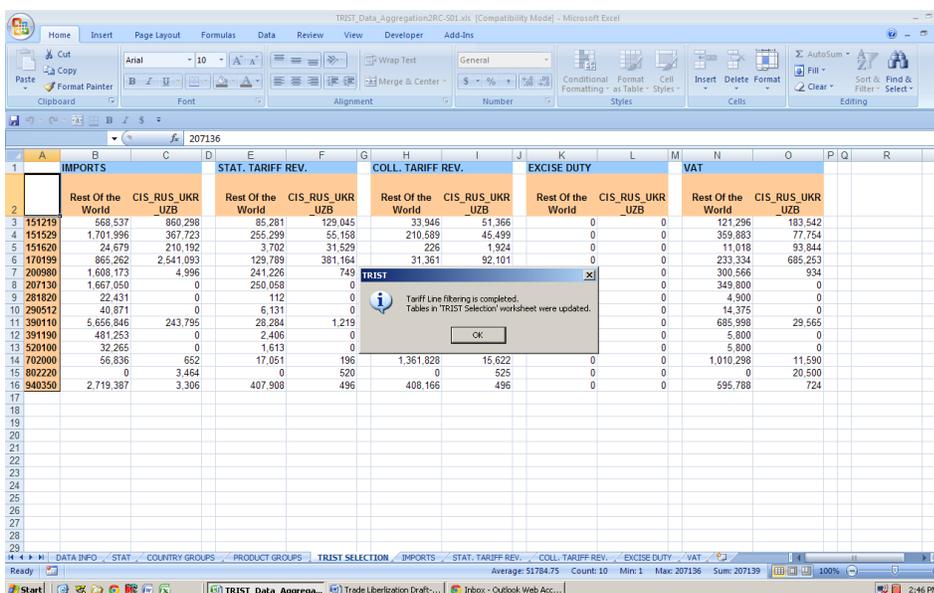
After the country grouping, TRIST re-groups the data (see below).

	IMPORTS		STAT. TARIFF REV.		COLL. TARIFF REV.		EXCISE DUTY		VAT	
	Rest Of the World	CIS_RUS_UKR_UZB								
3 151219	568,537	860,298	85,281	129,845	33,346	51,366	0	0	121,296	183,542
4 151529	1,701,996	387,723	295,299	55,158	210,589	45,499	0	0	359,883	77,754
5 151620	24,679	210,192	3,702	31,529	226	1,924	0	0	11,018	93,844
6 170199	865,262	2,541,093	129,789	381,164	31,361	92,101	0	0	233,334	685,253
7 200980	1,608,173	4,996	241,226	749	201,175	625	0	0	300,566	934
8 207130	1,667,050	0	250,058	0	247,950	0	0	0	349,800	0
9 281820	22,431	0	112	0	113	0	0	0	4,900	0
10 290512	40,871	0	6,131	0	2,138	0	0	0	14,375	0
11 390110	5,656,846	243,795	28,284	1,219	17,136	739	0	0	685,998	29,565
12 391190	481,253	0	2,406	0	2,413	0	0	0	5,800	0
13 520100	32,365	0	1,613	0	0	0	0	0	5,800	0
14 702000	56,836	652	17,051	196	1,361,828	16,622	0	0	1,010,298	11,590
15 802220	0	3,464	0	520	0	525	0	0	0	20,500
16 940350	2,719,387	3,306	407,908	496	408,166	496	0	0	595,788	724

By default TRIST includes all products in the simulation. But, TRIST allows for defining groups of products (of all potential products imported) that we would like to include in the TRIST simulation. This may be done in the worksheet with the name of 'PRODUCT GROUPS.'

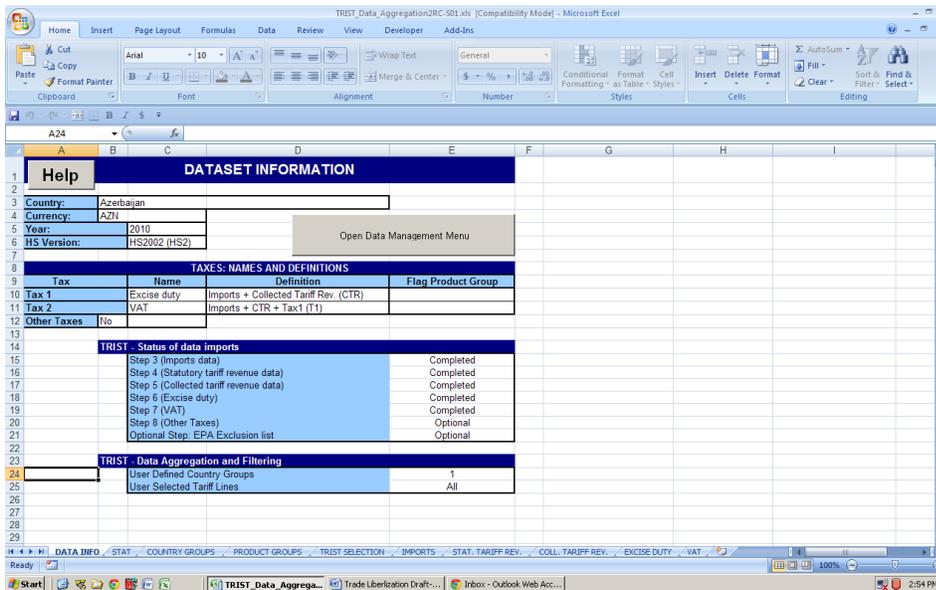


After the needed selections, clicking on 'Apply Selection' leads to updating the tables (TRIST SELECTION worksheet) and an indication that the process of 'Tariff Line Filtering is completed.'



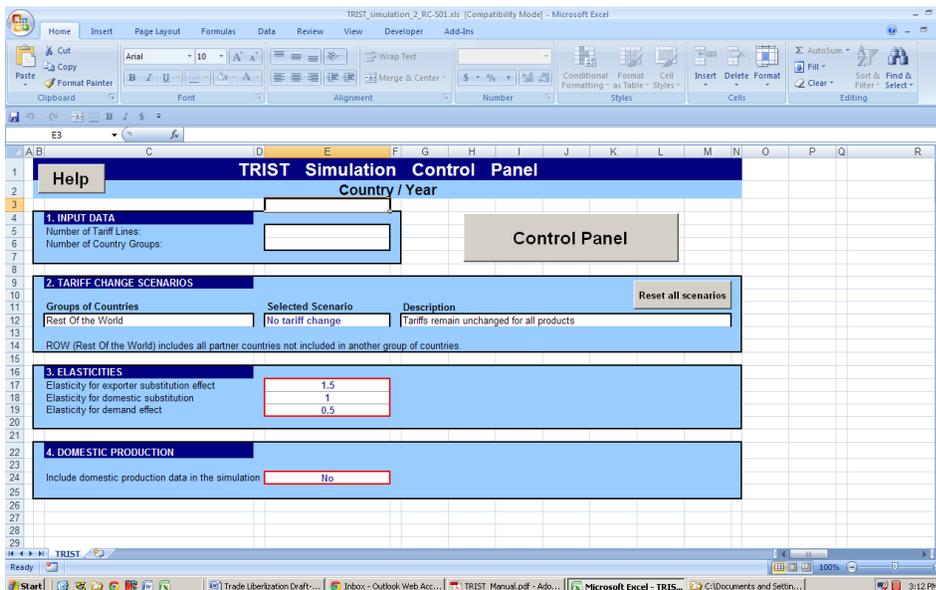
The worksheet entitled, 'TRIST SELECTION,' shows the underlying trade data at the aggregated level (e.g., by each of the country groups).

Given that, the above step was the last step in importing data, the worksheet entitled, 'DATA INFO,' is fully and properly completed; this is indicated by the screenshot below.

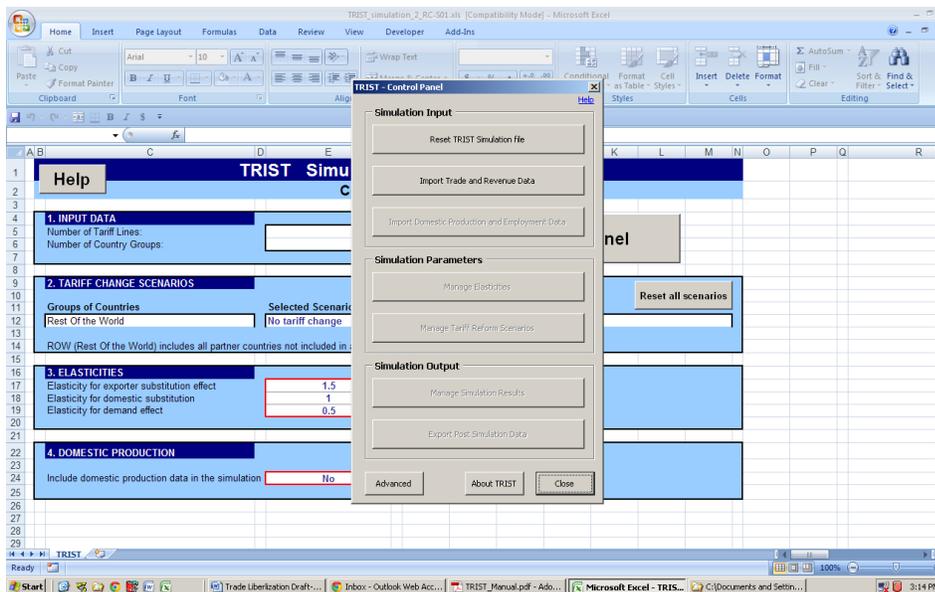


## Loading Data to Simulation Tool: TRIST SIMULATION TOOL

For making simulation in TRIST, the data prepared by the 'TRIST Data Aggregation Tool,' must be loaded to the 'TRIST Simulation Tool Template.' Opening 'TRIST Simulation Tool Template' provides us with the 'TRIST Simulation Group Control Panel.'



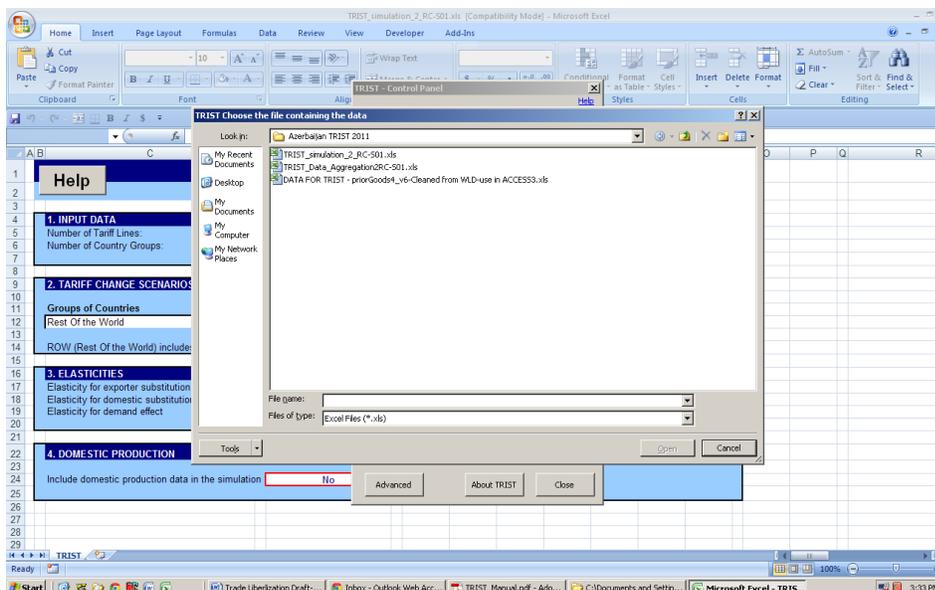
Clicking on the 'Control Panel' yields:



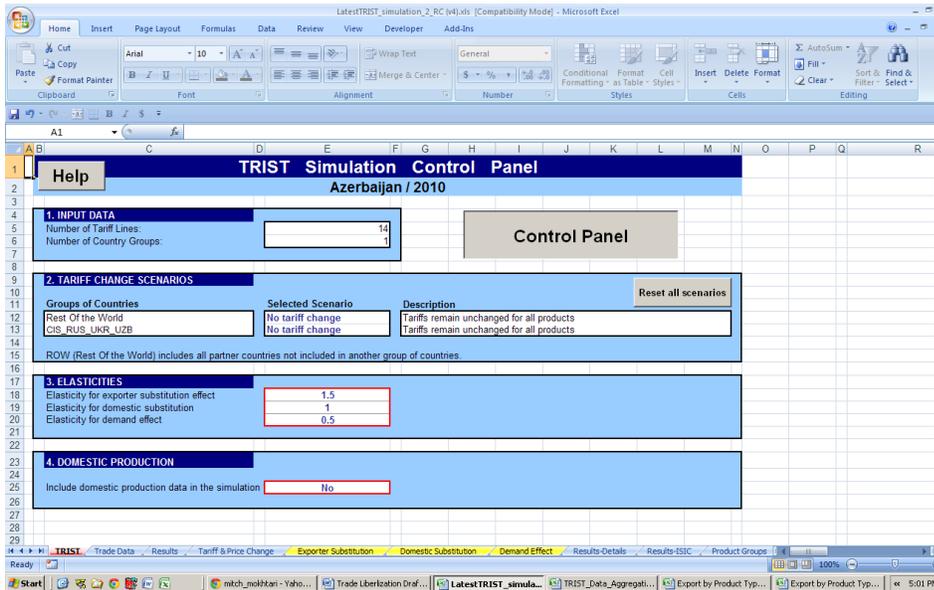
The menu provided in the 'TRIST-Control Panel' allows for:

- 1) Importing (uploading) the data prepared by the 'TRIST Aggregation Tool,' and
- 2) To customize TRIST for considering various scenarios.

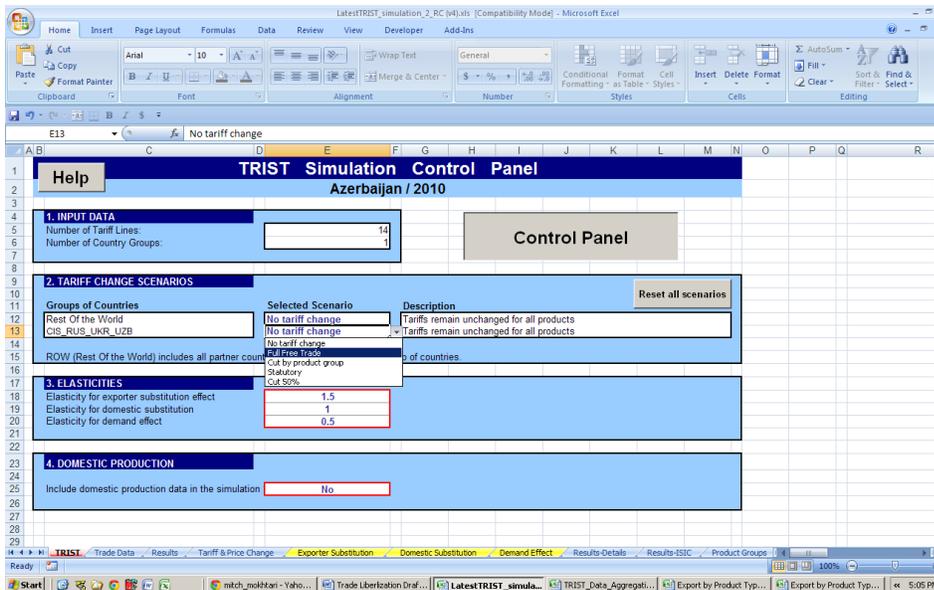
For uploading the data from the 'TRIST Aggregation Tool,' click on 'Import Trade and Revenue Data,' and 'OK' the process (click on OK on the pop-up window.) Then, select the TRIST Aggregation Tool.'



This process uploads the prepared data and information from the 'TRIST Aggregation Tool' to the 'TRIST Simulation Tool. See below:



On the TRIST Simulation Control Panel, the sub-panel entitled, '2. TARIFF CHANGE SCENARIO' allows for 'Selection Scenario' through a dropdown menu. See below:



The sub-panel entitled '3. ELASTICITIES' reflect the elasticities for the 'exporter substitution effect,' domestic substitution' and 'demand effect.' These elasticities could be changed using the 'Control Panel,' if better estimates for Azerbaijan become available.

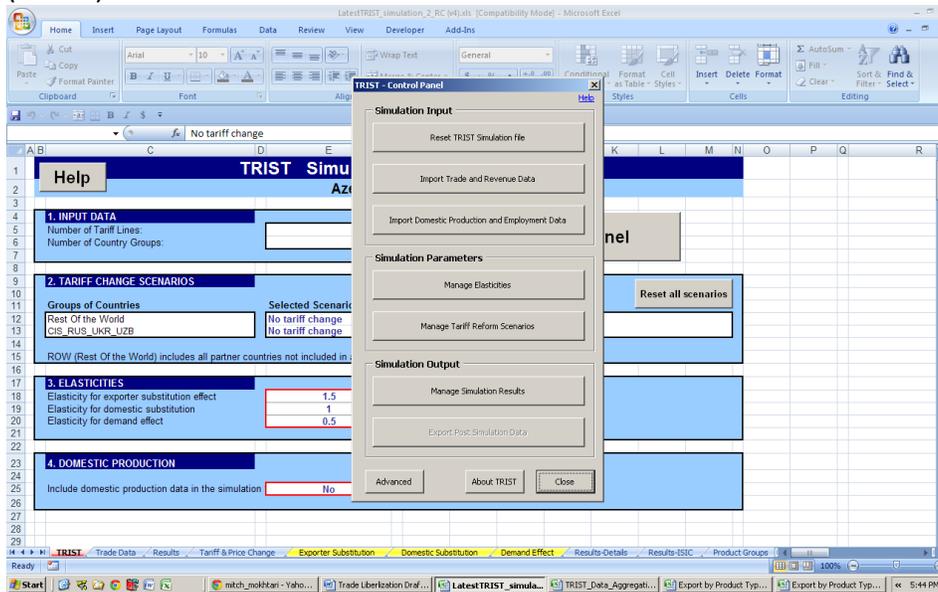
In the bottom of the above screenshot, one can see that there are 10 worksheets:

1) **TRIST** (where the Control Panel is located).

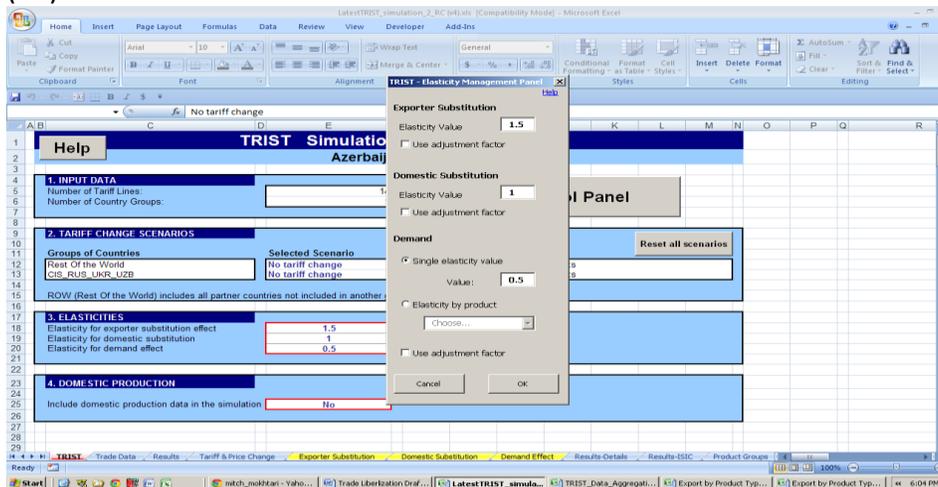
Clicking on the 'Control Panel' leads to 'TRIST-Control Panel,' which provides the possibility of changing key inputs for simulation; i.e.,

- A) Simulation Input, which allows for:
  - A1-Reset TRIST Simulation File that leads to reloading data and parameters
  - A2-Import Trade and Revenue Data
  - A3-Import Domestic Production and Employment Data
- B) Simulation Parameters, which allow for
  - B1-Managing Elasticities by inputting alternative estimates (if available)
  - B2-Managing Tariff Reform Scenarios
- C) Manage Simulation Results that allow for saving the results.

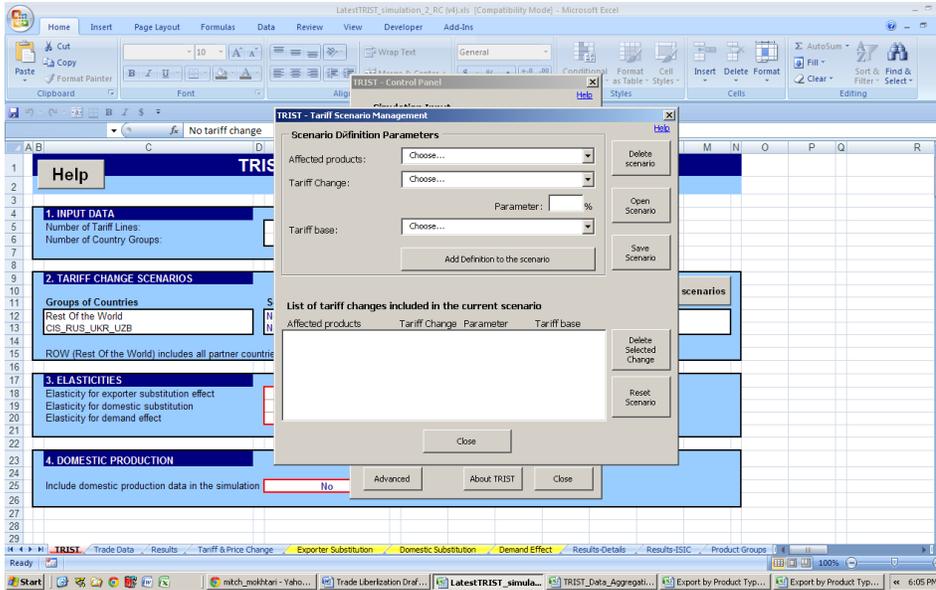
(A1-A3)



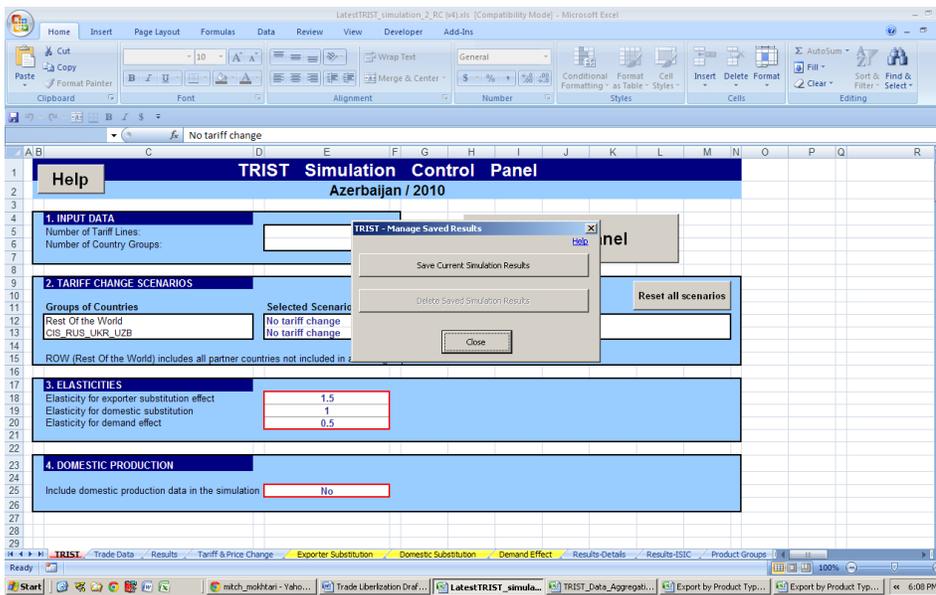
(B1)



(B2)



(C)



## 2) Trade Data (where the data from TRIST Aggregation Tool is stored)

	IMPORTS			STAT. TARIFF REV.		COLL. TARIFF REV.		EXCISE DUTY		VAT		Adjustment factor for exporter substitution		Adjustment factor for domestic substitution	
	Rest Of the VICIS	RUS	UKR	Rest Of the VICIS	UKR	Rest Of the VICIS	UKR	Rest Of the VICIS	UKR	Rest Of the VICIS	RUS	UKR	Rest Of the VICIS	RUS	UKR
3	151219	568,537	860,298	85,281	129,045	33,946	51,366	0	0	121,296	183,542	1	1	1	
4	151529	1,701,996	367,723	255,299	55,158	210,589	45,499	0	0	359,883	77,754	1	1	1	
5	151620	24,679	210,192	3,702	31,529	226	1,924	0	0	11,018	93,844	1	1	1	
6	170199	865,262	2,541,093	129,789	381,164	31,361	92,101	0	0	233,334	685,253	1	1	1	
7	200980	1,608,173	4,996	241,226	749	201,175	625	0	0	300,566	934	1	1	1	
8	207130	1,667,050	0	250,858	0	247,950	0	0	0	349,800	0	1	1	1	
9	281820	22,431	0	112	0	113	0	0	0	4,900	0	1	1	1	
10	290512	40,871	0	6,131	0	2,138	0	0	0	14,375	0	1	1	1	
11	390110	5,666,846	243,795	28,284	1,219	17,136	739	0	0	685,998	29,565	1	1	1	
12	391190	481,253	0	2,406	0	2,413	0	0	0	5,800	0	1	1	1	
13	520100	32,265	0	1,513	0	0	0	0	0	5,800	0	1	1	1	
14	702000	56,636	652	17,051	196	1,361,828	15,622	0	0	1,010,298	11,590	1	1	1	
15	802220	0	3,464	0	520	0	525	0	0	0	20,500	1	1	1	
16	940350	2,719,387	3,306	407,908	496	408,166	496	0	0	595,788	724	1	1	1	

## 3) Results (where results of the latest scenario could be found)

Category	Item	Value
Impact on imports:	Imports pre	19,681,105
	Imports post	19,681,105
	Change in imports	0
	% change in imports	0.0%
Impact on revenue:	Tariff revenue pre	2,725,938
	Tariff revenue post	2,725,938
	Change in tariff revenue	0
	% change in tariff revenue	0.0%
Total Tax Revenues on Imports	Total revenue pre	7,528,500
	Total revenue post	7,528,500
	Change in Total revenue	0
	% change in Total revenue	0.0%
Total Tax Revenues on Imports and Domestic Production	Total tax revenue pre	7,528,500
	Total tax revenue post	7,528,500
	Change in total tax revenue	0
	% change in total tax revenue	0.0%
Collected Tariff rate:	Collected applied tariff rate pre	13.9%
	Collected applied tariff rate post	13.9%

4) **Tariff & Price Change** (where price changes due to changes in tariff and/or taxes are computed and stored)

	Pre Statutory Tariff		Post Statutory Tariff		Pre Collected Tariff		Post Collected Tariff		Pre Excise duty		Post Excise duty		Pre VAT
	Rest Of the W/CIS	RUS	Ukr	Rest Of the W/CIS	RUS	Ukr	Rest Of the W/CIS	RUS	Ukr	Rest Of the W/CIS	RUS	Ukr	Rest Of the W/CIS
151219	15.0%	15.0%	15.0%	15.0%	6.0%	6.0%	6.0%	6.0%	0.0%	0.0%	0.0%	0.0%	20.1%
151529	15.0%	15.0%	15.0%	15.0%	12.4%	12.4%	12.4%	12.4%	0.0%	0.0%	0.0%	0.0%	18.8%
151620	15.0%	15.0%	15.0%	15.0%	0.9%	0.9%	0.9%	0.9%	0.0%	0.0%	0.0%	0.0%	44.2%
170199	15.0%	15.0%	15.0%	15.0%	3.6%	3.6%	3.6%	3.6%	0.0%	0.0%	0.0%	0.0%	26.0%
200980	15.0%	15.0%	15.0%	15.0%	12.5%	12.5%	12.5%	12.5%	0.0%	0.0%	0.0%	0.0%	16.6%
207130	15.0%	15.0%	15.0%	15.0%	14.9%	14.9%	14.9%	14.9%	0.0%	0.0%	0.0%	0.0%	18.3%
281820	0.5%		0.5%		0.5%		0.5%		0.0%		0.0%		21.7%
290512	15.0%		15.0%		5.2%		5.2%		0.0%		0.0%		33.4%
390110	0.5%	0.5%	0.5%	0.5%	0.3%	0.3%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	12.1%
391190	0.5%		0.5%		0.5%		0.5%		0.0%		0.0%		1.2%
520100	5.0%		5.0%		0.0%		0.0%		0.0%		0.0%		18.0%
702000	30.0%	30.0%	30.0%	30.0%	2396.1%	2396.1%	2396.1%	2396.1%	0.0%	0.0%	0.0%	0.0%	71.2%
802220	15.0%		15.0%		15.2%		15.2%		0.0%		0.0%		0.0%
940350	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	0.0%	0.0%	0.0%	0.0%	19.0%

5) **Exporter Substitution** (see below, which provides computation for)

$$q_{ij}^{*ESE} = \left[ 1 + \sigma_j^{ESE} \frac{\Delta p_{ij}}{p_{ij}^{old}} \right] q_{ij}^{*old} \left\{ \frac{\sum_n q_{ij}^{*old}}{\sum_n q_{ij}^{*old} \left[ 1 + \sigma_j^{ESE} \frac{\Delta p_{ij}}{p_{ij}^{old}} \right]} \right\}$$

Where:

\* : in the superscript indicates an import related variable

Old : in the superscript indicates values related to before reform (before tariff liberalization)

$q_{ij}^{*ESE}$  : imports of  $i$  from  $j$  after exporter substitution step

$q_{ij}^{*old}$  : imports of  $i$  from  $j$  before tariff liberalization

$\sigma_j^{ESE}$  : exporter substitution elasticity for imports from  $j$

## 6) Domestic Substitution (see below, which provides computation for)

$$Q_{i,import}^{DS,new} = \left[ 1 + \sigma^{ESDI} \frac{\Delta \bar{P}_{import}}{\bar{P}_{import}^{old}} \right] Q_{i,import}^{old}$$

Where:

**New:** in the superscript indicates values related to after reform (after trade liberalization)

$Q_{i,import}^{old}$  : the initial total imports of  $i$

$Q_{i,import}^{DS,new}$  : total imports of  $i$  after substitution with domestic output

$\sigma^{ESDI}$  : elasticity of substitution between imports and domestic production

$\frac{\Delta \bar{P}_{import}}{\bar{P}_{import}^{old}} = \sum_n \left[ \frac{q_{ij}^{old}}{\sum_n (q_{ij}^{old})} \frac{\Delta p_{ij}}{p_{ij}^{old}} \right]$  : percentage change in the aggregate price of imports

And, quantity imported from supplier  $j$  after substitution between imports and domestic output,  $q_j^{DS}$ , is obtained by:

$$q_{j,import}^{DS,new} = q_{j,import}^{ES} + \left( Q_{i,import}^{DS,new} - Q_{i,import}^{old} \right) \left[ \frac{q_{ij}^{old}}{\sum_n q_{ij}^{old}} \right]$$

Where:

$Q_{i,import}^{old} = \sum_m \sum_n q_{ij,import}^{old}$  : is the initial aggregate import (before tariff liberalization)

$Q_{i,import}^{DS,new}$  : imports after substitution with domestic output

$q_{ij,import}^{DS,new}$  : imports from supplier j after substitution between imports and domestic output

## 7) Demand Effect, which provides computation for

$$Q_{i,TD}^{new} = Q_{i,TD}^{old} \left[ 1 + \eta^D \frac{\Delta \tilde{P}}{\tilde{P}^{old}} \right]$$

$$Q_{i,import}^{new} = Q_{i,import}^{DS} + [Q_{i,TD}^{new} - Q_{i,TD}^{old}] \left[ \frac{Q_{i,import}^{old}}{Q_{i,import}^{old} + Q_{i,Domestic}^{old}} \right]$$

$$q_{ij,import}^{new} = q_{ij,import}^{DS} + [Q_{i,import}^{new} - Q_{i,import}^{DS}] \left[ \frac{q_{ij,import}^{old}}{\sum_n q_{ij,import}^{old}} \right]$$

Where:

$\sim$  : indicating a post-reform (after tariff liberalization) value

$\eta^D$  : the price elasticity of demand for  $i$

$Q_{i,TD}^{old} = \sum_m \sum_n q_{ij}$  : Initial demand for domestic output

$Q_{i,TD}^{old}$  : the initial (before reform) total demand for  $i$

$Q_{i,TD}^{new}$  : total demand after the change in the overall price of  $i$

$Q_{i,Domestic}^{old}$  : the initial (before reform) quantity of demand for domestic output

$Q_d^n$  - is the final demand for domestic output

$Q_{i,import}^{new}$  : the final demand for imports of  $i$

$q_{ij,import}^{new}$  : the quantity imported from  $j$  after all 3 effects have taken place

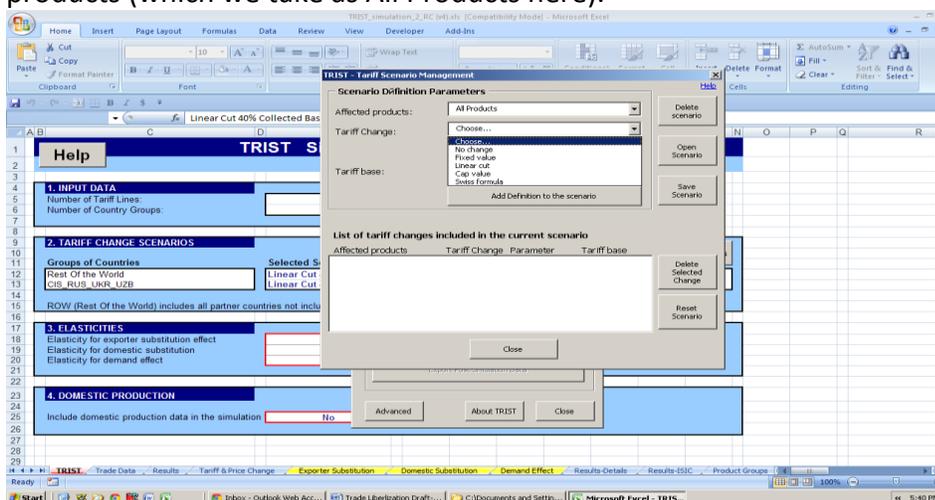
$$\frac{\Delta \tilde{P}}{\tilde{P}^{old}} = \frac{\Delta \bar{P}}{\bar{P}^{old}} \left[ \frac{Q_{import}^{old}}{Q_{import}^{old} + Q_{domestic}^{old}} \right] : \text{the percentage change in aggregate price of imports}$$

	PRICE CHANGE	Rest Of the V CIS_RUS_UK	Domestic Production
3	151219	0.0%	568,537 860,298
4	151529	0.0%	1,701,996 367,723
5	151620	0.0%	24,679 210,192
6	170199	0.0%	865,262 2,541,093
7	200980	0.0%	1,608,173 4,996
8	207130	0.0%	1,867,050 0
9	281820	0.0%	22,431 0
10	290512	0.0%	40,871 0
11	390110	0.0%	5,656,846 243,795
12	391190	0.0%	481,253 0
13	520100	0.0%	32,265 0
14	702000	0.0%	56,836 652
15	802220	0.0%	0 3,464
16	940350	0.0%	2,719,387 3,306

- 8) Results-Details (product level results)
- 9) Results-ISIC (industry level results)
- 10) Product Groups (product groups)

### Defining Scenarios in TRIST

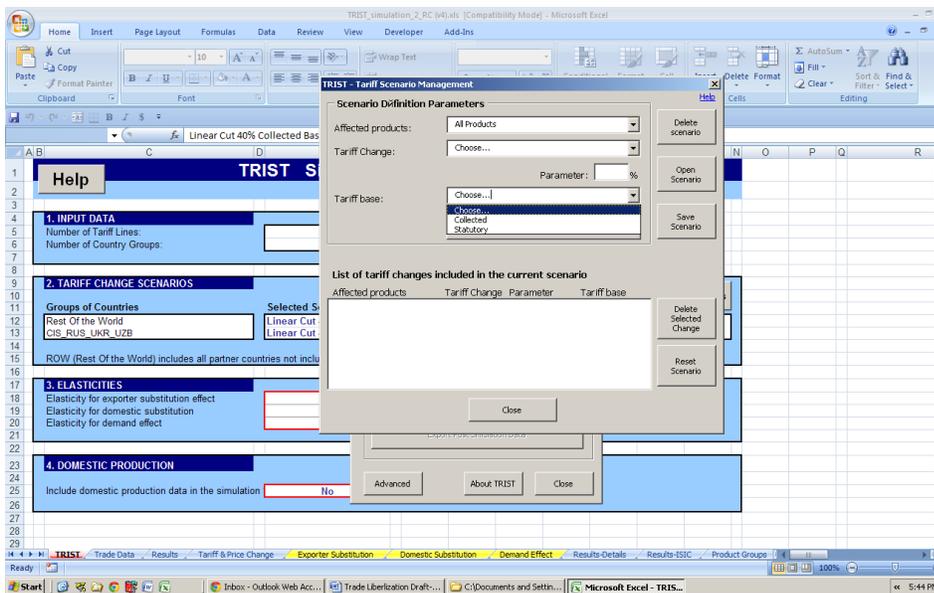
Clicking on the 'Manage Tariff Scenarios' allows for defining a range of scenarios for affected products (which we take as All Products here).



The drop-down menu (above) for 'Tariff Change' allows:

- A) No Change
- B) Fixed Value  
Fixed value could be set to any desirable tariff rate (including zero tariff rate).
- C) Linear Cut  
Linear Cut allows for reducing all tariff rates by a specific percentage point. For example, a parameter set at 20, implies reduction of all tariffs by 20%.
- D) Cap Value  
This allows for setting the top tariff rate. For example, including a parameter of 14 allows for all tariff rates to be capped at 14%
- E) Swiss Formula  
The Swiss Formula that was introduced by the Swiss Delegation in the Doha Round allows for setting a New Tariff Rate based on the following formula:  
New Tariff Rate =  $(A)(\text{Old Tariff Rate}) / (A + \text{Old Tariff Rate})$   
where, A is a coefficient that allows the reduction in tariff rate to take place. For example, if A is 10% and the Old Tariff Rate is 20%, then the New Tariff Rate will be 6.66%. The higher the Old Tariff Rate, the closer the New Tariff Rate will be to A. Similarly, the smaller is Old Tariff Rate, the closer the New Tariff Rate will be to the Old Tariff Rate.

Note that, selecting 'Collected' as 'Tariff Base' is important for real assessment for the potential impact of a trade reform. Alternatively, 'Statutory' base can be selected.



Overall, for properly developing a basic TRIST model extensive customs data is needed. Assuming the availability of such data, a TRIST model provides an excellent vehicle for the applied trade policy analysis.

## APPENDIX A

**Table 24: Fourteen Priority Goods and Customs Data for 2010**

CODE		<i>Thousand Manats</i>					<i>Thousand Dollars</i>	
		Customs Clearance (A)	Import Duty (B)	VAT (C)	Excise (D)	Total by Code (A+B+C+D)	Export	Import
207136000	Chicken and chicken additives shown in 0105 goods positions, fresh, cooled or frozen:-- carcasses and meat additives:--- -- ham and their parts	33.6	198.4	279.8	-	511.8	-	1,646.4
702000000	Tomato juice, new or cooled	114.3	1,102.0	817.5	-	2,033.8	17,986.5	4,130.1
802220000	-- hazel-nut (Corylus spp.):-- shelled	87.8	0.4	16.4	-	104.6	35,172.2	3.5

		<i>Thousand Manats</i>					<i>Thousand Dollars</i>	
1512199000	– sunflower or safflower oil and their fractions: processed – – – for technical or industrial application, apart from production of products suitable as food	140.8	68.3	243.9	-	452.9	44,567.0	1,428.8
1515299000	– sunflower oil and its fractions: processed – – – for technical or industrial application, production of products suitable as food	80.0	204.9	350.1	-	635.0	21,946.3	2,069.7
1516209800	– plant origin greases and oils and their fractions: – – – – – others	284.4	1.7	83.9	-	370.0	87,563.2	226.1
1701991000	White sugar	1,294.5	98.8	734.9	-	2,128.2	145,934.4	3,352.3

		<i>Thousand Manats</i>					<i>Thousand Dollars</i>	
2009809900	Fruit juices	101.4	161.4	241.2	-	504.1	13,164.1	1,347.0
2818200000	- aluminum oxide, apart from artificial corundum	3.7	0.1	3.9	-	7.7	668.2	22.4
2905120000	-- propane-1-ol (propyl spirit) and propane-2-ol (isopropyl spirit)	51.1	1.7	11.5	-	64.3	14,189.0	40.9
3901109000	Ethylene polymers, in initial forms:- polyethylene with special weigh less than 0,94:- - others apart from line polyethylene	306.6	14.3	572.5	-	893.4	49,165.0	5,518.7
5201009000	Cotton fiber, cardo or not combed- others apart from hygroscopic or bleached	25.8	-	4.6	-	30.4	5,086.2	-

		<i>Thousand Manats</i>					<i>Thousand Dollars</i>	
9403500000	– wood bedroom furniture	129.4	326.9	477.2	-	933.5	1,758.4	2,722.7
3911 90	Polysulfide, polysulfone and other products contained in remark 3 to this group and not mentioned or classified elsewhere, in its initial form	9.7	1.9	71.6	-	83.2	9,954.5	481.3

## APPENDIX B

ISO3	Country Code	Country Name
ABW	533	Aruba
AFG	004	Afghanistan
AGO	024	Angola
AIA	660	Anguila
ALB	008	Albania
ALI	248	Åland Islands
AND	020	Andorra
ANT	530	Netherlands Antilles
ARE	784	United Arab Emirates
ARG	032	Argentina
ARM	051	Armenia
ASM	016	American Samoa
ATA	010	Antarctica
ATF	260	Fr. So. Ant. Tr
ATG	028	Antigua and Barbuda
AUS	036	Australia
AUT	040	Austria
AZE	031	Azerbaijan
BAT	080	Br. Antr. Terr
BDI	108	Burundi
BEL	056	Belgium
BEN	204	Benin
BFA	854	Burkina Faso
BGD	050	Bangladesh
BGR	100	Bulgaria
BHR	048	Bahrain
BHS	044	Bahamas, The
BIH	070	Bosnia and Herzegovina
BLR	112	Belarus
BLX	058	Belgium-Luxembourg
BLZ	084	Belize
BMU	060	Bermuda
BOL	068	Bolivia
BRA	076	Brazil
BRB	052	Barbados
BRN	096	Brunei

<b>ISO3</b>	<b>Country Code</b>	<b>Country Name</b>
BTN	064	Bhutan
BUN	837	Bunkers
BVT	074	Bouvet Island
BWA	072	Botswana
CAF	140	Central African Republic
CAN	124	Canada
CCK	166	Cocos (Keeling) Islands
CHE	756	Switzerland
CHL	152	Chile
CHN	156	China
CIV	384	Cote d'Ivoire
CMR	120	Cameroon
COG	178	Congo, Rep.
COK	184	Cook Islands
COL	170	Colombia
COM	174	Comoros
CPV	132	Cape Verde
CRI	188	Costa Rica
CSK	200	Czechoslovakia
CUB	192	Cuba
CXR	162	Christmas Island
CYM	136	Cayman Islands
CYP	196	Cyprus
CZE	203	Czech Republic
DDR	278	German Democratic Republic
DEU	276	Germany
DJI	262	Djibouti
DMA	212	Dominica
DNK	208	Denmark
DOM	214	Dominican Republic
DZA	012	Algeria
ECU	218	Ecuador
EGY	818	Egypt, Arab Rep.
ERI	232	Eritrea
ESH	732	Western Sahara
ESP	724	Spain
EST	233	Estonia
ETF	230	Ethiopia(includes Eritrea)
ETH	231	Ethiopia(excludes Eritrea)

<b>ISO3</b>	<b>Country Code</b>	<b>Country Name</b>
EUN	918	European Union
FIN	246	Finland
FJI	242	Fiji
FLK	238	Falkland Island
FRA	250	France
FRE	838	Free Zones
FRO	234	Faeroe Islands
FSM	583	Micronesia, Fed. Sts.
GAB	266	Gabon
GAZ	274	Gaza Strip
GBR	826	United Kingdom
GEO	268	Georgia
GHA	288	Ghana
GIB	292	Gibraltar
GIN	324	Guinea
GLP	312	Guadeloupe
GMB	270	Gambia, The
GNB	624	Guinea-Bissau
GNQ	226	Equatorial Guinea
GRC	300	Greece
GRD	308	Grenada
GRL	304	Greenland
GTM	320	Guatemala
GUF	254	French Guiana
GUM	316	Guam
GUY	328	Guyana
HKG	344	Hong Kong, China
HMD	334	Heard Island and McDonald Isla
HND	340	Honduras
HRV	191	Croatia
HTI	332	Haiti
HUN	348	Hungary
IDN	360	Indonesia
IND	356	India
IOT	086	British Indian Ocean Ter.
IRL	372	Ireland
IRN	364	Iran, Islamic Rep.
IRQ	368	Iraq

<b>ISO3</b>	<b>Country Code</b>	<b>Country Name</b>
ISL	352	Iceland
ISR	376	Israel
ITA	380	Italy
JAM	388	Jamaica
JOR	400	Jordan
JPN	392	Japan
JTN	396	Jhonston Island
KAZ	398	Kazakhstan
KEN	404	Kenya
KGZ	417	Kyrgyz Republic
KHM	116	Cambodia
KIR	296	Kiribati
KN1	658	Saint Kitts-Nevis-Anguilla-Aru
KNA	659	St. Kitts and Nevis
KOR	410	Korea, Rep.
KSV	412	Kosovo
KWT	414	Kuwait
LAO	418	Lao PDR
LBN	422	Lebanon
LBR	430	Liberia
LBY	434	Libya
LCA	662	St. Lucia
LIE	438	Liechtenstein
LKA	144	Sri Lanka
LSO	426	Lesotho
LTU	440	Lithuania
LUX	442	Luxembourg
LVA	428	Latvia
MAC	446	Macao
MAR	504	Morocco
MCO	492	Monaco
MDA	498	Moldova
MDG	450	Madagascar
MDV	462	Maldives
MEX	484	Mexico
MHL	584	Marshall Islands
MID	488	Midway Islands
MKD	807	Macedonia, FYR
MLI	466	Mali

<b>ISO3</b>	<b>Country Code</b>	<b>Country Name</b>
MLT	470	Malta
MMR	104	Myanmar
MNG	496	Mongolia
MNP	580	Northern Mariana Islands
MNT	499	Montenegro
MOZ	508	Mozambique
MRT	478	Mauritania
MSR	500	Montserrat
MTQ	474	Martinique
MUS	480	Mauritius
MWI	454	Malawi
MYS	458	Malaysia
MYT	175	Mayotte
NAM	516	Namibia
NCL	540	New Caledonia
NER	562	Niger
NFK	574	Norfolk Island
NGA	566	Nigeria
NIC	558	Nicaragua
NIU	570	Niue
NLD	528	Netherlands
NOR	578	Norway
NPL	524	Nepal
NRU	520	Nauru
NZE	536	Neutral Zone
NZL	554	New Zealand
OMN	512	Oman
PAK	586	Pakistan
PAN	591	Panama
PCE	582	Pacific Islands
PCN	612	Pitcairn
PCZ	592	Fm Panama Cz
PER	604	Peru
PHL	608	Philippines
PLW	585	Palau
PMY	459	Pen Malaysia
PNG	598	Papua New Guinea
POL	616	Poland
PRI	630	Puerto Rico

<b>ISO3</b>	<b>Country Code</b>	<b>Country Name</b>
PRK	408	Korea, Dem. Rep.
PRT	620	Portugal
PRY	600	Paraguay
PSE	275	Occ.Pal.Terr
PYF	258	French Polynesia
QAT	634	Qatar
REU	638	Reunion
ROM	642	Romania
RUS	643	Russian Federation
RWA	646	Rwanda
RYU	647	Ryukyu Is
SAU	682	Saudi Arabia
SBH	461	Sabah
SDN	736	Sudan
SEN	686	Senegal
SER	891	Yugoslavia
SGP	702	Singapore
SGS	239	South Georgia and the South Sa
SHN	654	Saint Helena
SIK	698	SIKKIM
SJM	744	Svalbard and Jan Mayen Is
SLB	090	Solomon Islands
SLE	694	Sierra Leone
SLV	222	El Salvador
SMR	674	San Marino
SOM	706	Somalia
SPE	839	Special Categories
SPM	666	Saint Pierre and Miquelon
STP	678	Sao Tome and Principe
SUR	740	Suriname
SVK	703	Slovak Republic
SVN	705	Slovenia
SVR	868	Fm Vietnam Rp
SVU	810	Soviet Union
SWE	752	Sweden
SWK	457	Sarawak
SWZ	748	Swaziland
SYC	690	Seychelles

<b>ISO3</b>	<b>Country Code</b>	<b>Country Name</b>
SYR	760	Syrian Arab Republic
TAN	835	Fm Tanganyik
TCA	796	Turks and Caicos Isl.
TCD	148	Chad
TGO	768	Togo
THA	764	Thailand
TJK	762	Tajikistan
TKL	772	Tokelau
TKM	795	Turkmenistan
TMP	626	East Timor
TON	776	Tonga
TTO	780	Trinidad and Tobago
TUN	788	Tunisia
TUR	792	Turkey
TUV	798	Tuvalu
TWN	158	Taiwan, China
TZA	834	Tanzania
UGA	800	Uganda
UKR	804	Ukraine
UMI	581	United States Minor Outlying I
UNS	898	Unspecified
URY	858	Uruguay
USA	840	United States
USP	849	Us Msc.Pac.I
UZB	860	Uzbekistan
VAT	336	Holy See
VCT	670	St. Vincent and the Grenadines
VDR	866	Fm Vietnam DR
VEN	862	Venezuela
VGB	092	British Virgin Islands
VIR	850	Virgin Islands (U.S.)
VNM	704	Vietnam
VUT	548	Vanuatu
WAK	872	Wake Island
WLD	000	World
WLF	876	Wallis and Futura Isl.
WSM	882	Samoa
YDR	720	Yemen Democratic

<b>ISO3</b>	<b>Country Code</b>	<b>Country Name</b>
YEM	887	Yemen
YUG	890	Yugoslavia, FR (Serbia/Montene
ZAF	710	South Africa
ZAR	180	Congo, Dem. Rep.
ZMB	894	Zambia
ZPM	836	Fm Zanz-Pemb
ZW1	717	Fm Rhod Nyas
ZWE	716	Zimbabwe

## APPENDIX C

### 2010-cu il ərzində bəzi malların YGB-lər üzrə məlumatı

Mal mövqeləri	Min manat						Min ABŞ dolları	
	Gömrük rəsmiləşdirilməsi	İdxal rüsumu	İxrac rüsumu	ƏDV	Aksiz	Kod üzrə cəmi	İxrac	İdxal
0702000000	114,29	1 101,96	0,00	817,51	0,00	2 033,77	17 986,49	4 130,11
9403500000	129,39	326,93	0,00	477,21	0,00	933,53	1 758,37	2 722,69
0207136000	33,60	198,36	0,00	279,84	0,00	511,80	0,00	1 646,40
3901109000	306,62	14,30	0,00	572,45	0,00	893,36	49 164,99	5 518,65
5201009000	25,80	0,00	0,00	4,64	0,00	30,44	5 086,18	0,00
2905120000	51,08	1,71	0,00	11,50	0,00	64,29	14 189,00	40,87
2009809900	101,44	161,44	0,00	241,20	0,00	504,08	13 164,11	1 347,03
1701991000	1 294,52	98,77	0,00	734,87	0,00	2 128,16	145 934,35	3 352,25
1516209800	284,35	1,72	0,00	83,89	0,00	369,96	87 563,18	226,13
1515299000	80,02	204,87	0,00	350,11	0,00	635,00	21 946,28	2 069,72
1512199000	140,79	68,25	0,00	243,87	0,00	452,91	44 567,00	1 428,83
0802220000	87,76	0,42	0,00	16,40	0,00	104,58	35 172,15	3,46
2818200000	3,65	0,09	0,00	3,92	0,00	7,66	668,18	22,43
391190	9,65	1,93	0,00	71,61	0,00	83,20	9 954,49	481,25
<b>YEKUN</b>	<b>2 662,96</b>	<b>2 180,76</b>	<b>0,00</b>	<b>3 909,02</b>	<b>0,00</b>	<b>8 752,74</b>	<b>447 154,77</b>	<b>22 989,83</b>

## APPENDIX D

### List of Agricultural and Non-Agricultural Goods (for Tariff Liberalization Impact Assessment)

<b>1</b>	0702 00 000 0	Tomato juice, new or cooled
<b>2</b>	9403 50 000 0	– wood bedroom furniture
<b>3</b>	0207 13 600 0	Chicken and chicken additives shown in 0105 goods positions, fresh, cooled or frozen:– – carcasses and meat additives:– – – – ham and their parts
<b>4</b>	3901109000	Ethylene polymers, in initial forms: – polyethylene with special weigh less than 0,94:– – others apart from line polyethylene
<b>5</b>	5201009000	Cotton fiber, cardo or not combed-others apart from hygroscopic or bleached
<b>6</b>	2905 12 000 0	– – propane-1-ol (propyl spirit) and propane-2-ol (isopropyl spirit)
<b>7</b>	2009 80 990 0	Fruit juices
<b>8</b>	1701 99 100 0	White sugar
<b>9</b>	1516 20 980 0	– plant origin greases and oils and their fractions:– – – – others
<b>10</b>	1515 29 900 0	– sunflower oil and its fractions: processed – – – for technical or industrial application, production of products suitable as food
<b>11</b>	1512199000	– sunflower or safflower oil and their fractions: processed – – – for technical or industrial application, apart from production of products suitable as food
<b>12</b>	802220000	– hazel-nut (Corylus spp.):– – shelled
<b>13</b>	2818 20 000 0	– aluminum oxide, apart from artificial corundum
<b>14</b>	3911 90	Polysulfide, polysulfone and other products contained in remark 3 to this group and not mentioned or classified elsewhere, in its initial form

## APPENDIX E

0702 00 000 0	Tomat, təzə və ya soyudulmuş
9403 50 000 0	– yataq tipli ağac mebellər
0207 13 600 0	0105 mal mövqeyində göstərilən ev quşlarının ət və ət əlavələri, təzə, soyudulmuş və ya dondurulmuş:– – cəmdək hissələri və ət əlavələri, təzə və ya soyudulmuş:– – – – budlar və onlardan parçalar
3901109000	Etilen polimerləri, ilkin formalarda: – xüsusi çəkisi 0,94-dən az olan polietilen:– – xətti polietilenə başqa digərləri
5201009000	Pambıq lifi, kardo və ya daraqla daranmaya məruz qalmamış– hiqroskopik və ya ağardılmışdan başqa digərləri
2905 12 000 0	– – propan-1-ol (propil spirti) və propan-2-ol (izopropil spirti)
2009 80 990 0	meyvə şirələri
1701 99 100 0	ağ şəkər
1516 20 980 0	– bitkidən hasil olan piylər və yağlar və onların fraksiyaları:– – – – digərləri
1515 29 900 0	– qarğıdalı yağı və onun fraksiyaları:emal olunmuş – – – texniki və ya sənaye tətbiqi üçün, qida üçün yararlı məhsulların istehsalı üçün
1512199000	– günəbaxan və ya saflor yağı və onların fraksiyaları:emal olunmuş – – – texniki və ya sənaye tətbiqi üçün, qida üçün yararlı məhsulların istehsalından başqa
802220000	– meşə fındığı (Corylus spp.):– – qabığı təmizlənmiş
2818 20 000 0	– alüminium oksidi, süni korunddan fərqli
3911 90	Polisulfidlər, polisulfonlar və bu qrupa 3-cü qeyddə göstərilən, ayrı yerdə adları çəkilməyən və ya təsnif olunmayan digər məhsullar, ilkin formalarda



## APPENDIX F

### Azerbaijan's Tariff Profile

		Tariffs and imports: Summary and duty ranges							
Summary		Year	Total	Ag	Non-Ag	Non-WTO member			
Simple average final bound						Binding c		Total	
Simple average MFN applied		2009	8.9	13.5	8.2			Non-Ag	
Trade weighted average		2008	5.7	6.7	5.5	Ag: Tariff quotas (in %)			
Imports in billion US\$		2008	7.1	1.1	6.0	Ag: Special safeguards (in %)			

		Frequency distribution								
Frequency distribution		Duty-free	0 <= 5	5 <= 10	10 <= 15	15 <= 25	25 <= 50	50 <= 100	> 100	NAV
		Tariff lines and import values (in %)								in %
Agricultural products										
Final bound										
MFN applied	2009	1.7	14.6	2.7	78.2	0.6	1.5	0.3	0.3	6.1
Imports	2008	33.6	28.1	0.7	35.3	0.9	1.2	0.0	0.2	19.7
Non-agricultural products										
Final bound										
MFN applied	2009	1.9	46.7	6.2	45.1	0	0.1	0.0	0.0	0.4
Imports	2008	9.8	57.0	9.9	23.3	0	0	0.0	0.0	4.9

### Tariffs and imports by product groups

Product groups	Final bound duties				MFN applied duties			Imports	
	AVG	Duty-free in %	Max	Binding in %	AVG	Duty-free in %	Max	Share in %	Duty-free in %
Animal products					14.2	0	15	0.4	0
Dairy products					15.0	0	15	0.3	0
Fruit, vegetables, plants					13.2	0.5	19	0.6	1.6
Coffee, tea					14.6	0	15	0.7	0
Cereals & preparations					12.2	10.3	15	7.4	71.8
Oilseeds, fats & oils					8.7	0	15	1.3	0
Sugars and confectionery					12.7	6.3	15	1.7	0
Beverages & tobacco					25.8	0	128	3.4	0
Cotton					13.0	0	15	0.0	0
Other agricultural products					11.9	0.9	15	0.1	35.2
Fish & fish products					11.2	0	15	0.2	0
Minerals & metals					8.5	0.1	15	16.9	0
Petroleum					10.7	20.0	15	1.4	0.1
Chemicals					4.5	3.3	15	7.8	19.5
Wood, paper, etc.					10.9	0	15	3.6	0
Textiles					12.1	0.2	221	1.0	0
Clothing					15.0	0	15	0.3	0
Leather, footwear, etc.					12.0	0	25	0.7	0
Non-electrical machinery					3.4	1.1	15	22.7	0.0
Electrical machinery					8.6	3.0	15	8.4	0
Transport equipment					3.8	11.4	15	16.9	38.6
Manufactures, n.e.s.					9.7	6.5	15	4.2	4.3

**Exports to major trading partners and duties faced**

Major markets		Bilateral imports		Diversification		MFN AVG of		Pref.	Duty-free imports	
			in million	95% trade in no. of		traded TL		margin	TL	Value
			US\$	HS 2-digit	HS 6-digit	Simple	Weighted	Weighted	in %	in %
Agricultural products										
1. Russian Federation		2008	198	7	19	15.4	12.9	12.9	100.0	100.0
2. Georgia		2008	45	16	24	7.2	8.0	8.0	100.0	100.0
3. European Union		2008	19	7	8	16.0	6.5	4.0	14.5	73.7
4. Ukraine		2008	14	7	15	45.9	29.9	29.9	100.0	100.0
5. United States		2008	4	3	3	3.8	6.6	0.0	23.1	40.3
Non-agricultural products										
1. European Union		2008	15,289	1	1	2.8	0.0	0.0	83.2	99.9
2. United States		2008	3,016	2	7	1.4	0.1	0.0	64.3	26.6
3. Canada		2008	1,096	1	1	6.9	0.0	0.0	47.0	100.0
4. Georgia		2008	563	14	24	0.2	0.1	0.1	100.0	100.0
5. Turkey		2008	423	6	9	2.9	3.3	2.5	75.8	79.5