

BORDER OPENING: DISTRIBUTIONAL CONSEQUENCES

OPENING ARMENIA'S BORDER: SECTORAL AND DISTRIBUTIONAL CONSEQUENCES

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Abstract: *When Turkey opens its borders with Armenia, it is expected that certain Armenian manufacturing sectors would be able to compete with the Turkish imports, while other sectors wouldn't. This paper tries to predict the performance of Armenian manufacturing sectors after the borders are open. It relies mainly on the concept of comparative advantage and uses four methods to determine the manufacturing sectors in Armenia that would benefit and the sectors that would lose when Turkey opens the borders. The four methods are: factor endowments, Revealed Comparative Advantage, productivity and wage ratios, and ranking of the top exports and imports of each country. From 2000 to 2006 productivity in Armenia increased faster than in Turkey. At the same time real wages in Armenia increased and the Armenian currency, AMD, appreciated significantly. The net effect of these changes was a reduction in the competitiveness of Armenian manufacturing goods. The paper briefly discusses the distributional effect of trade liberalization/open borders and argues that the increase of productivity is essential to improve the standard of living. In all manufacturing sectors productivity and wages in Armenia are much lower than in Turkey. In order to increase productivity it is critical for Armenia to improve its infrastructures, institutions and to reduce corruption.*

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Introduction

During early 1990s Turkey unilaterally closed the borders between Turkey and Armenia. It is expected that when Turkey opens the borders consumers in general and certain economic sectors in Armenia would benefit, while others would not be able to compete with the Turkish imports and would suffer. This paper will investigate which manufacturing sectors would gain and which sectors would lose when a free flow of goods begins between Turkey and Armenia. In order to find out the sectors that would benefit when the borders are opened, a major part of the paper will focus on the concept of comparative advantage. The expectation is that Armenian manufacturing sectors that have comparative advantage would benefit from the access to Turkish markets and expand, while sectors that do not have comparative advantage could lose.

This paper will use four methods to determine the manufacturing sectors in Armenia that would benefit and the sectors that would lose when Turkey opens the borders. The four methods are: factor endowments, Revealed Comparative Advantage, productivity and wage ratios, and ranking of the top exports and imports of each country. The paper focuses on the manufacturing sector because empirically it is relatively easier to implement some of the four methods that are discussed in the paper.

After Turkey lifts the blockade of Armenia, it could function as a transit country for Armenia's exports and imports with European Union, the United States and the rest of the world. This could happen if the cost of transportation of Armenian exports from Armenia to Western Europe is cheaper through Turkey than through Georgia. If the cost of transportation of export from Armenia to the rest of the world is cheaper through Turkey, then the lifting of the blockade would generate new opportunities for Armenia's exports to European countries and the rest of the world. This paper will not address the effect of open borders between Armenia and Turkey on Armenia's trade with the rest of the world. Instead it will focus on the trade between Armenia and Turkey.

Comparative advantage based on factor endowment

The first method is based on the Heckscher-Ohlin model, which states that a country would have comparative advantage and would export labor intensive goods if that country has a relatively large endowment of labor and would have comparative advantage in capital intensive goods and would export capital intensive goods if it has a relatively large endowment of capital. This section will try to find out whether Armenia has comparative advantage relative to Turkey in the production of labor intensive industries, high-tech industries, capital intensive industries or agricultural products. To apply the Heckscher-Ohlin model we will use Table 1, which provides economic, demographic and social indicators that could give information about the relative endowment of land, labor, highly skilled labor and capital of both Turkey and Armenia.

Table 1 indicates that in the case of agriculture from 2000 to 2003 Turkey had relatively more arable land per person than Armenia. During 2003 Turkey had 0.33 hectares per person, while Armenia had just 0.17 hectares per person. Also during 2003 in Turkey arable land represented 30.4 percent of the total land area, while in Armenia arable land represented just 17.7 percent of the total land area. This reflects the fact that Armenia is in general a mountainous country. These indicators imply that Turkey has

comparative advantage in the production of agricultural goods relative to Armenia. This result is consistent with the observation that during 2003 Turkey had more agricultural machinery per 100 hectare, 4.27 machines, than Armenia, 2.8 machines and that Turkey used more fertilizer per hectare than Armenia. During 2002 Turkey consumed 72.7 kilograms per hectare, while Armenia just 22.8 kilograms per hectare.

With respect to high tech industries, Table 1 indicates that Armenia has more researchers in research and development, R&D, 1615 per million people during 2002 than in Turkey, which had just 341 per million people. Also in 2002, Armenia had a higher number of technicians in research and development, 148 per million people, than Turkey, which had just 37 per million people. This could imply that Armenia has a relatively higher endowment of highly skilled labor force relative to Turkey; therefore it has comparative advantage in the production of high tech products relative to Turkey.

Table 1. Economic, Demographic and Social indicators of Turkey and Armenia

Country	Description	2000	2001	2002	2003	2004
TURKEY	Arable land (% of land area)	30.95773	30.92525	31.17602	30.34965	..
ARMENIA	Arable land (% of land area)	17.55319	17.55319	17.55319	17.7305	..
TUR	Arable land (hectares per person)	0.353397	0.347313	0.344613	0.330326	..
ARM	Arable land (hectares per person)	0.16061	0.161515	0.162298	0.164626	..
TUR	Arable land (hectares)	2.38E+07	2.38E+07	2.40E+07	2.34E+07	..
ARM	Arable land (hectares)	495000	495000	495000	500000	..
TUR	Agricultural machinery, tractors per 100 hectare	3.952971	3.984774	4.043023	4.270999	..
ARM	Agricultural machinery, tractors per 100 hectare	2.650909	2.871515	2.93697	2.8438	..
TUR	Fertilizer consumption (100 grams per hectare)	876.6944	701.9184	726.5037	..	..
ARM	Fertilizer consumption (100 grams per hectare)	141.4141	101.0101	227.9394	..	..
TUR	Energy use (kt of oil equivalent)	77506	71592	75582	78954	..
ARM	Energy use (kt of oil equivalent)	2072	2064	1927	2004	..
TUR	Labor force, total	2.36E+07	2.40E+07	2.44E+07	2.42E+07	2.65E+07
ARM	Labor force, total	1299589	1305044	1310038	1320575	1278837
TUR	Population, total	6.74E+07	6.85E+07	6.96E+07	7.07E+07	7.17E+07
ARM	Population, total	3082000	3064725	3049943	3037193	3026089
TUR	Labor force/total population	3.50E-01	3.50E-01	3.51E-01	3.42E-01	3.70E-01
ARM	Labor force/total population	0.421671	0.425827	0.429529	0.434801	0.422604
TUR	Research and development expenditure (% GDP)	0.640886	0.724104	0.664071	..	..
ARM	Research and development expenditure (% GDP)	0.184634	0.279868	0.252548	..	..
TUR	Researchers in R&D (per million people)	338.2898	327.7061	341.4328	..	..
ARM	Researchers in R&D (per million people)	1491.888	1659.856	1615.441	1536.617	..
TUR	School enrollment, secondary (% gross)	..	77.84357	81.51694	85.30035	..
ARM	School enrollment, secondary (% gross)	86.33597	84.99809	84.26252	82.82672	91.42068
TUR	School enrollment, tertiary	23.14979	23.3417	24.3866	28.01402	..

	(% gross)					
ARM	School enrollment, tertiary (% gross)	23.60801	24.92038	26.45917	24.99083	26.1993
TUR	Technicians in R&D (per million people)	..	36.95391	36.5267	..	..
ARM	Technicians in R&D (per million people)	121.0253	135.4119	147.8717	103.0557	..

Sources: Food and Agriculture Organization, International Energy Agency, International Labour Organization, United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics.

At the same time, Table 1 indicates that Turkey is spending a greater percentage of the GDP on research and development, 0.66 percent during 2002, while Armenia was spending just 0.25 percent of the GDP. This implies that Turkey might be able to reduce the advantage that Armenia has with respect to its relatively higher endowment of researchers and technicians. Besides focusing on the relative numbers of researchers and technicians, it is important to consider also the quality of education in both countries. It could be argued that in certain subjects the quality of education in Turkey is superior to the quality of education in Armenia, while in other topics Armenia might have a higher quality of education.

In the case of labor force, table one indicates that Turkey has relatively more number of people in the labor force than Armenia; however Armenia has a higher fraction of its population in the labor force. When a country exports a factor, this could indicate that the factor that is being exported is abundant in that country. During 1990s a high percentage of the population left Armenia to find jobs in former Soviet republics and other countries, which could imply that labor is abundant in Armenia. Turkey also exports labor, especially to Europe. Based on these ambiguous data and information, it is difficult to determine which country has a comparative advantage in the production of labor intensive goods.

Energy use, kilogram of oil equivalent per capita, is higher in Turkey than in Armenia. During 2003 Turkey used 1117 kilogram of oil equivalent energy per capita, while Armenia used just 660. Also as we already stated Turkey has more tractors per hector. These data could indicate that capital is relatively more abundant in Turkey than in Armenia.

In the economic literature there are controversies about the predictive power of the Heckscher-Ohlin theory, which predicts the economic sectors that should have comparative advantage and should be able to export. There are also difficulties with measuring labor abundance and capital abundance, Leontief (1956), Baldwin (1971), Stern and Maskus (1981), Bowen, Leamer and Sveikauskas (1987).

Revealed Comparative Advantage

The second method that we will use to determine the manufacturing sectors that would benefit or suffer when Turkey opens the borders has to do with the widely used method of Revealed Comparative Advantage (RCA) developed by Bela Balassa (1986). Basically the idea of RCA is that if a country is able to export significant amount of a product, then it implies that it could produce that product efficiently and has comparative advantage in its production.

In the case of Armenia, this concept could be useful for products that Armenia is able to export, and this method could reveal that Armenia has comparative advantage in the production of these products. However if this method indicates that currently Armenia doesn't have RCA in the production of certain products, this result might not be accurate because of the blockade and the fact that Armenia's economy is small, while Turkey's economy is relatively large. It is possible that currently Armenia is producing a product and is not able to export it. But when Turkey opens the borders, Armenia might be able to export that product to Turkey, and the availability of Turkish markets could generate new opportunities for some Armenian products that Armenia could produce efficiently and cheaply.

In the case of Turkey, the opening of the border shouldn't have an effect on the list of economic sectors where currently Turkey has comparative advantage nor on the list of sectors that it doesn't have comparative advantage because Armenian markets are relatively small. This implies that in the case of Turkish economic sectors, the current results of the method of RCA wouldn't change significantly when Turkey opens the borders; therefore, the concept of RCA currently could generate more accurate results for Turkey than for Armenia.

To measure RCA of economic sectors in Armenia and Turkey, we need to calculate for each country value of export of each sector i , X_i , and the value of import of each sector i , M_i . Revealed comparative advantage of each sector, RCA_i is equal to:

$$(1) \quad RCA_i = (X_i - M_i) / (X_i + M_i)$$

Table 2 provides the values of exports and imports of 96 manufacturing sectors in Turkey and Armenia. The values are in US dollar and for the year 2005. When the RCA of a sector is one 1.0, it implies that imports are zero, meaning that that country is producing the product, satisfying the domestic need and exporting some of it. This implies that this country is able to produce efficiently and has comparative advantage in its production. On the other hand when RCA is -1 , it implies that the country is not able to export this product and is importing to satisfy its all or part of domestic needs of this product.

Table 2. Armenian and Turkish Exports, Imports and RCA of each sector, 2005, (thous. US\$)

Sector	Sector name	Turkey Export	Turkey Import	Armenia Export	Armenia Import	RCA Turkey	RCA Armenia
01	Live animals	5,162	14,074	50.4	1,280.5	-0.46	-0.92
02	Meat & edible meat offal	36,204	277	412.8	28,397.0	0.98	-0.97
03	Fish and crustaceans, molluscs and other aquatic invertebrates.	204,904	67,913	2,929.6	1,758.0	0.50	0.25
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	79,602	75,787	3,836.1	13,867.1	0.02	-0.57
05	Products of animal origin, not elsewhere specified or included	40,638	31,223	8.3	94.1	0.13	-0.84
06	Live trees and other plants; bulbs, roots and the like; cut	35,751	33,764	48.7	936.9	0.03	-0.90

	flowers and ornamental foliage						
07	Edible vegetables and certain roots and tubers	531,893	78,628	75.6	3,257.6	0.74	-0.95
08	Edible fruit and nuts; peel of citrus fruit or melons	2,499,524	154,099	2,045.5	12,122.1	0.88	-0.71
09	Coffee, tea, mate and spices	64,348	39,647	7,562.8	15,680.1	0.24	-0.35
10	Cereals	114,634	188,881	1.6	53,745.2	-0.24	-1.00
11	Products of the milling industry; malt; starches; inulin; wheat gluten	483,488	14,990	10.6	9,216.4	0.94	-1.00
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder	96,565	697,651	2.3	1,658.8	-0.76	-1.00
13	Lac; gums, resins and other vegetable saps and ex tracts	2,615	38,561	-	1,724.9	-0.87	-1.00
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included	17,082	2,730	-	0.9	0.72	-1.00
15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes	511,299	764,397	249.3	26,287.4	-0.20	-0.98
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	42,276	1,136	809.1	6,154.6	0.95	-0.77
17	Sugars and sugar confectionery	202,226	43,789	62.5	29,302.4	0.64	-1.00
18	Cocoa and cocoa preparations	242,736	181,535	168.1	13,754.7	0.14	-0.98
19	Preparations of cereals, flour, starch or milk; pastrycooks' products	347,413	75,684	132.8	7,225.1	0.64	-0.96
20	Preparations of vegetables, fruit, nuts or other parts of plants	1,281,121	46,611	7,318.4	7,976.8	0.93	-0.04
21	Miscellaneous edible preparations	235,515	277,382	594.9	7,088.2	-0.08	-0.85
22	Beverages, spirits and vinegar	148,104	51,142	84,295.8	15,352.6	0.49	0.69
23	Residues and waste from the food industries; prepared animal fodder	15,423	341,256	35.6	10,703.6	-0.91	-0.99
24	Tobacco and manufactured tobacco substitutes	590,047	275,504	3,461.6	48,354.6	0.36	-0.87
25	Salt; sulphur; earths and stone; plastering materials, lime and cement	1,122,890	265,013	14,872.6	2,377.6	0.62	0.72
26	Ores, slag and ash	277,918	395,028	51,425.6	30,658.2	-0.17	0.25
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes	2,637,722	21,232,662	27,187.3	264,366.4	-0.78	-0.81
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of isotopes	372,789	778,501	391.0	10,942.6	-0.35	-0.93
29	Organic chemicals	249,905	3,525,897	441.3	4,583.6	-0.87	-0.82
30	Pharmaceutical products	282,539	2,849,105	1,359.3	49,413.5	-0.82	-0.95

31	Fertilisers	37,755	754,689	-	6,227.4	-0.90	-1.00
32	Tanning-dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints and varnishes; putty and other mastics ; inks	234,143	1,122,999	80.0	7,119.3	-0.65	-0.98
33	Essential oils and resinoids; perfumery,cosmetic or toilet preparations	256,533	530,053	401.8	15,233.2	-0.35	-0.95
34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, "dental waxes" and dental preparations	412,027	341,699	221.8	10,737.0	0.09	-0.96
35	Albuminoidal substances; modified starches; glues; enzymes	34,591	236,345	100.5	3,756.5	-0.74	-0.95
36	Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations	13,100	20,222	0.2	1,565.8	-0.21	-1.00
37	Photographic or cinematographic goods	7,537	213,670	48.7	971.9	-0.93	-0.90
38	Miscellaneous chemical products	154,474	1,084,560	71.8	7,888.6	-0.75	-0.98
39	Plastics and articles thereof	1,720,389	5,782,007	1,054.3	30,745.7	-0.54	-0.93
40	Rubber and articles thereof	1,008,558	1,202,594	7,621.8	17,554.1	-0.09	-0.39
41	Raw hides and skins (other than furskins) and leather	87,461	471,966	1,633.5	116.3	-0.69	0.87
42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)	330,179	275,451	10.6	2,059.5	0.09	-0.99
43	Furskins and artificial fur; manufactures thereof	155,130	83,585	2.9	1,114.0	0.30	-0.99
44	Wood and articles of wood; wood charcoal	247,863	793,825	958.2	11,045.0	-0.52	-0.84
45	Cork and articles of cork	320	5,705	779.7	1,772.7	-0.89	-0.39
46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork	511	10,361	0.1	43.8	-0.91	-1.00
47	Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper or paperboard	937	277,763	-	93.7	-0.99	-1.00
48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	584,800	1,762,838	2,088.5	27,085.0	-0.50	-0.86
49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, type scripts and plans	49,437	137,892	3,301.5	5,572.3	-0.47	-0.26

50	Silk	4,557	29,200	-	4.7	-0.73	-1.00
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric	180,202	409,894	63.6	143.2	-0.39	-0.38
52	Cotton	1,178,655	2,076,911	377.4	3,272.6	-0.28	-0.79
53	Other textile fibres; paper yarn and woven fabrics of paper yarn	25,092	180,966	0.2	34.2	-0.76	-0.99
54	Man-made filaments	893,748	1,118,300	630.3	1,680.3	-0.11	-0.45
55	Man-made staple fibres	960,919	1,135,713	211.4	2,346.8	-0.08	-0.83
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	178,876	263,567	658.3	1,661.1	-0.19	-0.43
57	Carpets and other textile floor coverings	669,831	144,570	2,396.2	1,724.0	0.64	0.16
58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery	549,624	235,428	42.7	95.7	0.40	-0.38
59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use	260,765	205,702	10.4	439.2	0.12	-0.95
60	Knitted or crocheted fabrics	570,884	170,535	722.9	1,760.5	0.54	-0.42
61	Articles of apparel and clothing accessories, knitted or crocheted	6,590,092	252,706	7,592.7	7,096.2	0.93	0.03
62	Articles of apparel and clothing accessories, not knitted or crocheted	4,861,543	433,289	22,409.6	16,568.1	0.84	0.15
63	Other made up textile articles; sets; worn clothing and worn textile articles; rags	1,969,441	65,009	1,900.7	9,197.8	0.94	-0.66
64	Footwear, gaiters and the like; parts of such articles	215,736	412,715	101.4	11,118.7	-0.31	-0.98
65	Headgear and parts thereof	8,152	18,597	27.2	235.6	-0.39	-0.79
66	Umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and parts thereof	6,308	12,902	0.2	231.3	-0.34	-1.00
67	Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles of human hair	454	18,120	0.1	60.3	-0.95	-1.00
68	Articles of stone, plaster, cement, asbestos, mica or similar materials	753,199	247,457	1,777.4	3,909.5	0.51	-0.37
69	Ceramic products	683,053	233,872	81.1	11,735.3	0.49	-0.99
70	Glass and glassware	631,185	441,727	3,532.4	18,247.8	0.18	-0.68
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin	1,314,088	4,226,726	336,340.8	347,634.3	-0.53	-0.02
72	Iron and steel	4,968,245	9,409,697	243,717.4	38,652.6	-0.31	0.73
73	Articles of iron or steel	2,729,890	1,183,163	4,355.2	34,745.3	0.40	-0.78

74	Copper and articles thereof	511,106	1,420,513	50,569.7	2,141.2	-0.47	0.92
75	Nickel and articles thereof	2,944	106,247	-	57.9	-0.95	-1.00
76	Aluminium & articles thereof	874,220	1,228,114	4,445.6	8,939.5	-0.17	-0.34
77	Lead and articles thereof	3,510	83,032	25.7	5.3	-0.92	0.66
78	Zinc and articles thereof	9,617	228,677	-	31.4	-0.92	-1.00
79	Tin and articles thereof	636	24,755	-	76.7	-0.95	-1.00
80	Other base metals; cermets; articles thereof	2,665	40,242	17,983.1	413.6	-0.88	0.96
81	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal	65,801	341,269	769.3	3,037.7	-0.68	-0.60
82	Miscellaneous articles of base metal	282,124	407,804	87.1	5,961.2	-0.18	-0.97
83	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	5,239,563	16,316,150	16,886.7	156,620.2	-0.51	-0.81
84	Electrical machinery equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	5,423,871	9,713,785	11,113.8	75,865.9	-0.28	-0.74
85	Railway or tramway locomotives, rolling-stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electro-mechanical) traffic signalling equipment of all kinds	30,938	83,099	1,370.3	418.4	-0.46	0.53
86	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof	9,565,630	10,548,128	9,582.5	146,625.3	-0.05	-0.88
87	Aircraft, spacecraft, and parts thereof	247,591	314,089	219.5	4,493.7	-0.12	-0.91
88	Ships, boats and floating structures	1,251,315	1,165,987	-	212.5	0.04	-1.00
89	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof	179,701	2,471,539	1,948.3	28,391.8	-0.86	-0.87
90	Clocks and watches and parts thereof	7,339	145,865	2,872.6	1,594.3	-0.90	0.29
91	Musical instruments; parts and accessories of such articles	5,109	20,224	39.3	64.4	-0.60	-0.24
92	Arms and ammunition accessories thereof	334,243	250,875	-	-	0.14	-
93	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated name-plates and the like;	956,954	528,723	267.6	17,361.7	0.29	-0.97

	prefabricated buildings						
94	Toys, games and sports requisites; parts and accessories thereof	26,859	236,365	135.6	2,683.3	-0.80	-0.90
95	Miscellaneous manufactured articles	79,484	293,281	136.2	1,973.0	-0.57	-0.87
96	Works of art, collectors' pieces and antiques	418	6,769	352.6	3,188.3	-0.88	-0.80
	Total	73,472,289	116,562,532	973,920.5	1,801,735.9	-0.23	-0.30

Source: National Statistical Service (NSS) of Republic of Armenia, www.armstat.am/publications/

According to Table 2 there are few economic sectors where Armenia has high positive RCA, while Turkey has negative RCA. The RCA numbers of these sectors in Turkey and Armenia imply that Armenia is able to export successfully these products, while Turkey has to import relatively large amounts of these products. This could generate opportunity for Armenia to export these products to Turkey, when Turkey opens the borders. The sectors where Armenia has clear RCA are:

- sector 41, raw hides and skins other than furskins and leather
- sector 72, iron and steel
- sector 74, copper and articles thereof
- sector 77, lead and articles thereof
- sector 80 other base metals and articles thereof
- sector 85, railway or tramway locomotives, rolling-stock and part thereof, railway or tramway track fixtures and fitting parts, electro-mechanical signaling equipments.
- sector 90, clocks and watches and parts thereof.

On the other hand, Table 2 indicates that there is relatively larger number of sectors where Turkey has high positive RCA numbers, while Armenia has negative numbers. These are sectors where Turkey is able to export relatively more than is importing, while Armenia is importing relatively more than is exporting, which could reveal that Turkey is able to produce efficiently and is able to export, while in these sectors Armenia is not able to produce efficiently and to export more than it imports. This could imply that when Turkey opens the borders, Turkey would be able to export these products to Armenia, which could cause Armenian producers of these products to go bankrupt. These sectors are:

- 2, Meat and edible meat
- 7, Edible vegetables and certain roots
- 8, Edible fruit and nuts, peel of citrus fruit or melons
- 11, products of the milling industry, malt, starches, wheat gluten
- 14, vegetable planting materials, vegetable products not elsewhere specified
- 16, preparations of meat, of fish or mollusks
- 17, sugars and sugar confectionery
- 19, preparations of cereals, flour, starch or milk, pastry products
- 20, preparations of vegetables, fruit, nuts or other parts of plants
- 24, tobacco and manufactured tobacco substitutes
- 43, furskins and artificial fur, manufactures thereof
- 58, special woven fabrics, tufted textile fabrics, tapestries, trimmings, embroidery
- 59, impregnated, coated, covered or laminated textile fabrics,

- 60, knitted or crocheted fabrics
- 61, articles of apparel and clothing accessories, knitted or crocheted
- 63, other made up textile articles, worn clothing and worn textile articles
- 68, articles of stone, plaster, cement, asbestos, mica or similar materials
- 69, ceramic products
- 73, articles of iron or steel
- 90, furniture, bedding mattresses, mattress supports, cushions and similar stuff

In the case of the remaining sectors the RCA of Armenia and Turkey are quite close to each other, therefore, the RCA numbers do not generate clear results. It is important to note that Table 1 indicates that Turkey's economy relative to Armenia is very large. The values of export and import of each sector in Turkey is much larger than that of Armenia. This implies that when Turkey opens the borders Armenia's economy would be affected much more than Turkey's economy.

Comparative Advantage based on Productivity Ratios, Wage Ratios and Exchange Rates

After investigating the economic literature on this subject it seems that out of the four methods that this paper is using to determine the sectors that would benefit and the sectors that would suffer when Turkey opens the borders the best method is the one adopted by MacDougall (1951) during 1950s, by Stern (1962) during 1960s and by Dornbusch, Fischer and Samuelson (1977) during 1970s.

Basically in this method we will compare relative productivity of an economic sector with the relative wages in Armenia and Turkey. If in an economic sector the ratio of productivity of labor in Armenia over productivity of labor in Turkey is higher than the ratio of wages in Armenia over wages in Turkey, then in this sector Armenia would have comparative advantage. Let's assume that productivity in Armenia in a sector is twice as high as in Turkey and wages in both countries are the same, then Armenia would have comparative advantage in this sector. We would argue that when Turkey lifts the blockade then it is highly likely that this sector in Armenia would be able to compete with the Turkish products and export its product to Turkey.

In our view this method has the best predictive capability. It takes into consideration the relative productivity and relative wages of manufacturing sectors in Armenia and based on these information predicts the sectors that would be able to export when Turkey opens the borders. One difficulty in using this method is to have consistent recent data. Unfortunately the most recent consistent data between Turkey and Armenia that we were able to acquire was from 2000.

When we calculate productivity, it is better if we use physical output per labor; however, it is difficult to find adequate and comparable data. In this paper we use the value of output to calculate productivity of labor. Productivity of labor in Armenia in sector j is presented by b_{aj} , while productivity of labor in Turkey in sector j is presented by b_{tj} . Relative productivity or productivity ratio is presented by b_{aj} / b_{tj} . Some might suggest using overall productivity or total factor productivity, but this paper is trying to compare productivity with the price or the cost of the corresponding factor. Calculating the price of labor or wages is much easier than calculating the price of capital. Calculating wages for each manufacturing sector in Armenia accurately could be a

challenge, but it would still generate much more reliable numbers than calculating the price of capital of each manufacturing sector in Armenia. Therefore, similar to the method in Dornbusch, Fischer and Samuelson (1977), this paper will use labor productivity instead of total factor productivity.

Wage in Armenia for sector j is presented by W_{aj} and in Armenia wages are in Armenian currency, AMD. In Turkey, wage for sector j is presented by W_{tj} and is in Turkish Lira. In order to compare wages in Armenia with wages in Turkey, we convert wages in AMD and Lira into U.S. dollars. We multiply W_{aj} with number of U.S. dollars per AMD, e_a , and we get $W_{aj}e_a$, which represents wages in Armenia in U.S. dollars. Similarly we multiply W_{tj} with number of U.S., dollars per Turkish Lira, e_t and we get $W_{tj}e_t$, which represents wages in Turkey in U.S. dollars. Now we could calculate relative wages or the wage ratios, $W_{aj}e_a / W_{tj}e_t$. When we divide productivity ratios with the wage ratios, then we get the Final Ratios:

$$(2) \quad (b_{aj} / b_{tj}) / (W_{aj}e_a / W_{tj}e_t)$$

Calculating Final Ratios of 2000

In order to calculate these ratios for each sector we need data for the value of output, the number of employees and average wages. All these statistics should be consistent for the sectors of both Armenia and Turkey. At this stage the most recent and consistent set of data that we were able to generate was from 2000; therefore, we will generate the productivity and wage ratios for 2000. These data are based on statistics published by UNIDO and National Statistical Service of the Republic of Armenia. The tables that are used to generate the final results are presented in the Appendix A. We focused on 52 industries representing three and four digits ISIC Revision 3 classification, see Appendix, Table A1, column one.

First we collected compatible data for each country and then we calculated the ratios. In Appendix Table A1, we compiled data representing the value of output, number of employees and average wage of each sector in Turkey. After dividing the value of output of each sector, column two, with the corresponding number of employees, column three we generated the value of output per employee or productivity of labor of each sector, column four. We are using the value of the output per employee of each sector instead of the physical output per employee of each sector, because it was not possible to find consistent data on output of each sector in physical terms. In order to compare productivity of Turkish sectors with the productivity of corresponding sectors in Armenia we used exchange rates and expressed all the productivity numbers in terms of US dollar. We also expressed average wages of each sector in terms of US dollars, column five.

Next we generated productivity of labor or value of output per employee for each sector in Armenia. We followed the same procedure that we used to generate the productivity of labor of each sector in Turkey. Appendix Table A2 generates the value of output per employee for each manufacturing sector in Armenia. Column two of Table A2 represents the value of output of the 52 manufacturing sectors in US dollars. Column three represents the number of employees of each sector. When we divide the

value of column two, productivity of labor, with the numbers in column three, we get output per employee or productivity of labor of each manufacturing sector in Armenia.

We have to allocate a separate table for the average wages for Armenia because UNIDO is not providing them. Appendix Table A3 generates the wages of the 52 manufacturing sectors in Armenia, in 2000 based on the wage data that are published by the National Statistical Service of Armenia, NSS. Unfortunately the NSS aggregates industrial production into fifteen sectors and provides the corresponding wage data. Table A3 provides average monthly wages for each of the 52 manufacturing sectors. Column one presents the names of the 52 sectors used by UNIDO. Column two presents the corresponding names of industrial production sectors used by the NSS for the wages. Column three presents the data of wages that the NSS provides. These are monthly wages per employee in US dollar.

Based on the results of Tables A1 and A2, column two of Table 3 generates the ratio of output per worker in Armenia over output per worker in Turkey for each of the 52 manufacturing sectors, b_{aj} / b_{tj} . These ratios represent the productivity ratios between Armenia and Turkey. Based on Tables A1 and A3, column three of Table 3 generates the ratio of monthly average wage in Armenia over monthly average wage in Turkey for each of the 52 manufacturing sectors $W_{aj}e_a / W_{tj}e_t$. These ratios represent the average wage ratios between Armenia and Turkey multiplied by the exchange rates. Column four of Table 3 calculates the ratios of the productivity ratios over average wage ratios or the Final Ratios, $(b_{aj} / b_{tj}) / (W_{aj}e_a / W_{tj}e_t)$, equation (2).

In sectors where productivity ratios, b_{aj} / b_{tj} , are higher than wage ratios, $W_{aj}e_a / W_{tj}e_t$, Armenia would have advantage over Turkey and Armenian producers of these sectors would be able to compete with the Turkish products. The corresponding numbers of these sectors in column four would be greater than one. When relative productivity over relative wages in a sector is less than one, then Turkey would have advantage in the production of that product. Column five of Table 3 presents the significance of each sector in Armenia's economy. This column illustrates the share of each sector's production in the total production of manufacturing in Armenia.

According to column two of Table 3, the productivity ratios output per employee in Armenia over output per employee in Turkey for all sectors are significantly less than one, which implies that productivity of labor in Armenia is much lower than productivity of labor in Turkey. Also the wage ratios, column three, for all sectors are significantly less than one, which implies that wages in Armenia are much lower than average wages in Turkey. In sectors where the wage ratios are lower than the productivity ratios, then lower wages in Armenia are compensating for lower productivity and in these sectors Armenia would have comparative advantage relative to Turkey and the ratio of the productivity ratio over wage ratio, which are represented by column four, would be greater than one.

Table 3. Productivity and wages of Armenia Relative to Turkey in 2000

Industry (ISIC Revision 3)	Output per Worker in Armenia/ Output per Worker Turkey	Monthly Wage in Armenia/ Monthly Wage in Turkey	Relative Productivity / Relative Wages Column2 / Column3	Sector Output as a % of Total Manufacturing
Processed meat, fish, fruit, vegetables, fats (151)	0.092	0.106	0.86	2.479
Dairy products (1520)	0.085	0.082	1.04	2.333
Grain mill products; starches; animal feeds (153)	0.077	0.120	0.64	3.536
Other food products (154)	0.604	0.060	10.07	36.086
Beverages (155)	0.077	0.055	1.42	12.335
Tobacco products (1600)	0.202	0.046	4.43	5.860
Spinning, weaving and finishing of textiles (171)	0.011	0.038	0.28	0.117
Other textiles (172)	0.009	0.047	0.19	0.192
Knitted and crocheted fabrics and articles (1730)	0.046	0.079	0.58	0.425
Wearing apparel, except fur apparel (1810)	0.025	0.081	0.31	1.072
Tanning, dressing and processing of leather (191)	0.028	0.059	0.47	0.020
Footwear (1920)	0.063	0.054	1.18	0.148
Sawmilling and planking of wood (2010)	0.054	0.122	0.44	0.234
Products of wood, cork, straw, etc. (202)	0.027	0.073	0.37	0.198
Paper and paper products (210)	0.056	0.035	1.61	0.260
Publishing (221)	0.033	0.085	0.39	1.943
Printing and related service activities (222)	0.043	0.077	0.56	0.159
Refined petroleum products (2320)	0.007	0.025	0.26	0.025
Basic chemicals (241)	0.034	0.034	0.99	4.581
Other chemicals (242)	0.017	0.037	0.47	0.467
Man-made fibres (2430)	0.004	0.034	0.13	0.003
Rubber products (251)	0.008	0.043	0.18	0.066
Plastic products (2520)	0.024	0.087	0.28	0.208
Glass and glass products (2610)	0.032	0.042	0.76	0.344
Non-metallic mineral products n.e.c. (269)	0.044	0.083	0.53	3.315
Basic iron and steel (2710)	0.091	0.074	1.24	0.019
Basic precious and non-ferrous metals (2720)	0.168	0.082	2.06	8.850
Casting of metals (273)	0.026	0.101	0.26	0.321
Struct.metall products; tanks; steam generators (281)	0.058	0.059	0.98	0.613
Other metal products; metal working services (289)	0.025	0.061	0.40	0.391
General purpose machinery (291)	0.036	0.053	0.67	0.795
Special purpose machinery (292)	0.026	0.042	0.62	1.347
Domestic appliances n.e.c. (2930)	0.008	0.044	0.17	0.189
Office, accounting and computing machinery (3000)	0.002	0.053	0.04	0.050

Electric motors, generators and transformers (3110)	0.010	0.035	0.29	0.409
Electricity distribution & control apparatus (3120)	0.026	0.037	0.71	0.184
Insulated wire and cable (3130)	0.067	0.046	1.46	0.463
Accumulators, primary cells and batteries (3140)	0.045	0.048	0.94	0.080
Lighting equipment and electric lamps (3150)	0.011	0.068	0.16	0.041
Other electrical equipment n.e.c. (3190)	0.015	0.035	0.42	0.059
Electronic valves, tubes, etc. (3210)	0.004	0.051	0.08	0.021
TV/radio transmitters; line comm. apparatus (3220)	0.002	0.016	0.09	0.019
TV and radio receivers & associated goods (3230)	0.006	0.030	0.21	0.137
Medical, measuring, testing appliances, etc. (331)	0.018	0.048	0.37	0.327
Optical instruments & photographic equip. (3320)	0.024	0.068	0.36	0.021
Watches and clocks (3330)	0.284	0.075	3.79	0.222
Motor vehicles (3410)	0.009	0.028	0.32	0.099
Parts/accessories for automobiles (3430)	0.001	0.046	0.02	0.002
Transport equipment n.e.c. (359)	0.029	0.048	0.60	0.012
Furniture (3610)	0.045	0.060	0.76	0.273
Manufacturing n.e.c. (369)	0.124	0.155	0.80	8.640
Total manufacturing (D)	0.074	0.090	0.82	100.000

According to column four out of 52 sectors, there are four sectors where the productivity ratios over wage ratios or Final ratios are greater than two and where Armenia has a significant comparative advantage. These sectors generate 51 percent of manufacturing output. These sectors are:

- Other food products, ISIC 154, which generates 36 percent of total manufacturing output.
- Tobacco products, ISIC 1600, about 6 percent of total manufacturing output.
- Basic precious and non-ferrous metals, ISIC 2720, about 9 percent of total output.
- Watches and clocks, ISIC 3330, just .02 percent of total output.

There are five sectors where the Final Ratios are between one and two, which implies that Armenia has some comparative advantage in these sectors. Column five indicates these five sectors generate about 13 percent of total manufacturing production. These sectors are: Beverages, 155, footwear, 1920, paper and paper products, 210, basic iron and steel, 2710, insulated wire and cable, 3130. There are also four sectors where the Final Ratios are close to unity, which implies that it is not clear which country has comparative advantage in these sectors. The share of these sectors in total manufacturing is just 7.6 percent. These sectors are: Dairy products, 1520, basic chemicals, 241, structural metal products; tanks; steam generators, 281, accumulators, primary cells and batteries, 3140.

In the remaining 39 sectors, column four generates Final Ratios of less than one, which implies that in these sectors Turkey has comparative advantage. When Turkey opens

the border, Armenian producers of these products, might not be able to compete with cheap Turkish imports and could face the possibility of bankruptcy. We could ignore eleven out of these 39 sectors, because each one of these sectors generates less than .05 percent of total manufacturing output in Armenia. There are seventeen sectors, where the relative productivity ratios over relative wage ratios generate numbers less than 0.5 indicating that Turkey has significant amount of advantage in the production of these products. The total share of these sectors in the production of total manufacturing in Armenia is just 6.3 percent and the sector with the highest share generates only 1.9 percent of total manufacturing output. This implies that these seventeen sectors where Armenia is in a significant disadvantaged position are each small and together they generate a small portion of total manufacturing. This could imply that when Turkey opens the borders, only 6.3 percent of Armenian manufacturing production could have major difficulty in competing with the Turkish products.

According to column four, another eleven economic sectors generate Final ratios between .5 and .9. This implies that in these sectors Turkey would have some comparative advantage. One of these sectors, Manufacturing n.e.c. 369, includes the diamond sector, which represents 8.6 percent of Armenia's total manufacturing production. The expectation is that when Turkey opens the border the production of diamonds in Armenia, which is traded mostly with Belgium and Israel, wouldn't be affected. Excluding sector 369, the remaining 10 sectors generate 12.4 percent of total manufacturing production. The 27 sectors which have Final Ratios of less than 0.90 and where Turkey has comparative advantage represent about 19 percent of total manufacturing sector in Armenia.

This positive outlook would deteriorate, when we take into account changes from 2000 to 2006 in productivity, wages and exchange rates and adjust the corresponding statistics.

The Effects of productivity, wages and Exchange Rate changes on Trade – Final Ratios of 2006

According to Dornbusch-Fisher-Samuelson model, equation (2), comparative advantage depends on relative productivities, relative wages and the exchange rates. The rate of inflation in a country could affect the Final Ratios, $(b_{aj} / b_{tj}) / (W_{aj} e_a / W_{tj} e_t)$ and the ability of a country to export a product, indirectly through the wages and exchange rate. The expectation is that when prices in a country go up, then wages will also to go up and the currency to depreciate. Both these changes could affect equation (2) or the Final Ratios. In this section we will investigate the effects of productivity, wages and exchange rate changes from 2000 to 2006 on trade in Armenia.

Table 3 generates Final ratios by using productivity, wage, and exchange rate data for 2000. Next we will adjust the productivity ratios, b_{aj} / b_{tj} and wages W_{aj} , W_{tj} of 2000, by multiplying them with the corresponding changes in productivity and wages in Armenia and Turkey from 2000 to 2006 and we will use the exchange rates e_a , e_t of October 13, 2006.

From 2000 to October 2006 the AMD appreciated from 539.5 AMD per US dollar to 382.75, while the Turkish Lira depreciated from 0.625 Turkish Lira per US dollar to

1.465.¹ When AMD appreciates, the number of U.S. dollars per AMD, e_a , gets larger. On the other hand, when Turkish Lira depreciates, the number of U.S. dollars per Turkish Lira, e_t , gets smaller. When e_a gets larger and e_t gets smaller, the denominator of equation (2) gets larger and the Final Ratios get smaller. This implies that when AMD appreciates and the Turkish Lira depreciates, assuming everything else remains the same, then Armenian manufacturing goods become less competitive relative to Turkish manufacturing goods. However the expectation is that when AMD appreciates and Turkish Lira depreciates, inflation in Turkey would be higher than inflation in Armenia and wages in Turkey would rise faster than in Armenia. The relative rise of Turkish wages would offset the negative effects of the depreciation of Turkish Lira and the appreciation of AMD on the competitiveness of the Armenia goods and services. In other words when e_a goes up, while e_t goes down, the expectation is that W_{aj} would increase less than W_{tj} offsetting the effect of the exchange rate change causing the denominator of equation (2) to remain more or less the same.

From 2000 to 2006 inflation in Armenia increased about 22% and wages went up 190%, while in Turkey inflation went up by 230% and wages increased by 200%. The depreciation of Lira was accompanied with high level of inflation, 230%, and with significant increase in wages, 200%.² These changes are not surprising, because inflation and depreciation are associated with each other and inflation is correlated with increases in wages. In the case of Armenia, as expected, the appreciation of AMD was associated with low levels of inflation, 22%. However the drastic increase in wages, 190%, combined with low levels of inflation and significant appreciation of AMD didn't follow the general pattern. This is unusual, because in general wages go up at a rate close to the rate of inflation. Clearly in Armenia there was significant increase in real wages. In other words from 2000 to 2006 e_a went up, and e_t decreased, while W_{aj} increased about the same amount as W_{tj} causing the denominator of equation (2) ($b_{aj} / b_{tj} / (W_{aj} e_a / W_{tj} e_t)$) to increase. This implies that from 2000 to 2006 Armenia lost competitiveness, because real wages in Armenia increased more than in Turkey, and because Armenian Dram appreciated significantly, while Turkish lira depreciated.

Relative productivities of economic sectors or productivities in Armenia over productivities in Turkey are represented by the numerator of equation (2), (b_{aj} / b_{tj}). From 2000 to 2006 overall productivity in Turkey increased by 40.5%, while in Armenia it increased by 152%. This had positive effect on the competitiveness of Armenian products and caused the numerator of equation (2) to increase. Rapid increase of productivity in Armenia could explain the observation that wages went up by 190% while prices went up just 22%.

Based on this discussion we could summarize that from 2000 to 2006 the appreciation of AMD and the depreciation of the Turkish lira caused the denominator of equation (2) to increase and reduced the competitiveness of Armenian goods. The similar change in nominal wages in Armenia and Turkey and the higher real wage growth in Armenia reduced drastically the effect of higher inflation in Turkey on equation (2) and affected competitiveness in Armenia negatively. Finally, higher productivity growth in Armenia

¹ <http://www.cba.am/ratesmenu.asp?rates=0>

² These statistics and the data on productivity changes were provided by Ashot Mkrtchyan, head of the Economic Research Department of the Central Bank of Armenia.

increased the numerator of equation (2) and increased the competitiveness of Armenian goods.

In order to measure the effect of changes in productivity, wages and exchange rate, from 2000 to 2006 on the competitiveness of manufacturing sectors in Armenia, we multiplied the numerator of equation (2) by 252/141, which reflects 152 percent increase of productivity in Armenia and 41% increase in Turkey. We multiplied the numerator by 300/290, which indicates 200% increase in nominal wages in Armenia and 190% in Turkey. Finally we used the exchange rates of October 2006. Table A4 presents the results of these calculations. Column one of this table describes the manufacturing sectors. Column two represents productivity ratios. These ratios are calculated by multiplying column two of Table 3, productivity ratios for 2000, by 252/141. After significant increases of productivity in Armenia, productivities in all sectors, except in sector 154 "Other food products", are still lower than productivities in Turkey.

Column three of Table A4 presents wage ratios, which are calculated by multiplying the wage ratios of 2000, column three of Table 3, by 300/290. Column four calculates the wage ratios by adjusting the wage ratios of 2000 for the changes in wage rates and the exchange rates. It basically adjusts column three of Table A4 for the exchange rate changes from 2000 to October 2006. Finally column five of Table A4 represents the Final Ratios for 2006. These Final Ratios reflect the changes of productivity, wages and exchange rates from 2000 to 2006. When we compare the Final Ratios of 2006 with the Final Ratios of 2000, column four of Table 3, we realize that from 2000 to October 2006 Armenian manufacturers suffered from the appreciation of AMD, the depreciation of Turkish Lira and increase in real wages. Clearly the improvement of productivity in Armenia during this period wasn't enough to offset the negative effect of the depreciation of AMD and the increase in real wages. This implies that with the new exchange rates and real wages when Turkey opens the borders, Armenian manufacturers would be in a more vulnerable situation than they were during 2000.

According to the fifth column of Table 3 which represents each sector's output as a percentage of the total manufacturing output and column 5 of Table A4 we realize that at the end of 2006 and after changes in productivity, wages and exchange rates only sectors 154, 1600, 3330 have Final Ratios higher than 2 and only sector 2720 have a Final Ratio between 1.1 and 2. In other words according to these calculations only in these four manufacturing sectors Armenia has clear comparative advantage. These four sectors generate 51 percent of the manufacturing sectors. If we add to these sectors sector 369, which includes the diamond sector, then we could say that the manufacturing sectors where Armenia has comparative advantage generate about 60 percent of total manufacturing output.

Using columns four and five of Table 3 and column five of Table A4, Table 4 summarizes the effect of changes in productivity, wages and exchange rates from 2000 to 2006 on Final Ratios. Column one in Table 4 groups the Final Ratios, R, of the 52 manufacturing sectors of Tables 3 and A4 into five groups: Final Ratios greater than 2, Final Ratios between 2 and 1, etc... Columns two and three indicate the shares of total manufacturing of the sectors with corresponding Final Ratios in 2000 and 2006. Column two of Table 4 is based on columns four and five of Table 3, while column three of Table 4 is based on column five of Table 3 and column five of Table A4.

Table 4. The Effect of Changes in Productivity, Wages and Exchange Rates on Final Ratios

Final Ratios, R	Share of Total Manufacturing 2000	Share of Total Manufacturing 2006
$R > 2$	51%	42%
$2 < R > 1.1$	13%	9%
$1.1 < R > .9$	7.6%	0%
$.5 < R < .9$	21.4%	23%
$R < .5$	6.3%	26%

From 2000 to 2006 the changes of exchange rates and the real wages on Final Ratios are significant. During 2000, the Armenian manufacturing sectors with Final Ratios of less than .9 or the sectors where Turkey has comparative advantage generated 28 percent of total manufacturing output. When we exclude sector 369, which includes the diamond sector from this group we will end up only 19 percent of manufacturing. After making the adjustments for wages and productivity and using the exchange rates of October 2006, that percentage jumps to 49 percent in 2006. Again, when we exclude sector 369, we end up with 40 percent. In other words, the appreciation of AMD, the depreciation of Turkish Lira and the increase in real wages in Armenia caused the percentage of Armenian manufacturing production that will have difficulty competing with Turkish product when Turkey lifts the blockade, to rise from 19 percent to 40 percent of the total manufacturing output. We should emphasize that the appreciation of AMD and the increase in real wages in Armenia makes Armenian manufacturing products less competitive relative to all its trading partners and not just relative to the Turkish products.

Ranking of Exports and Imports

The last method to find out the potential of Armenia exports to Turkey and Turkish exports to Armenia when Turkey opens the borders is developed by Israeli economists, Arnon, Spivak, and Weinblatt (1996). They designed this method to predict the potential of trade between Israel and its Arab neighbors, when the borders between Israel and Arab countries are opened. Based on this method, first we rank Armenian economic sectors that are currently able to export to other countries from the sector with the largest share of total export to the smallest. Then we rank the goods that Armenia imports, again from the largest to the smallest. We do the same exercise for Turkey. Then we generate two tables. In the first table we include the top exports of Armenia and the top imports of Turkey. In the second table, we include the top export sectors of Turkey and the top import sectors of Armenia.

If there is an economic sector which represents one of Armenia's top exporting sectors and one of Turkey's top importing sectors, then, when the borders are opened, there would be a high probability that Armenia would be able to export this product to Turkey. On the other hand, if there is an economic sector which represents one of Turkey's top exporting sectors and one of Armenia's top importing sectors, then, in this sector Turkey has a high potential of exporting goods to Armenia.

In order to generate the table which includes the top exports of Armenia and the top imports of Turkey, first we rank the export of Armenia from the sector which has the highest share of total exports to the lowest. This information is represented by Table A5. Then we rank the sectors in Turkey from the sector that has the highest share of total imports to the smallest. This information is provided by Table A6.

From Table A5 we copy the top twenty export sectors of Armenia and we assign them the letters Xa. Then from Table A6 we look at the top twenty import sectors of Turkey and we find out which sectors among these top Turkish import sectors correspond to the top twenty export sectors of Armenia and we represent these top Turkish sectors with the letters Mt. Table 5 combines these Armenian export sectors, Xa and Turkish import sectors, Mt.

Table 5. Top Armenia Export sectors, Xa and Major Turkish Import sectors, Mt

71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin	Xa, Mt
72	Iron and steel	Xa, Mt
22	Beverages, spirits and vinegar	Xa
26	Ores, slag and ash	Xa
74	Copper and articles thereof	Xa, Mt
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes	Xa, Mt
62	Articles of apparel and clothing accessories, not knitted or crocheted	Xa
81	Other base metals; cermets; articles thereof	Xa
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	Xa, Mt
25	Salt; sulphur; earths and stone; plastering materials, lime and cement	Xa
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	Xa, Mt
87	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof	Xa, Mt
40	Rubber and articles thereof	Xa, Mt
61	Articles of apparel and clothing accessories, knitted or crocheted	Xa
09	Coffee,tea,mate and spices	Xa
20	Preparations of vegetables, fruit, nuts or other parts of plants	Xa
76	Aluminium and articles thereof	Xa, Mt
73	Articles of iron or steel	Xa, Mt
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	Xa

According to Table 5, when Turkey opens the border, Armenia has the potential of exporting the following goods to Turkey because out of 97 sectors, these sectors are in the top twenty export sectors in Armenia and are in the top twenty Turkish Import sectors:

- Sector 71, Natural or cultured pearls, precious or semi-precious stones
- Sector 72, Iron and steel
- Sector 74, Copper and articles thereof
- Sector 27, Mineral fuels, mineral oils and products of their distillation
- Sector 84, Nuclear reactors, boilers, machinery and mechanical appliances
- Sector 85, Electrical machinery and equipment and parts thereof
- Sector 87, Vehicles other than railway or tramway rolling stock, and parts and accessories
- Sector 40, Rubber and articles thereof
- Sector 76, Aluminum and articles thereof
- Sector 73, Articles of iron or steel

In order to generate the table which includes the top exports of Turkey and the top imports of Armenia, first we rank the export of Turkey from the sector which has the highest share of total exports to the lowest. This information is represented by Table A7. Then we rank the sectors in Armenia from the sector that has the highest share of total imports to the smallest. This information is provided by Table A8. From Table A7 we copy the top twenty export sectors of Turkey and we assign them the letters Xt. Then from Table A8 we look at the top twenty import sectors of Armenia and we find out which sectors among these top Armenian import sectors correspond to the top twenty export sectors of Turkey and we represent these top Armenian import sectors with the letters Ma. Table 6 combines these Turkish export sectors, Xt and Armenian import sectors Ma.

Table 6. Top Turkish Export Sectors, Xt and Armenian Import Sectors, Ma

87	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof	Xt, Ma
61	Articles of apparel and clothing accessories, knitted or crocheted	Xt
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	Xt, Ma
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	Xt, Ma
72	Iron and steel	Xt, Ma
62	Articles of apparel and clothing accessories, not knitted or crocheted	Xt
73	Articles of iron or steel	Xt, Ma
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes	Xt, Ma
08	Edible fruit and nuts; peel of citrus fruit or melons	Xt
63	Other made up textile articles; sets; worn clothing and worn textile articles; rags	Xt
39	Plastics and articles thereof	Xt, Ma
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin	Xt, Ma
20	Preparations of vegetables, fruit, nuts or other parts of plants	Xt
89	Ships, boats and floating structures	Xt

52	Cotton	Xt
25	Salt; sulphur; earths and stone; plastering materials, lime and cement	Xt
40	Rubber and articles thereof	Xt
55	Man-made staple fibres	Xt, Ma
94	Furniture; bedding, mattresses, mattress supports , cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated name-plates and the like; prefabricated buildings	Xt, Ma

According to Table 6, when Turkey opens the border, out of Turkey's top twenty export sectors Turkey has the potential of exporting the following goods to Armenia, because out of 97 sectors, these sectors are in the top twenty Armenian import sectors:

- Sector 87, Vehicles other than railway or tramway rolling stock, and parts and accessories
- Sector 85, Electrical machinery and equipment and parts thereof
- Sector 84, Nuclear reactors, boilers, machinery and mechanical appliances
- Sector 72, Iron and steel
- Sector 73, Articles of iron or steel
- Sector 27, Mineral fuels, mineral oils and products of their distillation
- Sector 39, Plastics and articles thereof
- Sector 71, Natural or cultured pearls, precious or semi-precious stones
- Sector 55, Man made staple fibres
- Sector 94, Furniture, bedding, mattresses, mattress supports, cushions and similar stuff

This doesn't imply that these are the only sectors that Turkey has the potential to export manufactured goods to Armenia. These are just out of the top twenty export sectors of Turkey.

Intra-Industry Trade

It is interesting to note that out of these ten sectors, seven of them exist also in the list of potential top ten Armenian exports, see Table 5. This could indicate the possibility of intra-industry trade, when both countries produce the same products and sell them to each other. Intra-industry trade creates opportunities to Armenian manufacturing sectors that do not have comparative advantage to produce and export goods to Turkey.

In the case of Armenia there could be two sources of intra-industry trade. One possible source of intra-industry trade is product differentiation. For example, Turkey might have comparative advantage in the production of cheese, but Armenia might be able to produce certain kinds of cheese and export it to Turkey. Turkish customers might be willing to purchase the Armenian cheese because it is different. Another source of intra-industry trade is geographic location. Turkey might have comparative advantage in the production of furniture relative to Armenia, but because Armenia is closer to Turkey's eastern provinces, Armenia might be able to export furniture to the eastern provinces in Turkey. This could occur if furniture production is concentrated in the Western Turkey. It might be more expensive to ship furniture from Western Turkey to eastern provinces than buying them from Armenia.

In determining international trade, cost of transportation plays an important role. When cost of transportation increases, the incentive of trade diminishes. Certain products, such as food, are costly to export because they might get spoiled during transportation. This implies that Turkey might have comparative advantage in the production of certain food products, but because of cost of transportation, Armenia might still be able to produce them and compete with the Turkish products in Armenia. With the development of improved road conditions and better transportation technology, such as refrigeration, cost of transportation becomes a less important factor in trade.

Distributional effects of trade liberalization

According to Stolper-Samuelson theorem, when Turkey opens the borders and trade increases between Armenia and Turkey, the abundant factor in Armenia would benefit, while scarce factor would lose. This implies that in the case of Armenian skilled labor, which is relatively more abundant than in Turkey (see the section on “comparative advantage based on factor endowment”), would benefit. On the other hand land owners in Armenia would lose, because land in Turkey relative to Armenia is abundant, while agricultural workers in Armenia could gain.

There is an interesting study by Spilimbergo, Londono and Szekely (1999), which suggests that with trade liberalization and increasing openness, the capital abundant country would experience a reduction in income inequality, while the skill-abundant country would experience an increase in income inequality. Based on this study and if we accept that Armenia relative to Turkey is a skill-abundant country, then when Turkey opens the borders, income inequality in Armenia would increase.

In economic literature the relationship between trade liberalization and economic growth is controversial, because trade could have positive or/and somewhat negative effects on the growth and development of a country, Edwards, (1993). Famous economists such as Jeffrey Sachs (1987) question the role of trade liberalization in the performance of the outward oriented economies. Lance Taylor (1991) is even more critical, while Joseph Stiglitz (2005), (2006) argues that trade liberalization, wouldn't guarantee higher economic growth and it could cause both poverty and inequality in a country to increase. He gives the example of Mexico, where one decade after North Atlantic Free Trade Agreement, NAFTA, mean real wages were lower and American agricultural subsidies made some of the poorest Mexican farmers worse off. Therefore in the case of Mexico free trade caused poverty and inequality to increase. At the same time in Mexico the growth rate during the decade following NAFTA was lower than the previous decade of 1980s. The relevant point of this argument is that trade liberalization, and opening borders is a strong case of trade liberalization, will not necessarily generate positive results. Adequate infrastructures, institutions and policies play an important role. According to Dani Rodrik (2006): “Trade liberalization would not work if fiscal institutions were not in place to make up for lost trade revenue, capital markets did not allocate finance to expanding sectors, customs officials were not competent and honest enough, labor-market institutions did not work properly to reduce transitional unemployment, and so on” (978).

Freinkman, Polyakov and Revenco (2004) from the World Bank did an empirical study on the economic effects of Turkey lifting the blockade on the economy of Armenia. The empirical results indicated that in Armenia the positive economic effects of open

borders are much less than the economic benefits, when Armenia improves its infrastructures and institutions and reduces corruption. This implies that policy makers in Armenia should focus on improving the institutions and infrastructures of the country and reduce corruption. All of these changes would contribute to the improvement of productivity in Armenia.

An important result found in this paper is that when Turkey opens the borders, certain Armenian manufacturing sectors and consumers would benefit, while others would suffer. In international trade theory the assumption is that those who gain from trade liberalization would compensate those who suffer, and in general the country would benefit. In the real world the problem is that those who suffer are seldom compensated, Samuelson (2004.) In industrialized countries when workers lose their jobs because of trade, there is safety net that they could rely on. Trade Adjustment Assistant programs address specifically the dislocation of workers caused by free trade, Baiker and Rehavi, (2004). A primary reason for some people to oppose trade liberalization is the negative affect of free trade on the employment of certain economic sectors. A Trade Adjustment Assistant program in Armenia, which would provide support to the workers who suffer from free trade and open borders, could reduce the political opposition of free trade.

A challenge that Armenia would face, when Turkey opens the borders, is to find out ways to get maximum benefit out of trade with Turkey and at the same time to minimize the downside of it. For example, if Turkey is subsidizing the production of an economic sector, after trade liberalization the producers of the corresponding sectors in Armenia might not be able to compete with the Turkish products and the Armenian workers of these sectors would suffer and lose their jobs. At the same time the consumers in Armenia would benefit because of the access of the cheaper Turkish products. The Armenia government could transfer some of the gains of the consumers to the producers and workers of the sectors that are suffering from trade through a Trade Adjustment Assistant program. In the United States Trade Adjustment Assistant program provides additional unemployment compensation and opportunities for retraining program to the workers who suffer from the trade liberalization, Magee (2001).

Conclusion

The three methods: relative productivity/relative wages, Revealed Comparative Advantage and ranking of exports and imports used in this paper to determine the economic sectors that would benefit and the economic sectors that would suffer when Turkey opens the border generated some consistent results. For example, ISIC 2720 and 2710, which correspond to HS sectors 72, 73, 74, 76, 77 and 80, are mentioned at least in the results of two of the three methods used in this paper as manufacturing sectors where Armenia has comparative advantage. One of the major productions of Armenia is copper and it is not surprising that sector HS 74 “Copper and articles thereof” and the corresponding ISIC 2720 “basic precious and non-ferrous metals” are sectors where Armenia has comparative advantage. Another sector where according to two methods Armenia has comparative advantage is HS 90 “clocks and watches and parts thereof” and the corresponding ISIC sector 3330, “watches and clocks”. Again this result is not surprising because in Armenia the production of watches and clocks is expanding. We should emphasize again that because Turkey’s economy is much larger

than Armenia's, when Turkey opens the borders, Armenia's economy would be affected much more than Turkey's.

In this paper we argued that the method which uses productivity and wage ratios has the best predictive power to identify the Armenian manufacturing sectors that would be able to compete and export when Turkey opens the borders. According to this method the number of sectors where Armenia has comparative advantage is much smaller than the number of sectors where Turkey has comparative advantage; however during 2000, the large number of manufacturing sectors where Turkey had comparative advantage represented only 19 percent of total manufacturing output in Armenia and in 2006 that number increased to 40 percent.

From 2000 to 2006 the appreciation of AMD, the depreciation of Turkish Lira and the significant increase in real wages in Armenia were detrimental to Armenian manufacturing sectors and eroded the competitive edge of many sectors in Armenia. On the other hand the rapid increase in productivity in Armenia relative to Turkey improved the competitiveness of manufacturing sectors. According to the results of this paper, during this period the net effect of changes in productivity, real wages and exchange rate on the competitiveness of manufacturing sectors in Armenia was negative. The increase in productivity was not enough to compensate the drastic appreciation of Armenian currency AMD and the rise in Armenian real wages. Some of the manufacturing sectors in Armenia which were able to compete with the Turkish products became vulnerable to the Turkish imports.

An important observation of this paper is that the productivity of almost every manufacturing sector in Armenia is significantly less than the productivity in Turkey. Armenia could compete with some of the Turkish products because wages in Armenia are much lower than wages in Turkey. The goal in Armenia should be to raise the real wages and still be able to compete in the world market. Clearly, in order to raise wages and improve the standard of living of the population in Armenia, it is essential to improve productivity in Armenia. Productivity could be improved, for example, by allocating more funds for education, and health care and by improving the infrastructure of the country such as telecommunication and by developing legal and financial institutions. Improving productivity should be the focus of policy makers and analysts because the best method of increasing production of economic sectors and increasing the standard of living in Armenia is to improve productivity.

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APPENDIX A

**Table A1. Output per Employee and Average Wages in Turkey, 2000,
in US dollars**

TURKEY Industry (ISIC Revision 3)	Output in Producer's Prices, USD	Number of Employees	Output per Employee USD	Monthly Wage per employee USD
	2000	2000	2000	2000
Processed meat, fish, fruit, vegetables, fats (151)	5,304,398,382	53,498	99,151	452
Dairy products (1520)	1,041,221,589	8,500	122,497	588
Grain mill products, animal feeds (153)	2,091,294,483	15,373	136,037	400
Other food products (154)	4,632,364,525	66,000	70,187	767
Beverages (155)	1,857,595,385	11,121	167,035	843
Tobacco products (1600)	2,411,249,827	18,942	127,296	1010
Spinning, weaving and finishing of textiles (171)	20,660,293,961	164,026	125,957	438
Other textiles (172)	1,654,221,684	34,776	47,568	355
Knitted & crocheted fabrics (1730)	1,063,631,354	23,466	45,326	314
Wearing apparel, except fur apparel (1810)	5,676,041,256	147,178	38,566	309
Dressing & processing of fur (1820)	51,383,636	792	64,878	241
Tanning and processing of leather (191)	375,523,117	6,886	54,534	345
Footwear (1920)	318,255,138	9,497	33,511	375
Sawmilling and planing of wood (2010)	91,726,332	2,694	34,048	242
Products of wood, cork, straw, etc. (202)	643,063,185	8,755	73,451	405
Paper and paper products (210)	2,052,931,895	22,505	91,221	851
Publishing (221)	1,745,733,692	6,662	262,043	673
Printing and related service activities (222)	338,091,403	5,528	61,160	743
Reproduction of recorded media (2230)	47,226,690	216	218,642	325
Coke oven products (2310)	16,824,518	167	100,746	402
Refined petroleum products (2320)	10,008,902,488	6,499	1,540,068	1735
Basic chemicals (241)	2,329,468,818	17,153	135,805	1283
Other chemicals (242)	5,758,797,924	37,633	153,025	1186
Man-made fibres (2430)	757,127,308	3,675	206,021	1306
Rubber products (251)	1,242,087,366	14,328	86,690	1026
Plastic products (2520)	2,163,080,587	28,123	76,915	507
Glass and glass products (2610)	1,165,744,456	13,565	85,938	1037
Non-metallic mineral products n.e.c. (269)	3,845,534,001	60,059	64,029	517
Basic iron and steel (2710)	6,234,028,584	41,502	150,210	1093
Basic precious and non-ferrous metals (2720)	1,483,455,784	11,889	124,775	839
Casting of metals (273)	410,950,732	8,688	47,301	679
Struct. metal products; tanks; steam gene. (281)	1,100,938,312	17,586	62,603	514
Other metal products & services (289)	1,652,635,039	33,934	48,701	499
General purpose machinery (291)	1,000,264,707	21,300	46,961	569
Special purpose machinery (292)	1,534,650,686	30,259	50,717	719
Domestic appliances n.e.c. (2930)	1,930,056,452	20,480	94,241	684

Office & computing. machinery (3000)	263,758,990	1,186	222,394	577
Electric motors & transformers (3110)	544,566,420	7,633	71,344	856
Electricity distribution (3120)	502,301,196	9,199	54,604	820
Insulated wire and cable (3130)	862,722,392	7,535	114,495	660
Accumulators and batteries (3140)	120,482,679	1,420	84,847	637
Lighting equipment and electric lamps (3150)	143,944,877	3,352	42,943	447
Other electrical equipment n.e.c. (3190)	379,446,545	7,765	48,866	865
Electronic valves, tubes, etc. (3210)	50,775,849	1,338	37,949	590
TV/radio transmitters (3220)	718,161,731	5,535	129,749	1849
TV and radio receivers (3230)	1,473,289,738	7,375	199,768	998
Medical, measuring, appliances, etc. (331)	336,124,091	5,563	60,421	628
Optical instruments & photog. Equip. (3320)	26,256,421	607	43,256	445
Watches and clocks (3330)	2,725,447	124	21,979	405
Motor vehicles (3410)	6,073,097,645	28,060	216,433	1087
Automobile bodies (3420)	136,996,906	2,762	49,601	472
Parts/accessories for automobiles (3430)	987,613,130	18,020	54,807	656
Building and repairing of ships and boats (351)	122,011,745	2,350	51,920	766
Railway/tramway locomotive (3520)	135,837,311	6,788	20,011	1073
Aircraft and spacecraft (3530)	176,523,887	2,578	68,473	1618
Transport equipment n.e.c. (359)	85,859,583	1,581	54,307	625
Furniture (3610)	1,101,379,758	24,068	45,761	346
Manufacturing n.e.c. (369)	578,261,840	7,679	75,304	369
Total manufacturing (D)	109,527,344,440	1,125,773	97,291	623

Source: United Nations Industrial Development Organization, UNIDO, *International Yearbook of Industrial Statistics*, 2004

Table A2. Output per Employee in Armenia, in 2000, in US Dollars

Armenia Industry (ISIC Revision 3)	Output in Producer's Prices, USD	Number of employees	Output per Employee, USD
Processed meat, fish, fruit, vegetables, fats (151)	8,904,541	979	9,096
Dairy products (1520)	8,381,835	809	10,361
Grain mill products; starches; animal feeds (153)	12,702,502	1,213	10,472
Other food products (154)	129,644,115	3,059	42,381
Beverages (155)	44,313,253	3,432	12,912
Tobacco products (1600)	21,052,827	820	25,674
Spinning, weaving and finishing of textiles (171)	418,906	314	1,334
Other textiles (172)	691,381	1,627	425
Knitted and crocheted fabrics and articles (1730)	1,525,487	726	2,101
Wearing apparel, except fur apparel (1810)	3,849,861	3,940	977
Tanning, dressing and processing of leather (191)	72,289	48	1,506
Footwear (1920)	530,120	250	2,120
Sawmilling and planing of wood (2010)	841,520	455	1,849
Products of wood, cork, straw, etc. (202)	711,770	356	1,999
Paper and paper products (210)	932,345	183	5,095

Publishing (221)	6,978,684	796	8,767
Printing and related service activities (222)	570,899	219	2,607
Refined petroleum products (2320)	90,825	9	10,092
Basic chemicals (241)	16,457,831	3,565	4,617
Other chemicals (242)	1,679,333	631	2,661
Man-made fibres (2430)	9,268	10	927
Rubber products (251)	235,403	344	684
Plastic products (2520)	748,842	408	1,835
Glass and glass products (2610)	1,236,330	445	2,778
Non-metallic mineral products n.e.c. (269)	11,911,029	4,226	2,819
Basic iron and steel (2710)	68,582	5	13,716
Basic precious and non-ferrous metals (2720)	31,794,254	1,517	20,959
Casting of metals (273)	1,154,773	940	1,228
Struct.metal products;tanks;steam generators (281)	2,203,892	609	3,619
Other metal products; metal working services (289)	1,405,005	1,175	1,196
General purpose machinery (291)	2,854,495	1,697	1,682
Special purpose machinery (292)	4,837,813	3,635	1,331
Domestic appliances n.e.c. (2930)	680,259	943	721
Office, accounting and computing machinery (3000)	177,943	424	420
Electric motors, generators and transformers (3110)	1,469,880	2,039	721
Electricity distribution & control apparatus (3120)	661,724	462	1,432
Insulated wire and cable (3130)	1,662,651	217	7,662
Accumulators, primary cells and batteries (3140)	287,303	76	3,780
Lighting equipment and electric lamps (3150)	148,285	323	459
Other electrical equipment n.e.c. (3190)	211,307	292	724
Electronic valves, tubes, etc. (3210)	74,143	480	154
TV/radio transmitters; line comm. apparatus (3220)	68,582	340	202
TV and radio receivers and associated goods (3230)	493,049	387	1,274
Medical, measuring, testing appliances, etc. (331)	1,175,162	1,076	1,092
Optical instruments & photographic equipment (3320)	74,143	70	1,059
Watches and clocks (3330)	798,888	128	6,241
Motor vehicles (3410)	354,032	186	1,903
Parts/accessories for automobiles (3430)	5,561	94	59
Transport equipment n.e.c. (359)	42,632	27	1,579
Furniture (3610)	980,538	473	2,073
Manufacturing n.e.c. (369)	31,041,705	3,316	9,361
Total manufacturing (D)	359,262,280	49,831	7,210

Source: United Nations Industrial Development Organization, National Statistical Service of Republic of Armenia.

Table A3. Monthly wages per employee in Armenia, in 2000, in US Dollars, (540 AMD per Dollar)

ARMENIA Industry (ISIC Revision 3)	NSS Industrial Classification	Monthly Wages per employee
		2000
Processed meat, fish, fruit, vegetables, fats (151)	Processed food	47.9
Dairy products (1520)	Processed food	47.9
Grain mill products; starches; animal feeds (153)	Processed food	47.9
Other food products (154)	Food industry	46.0
Beverages (155)	Food industry	46.0
Tobacco products (1600)	Food industry	46.0
Spinning, weaving and finishing of textiles (171)	Textile	16.8
Other textiles (172)	Textile	16.8
Knitted and crocheted fabrics and articles (1730)	Clothing	24.9
Wearing apparel, except fur apparel (1810)	Clothing	24.9
Tanning, dressing and processing of leather (191)	Leather, fur and shoe	20.2
Footwear (1920)	Leather, fur and shoe	20.2
Sawmilling and planing of wood (2010)	logging, wood-working & pulp paper	29.6
Products of wood, cork, straw, etc. (202)	logging, wood-working & pulp paper	29.6
Paper and paper products (210)	logging, wood-working & pulp paper	29.6
Publishing (221)	Other	57.0
Printing and related service activities (222)	Other	57.0
Refined petroleum products (2320)	Chemical & petrochemical	43.9
Basic chemicals (241)	Chemical & petrochemical	43.9
Other chemicals (242)	Chemical & petrochemical	43.9
Man-made fibres (2430)	Chemical & petrochemical	43.9
Rubber products (251)	Chemical & petrochemical	43.9
Plastic products (2520)	Chemical & petrochemical	43.9
Glass and glass products (2610)	Chemical & petrochemical	43.9
Non-metallic mineral products n.e.c. (269)	Building materials industry	43.2
Basic iron and steel (2710)	Ferrous metallurgy	80.6
Basic precious and non-ferrous metals (2720)	Non-ferrous metallurgy	68.6
Casting of metals (273)	Non-ferrous metallurgy	68.6
Struct. metal products; tanks; steam generators (281)	Machinery & metalworking	30.3
Other metal products; metal working services (289)	Machinery & metalworking	30.3
General purpose machinery (291)	Machinery & metalworking	30.3
Special purpose machinery (292)	Machinery & metalworking	30.3
Domestic appliances n.e.c. (2930)	Machinery & metalworking	30.3
Office, accounting and computing machinery (3000)	Machinery & metalworking	30.3

Electric motors, generators and transformers (3110)	Machinery & metalworking	30.3
Electricity distribution & control apparatus (3120)	Machinery & metalworking	30.3
Insulated wire and cable (3130)	Machinery & metalworking	30.3
Accumulators, primary cells and batteries (3140)	Machinery & metalworking	30.3
Lighting equipment and electric lamps (3150)	Machinery & metalworking	30.3
Other electrical equipment n.e.c. (3190)	Machinery & metalworking	30.3
Electronic valves, tubes, etc. (3210)	Machinery & metalworking	30.3
TV/radio transmitters; line comm. apparatus (3220)	Machinery & metalworking	30.3
TV and radio receivers and associated goods (3230)	Machinery & metalworking	30.3
Medical, measuring, testing appliances, etc. (331)	Machinery & metalworking	30.3
Optical instruments & photographic equipment (3320)	Machinery & metalworking	30.3
Watches and clocks (3330)	Machinery & metalworking	30.3
Motor vehicles (3410)	Machinery & metalworking	30.3
Parts/accessories for automobiles (3430)	Machinery & metalworking	30.3
Transport equipment n.e.c. (359)	Machinery & metalworking	30.3
Furniture (3610)	Light industry	20.7
Manufacturing n.e.c. (369)	Other	57.0
Total manufacturing (D)	Total	56.3

Source: National Statistical Service of Republic of Armenia, Statistical Yearbook of Armenia, 2001.

Table A4. Productivity and wages of Armenia Relative to Turkey in 2006

Industry (ISIC Revision 3)	Per worker output ratio Armenia /Turkey	Monthly wage ratio Armenia/ Turkey (2000 Exchange Rate)	Monthly wage ratio Armenia/ Turkey (Oct 13, 2006 Exchange Rate)	Final ratio = Column two / Column four (Oct 13, 2006 Exchange Rate)
1	2	3	4	5
Processed meat, fish, fruit, vegetables, fats (151)	0.164	0.110	0.363	0.452
Dairy products (1520)	0.151	0.084	0.279	0.542
Grain mill products; starches; animal feeds (153)	0.138	0.124	0.410	0.336
Other food products (154)	1.079	0.062	0.205	5.267
Beverages (155)	0.138	0.056	0.186	0.741
Tobacco products (1600)	0.360	0.047	0.156	2.318
Spinning, weaving and finishing of textiles (171)	0.019	0.040	0.131	0.144
Other textiles (172)	0.016	0.049	0.162	0.099
Knitted and crocheted fabrics and articles (1730)	0.083	0.082	0.271	0.306
Wearing apparel, except fur apparel (1810)	0.045	0.083	0.275	0.165

Tanning, dressing and processing of leather (191)	0.049	0.061	0.200	0.247
Footwear (1920)	0.113	0.056	0.184	0.615
Sawmilling and planing of wood (2010)	0.097	0.127	0.418	0.232
Products of wood, cork, straw, etc. (202)	0.049	0.076	0.250	0.195
Paper and paper products (210)	0.100	0.036	0.119	0.840
Publishing (221)	0.060	0.088	0.290	0.206
Printing and related service activities (222)	0.076	0.079	0.262	0.291
Refined petroleum products (2320)	0.012	0.026	0.086	0.135
Basic chemicals (241)	0.061	0.035	0.117	0.520
Other chemicals (242)	0.031	0.038	0.126	0.246
Man-made fibres (2430)	0.008	0.035	0.115	0.070
Rubber products (251)	0.014	0.044	0.146	0.096
Plastic products (2520)	0.043	0.090	0.296	0.144
Glass and glass products (2610)	0.058	0.044	0.145	0.399
Non-metallic mineral products n.e.c. (269)	0.079	0.086	0.285	0.276
Basic iron and steel (2710)	0.163	0.076	0.252	0.648
Basic precious and non-ferrous metals (2720)	0.300	0.085	0.279	1.075
Casting of metals (273)	0.046	0.104	0.345	0.135
Struct.metal products;tanks;steam generat. (281)	0.103	0.061	0.201	0.513
Other metal products and services (289)	0.044	0.063	0.208	0.211
General purpose machinery (291)	0.064	0.055	0.182	0.351
Special purpose machinery (292)	0.047	0.044	0.144	0.325
Domestic appliances n.e.c. (2930)	0.014	0.046	0.152	0.090
Office, accounting & computing machinery (3000)	0.003	0.054	0.180	0.019
Electric motors, generators & transformers (3110)	0.018	0.037	0.121	0.149
Electricity distribution & control apparatus (3120)	0.047	0.038	0.126	0.371
Insulated wire and cable (3130)	0.120	0.048	0.157	0.762
Accumulators, primary cells and batteries (3140)	0.080	0.049	0.163	0.490
Lighting equipment and electric lamps (3150)	0.019	0.070	0.232	0.082
Other electrical equipment n.e.c. (3190)	0.026	0.036	0.120	0.221
Electronic valves, tubes, etc. (3210)	0.007	0.053	0.176	0.041
TV/radio transmitters; line comm. Appar. (3220)	0.003	0.017	0.056	0.050
TV / radio receivers & associated goods (3230)	0.011	0.031	0.104	0.110
Medical, measuring, testing appliances, etc. (331)	0.032	0.050	0.165	0.196
Optical instruments & photographic equip. (3320)	0.044	0.070	0.233	0.188
Watches and clocks (3330)	0.508	0.077	0.256	1.984
Motor vehicles (3410)	0.016	0.029	0.095	0.165
Parts/accessories for automobiles (3430)	0.002	0.048	0.158	0.012
Transport equipment n.e.c. (359)	0.052	0.050	0.166	0.314
Furniture (3610)	0.081	0.062	0.205	0.396
Manufacturing n.e.c. (369)	0.222	0.160	0.528	0.421
Total manufacturing (D)	0.132	0.093	0.308	0.429

Table A5. Armenian Exports Ranked as a Share of Total Exports

Chapter	Chapter name	Armenia Export, thous. US\$	Armenia Import, thous. US\$	Export Share	Import Share
93	Arms and ammunition; and accessories thereof	-	-	-	-
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin	336,340.8	347,634.3	34.53%	19.29%
72	Iron and steel	243,717.4	38,652.6	25.02%	2.15%
22	Beverages, spirits and vinegar	84,295.8	15,352.6	8.66%	0.85%
26	Ores, slag and ash	51,425.6	30,658.2	5.28%	1.70%
74	Copper and articles thereof	50,569.7	2,141.2	5.19%	0.12%
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes	27,187.3	264,366.4	2.79%	14.67%
62	Articles of apparel and clothing accessories, not knitted or crocheted	22,409.6	16,568.1	2.30%	0.92%
81	Other base metals; cermets; articles thereof	17,983.1	413.6	1.85%	0.02%
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	16,886.7	156,620.2	1.73%	8.69%
25	Salt; sulphur; earths and stone; plastering materials, lime and cement	14,872.6	2,377.6	1.53%	0.13%
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	11,113.8	75,865.9	1.14%	4.21%
87	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof	9,582.5	146,625.3	0.98%	8.14%
40	Rubber and articles thereof	7,621.8	17,554.1	0.78%	0.97%
61	Articles of apparel and clothing accessories, knitted or crocheted	7,592.7	7,096.2	0.78%	0.39%
09	Coffee, tea, mate and spices	7,562.8	15,680.1	0.78%	0.87%
20	Preparations of vegetables, fruit, nuts or other parts of plants	7,318.4	7,976.8	0.75%	0.44%
76	Aluminium and articles thereof	4,445.6	8,939.5	0.46%	0.50%
73	Articles of iron or steel	4,355.2	34,745.3	0.45%	1.93%
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	3,836.1	13,867.1	0.39%	0.77%
70	Glass and glassware	3,532.4	18,247.8	0.36%	1.01%
24	Tobacco and manufactured tobacco substitutes	3,461.6	48,354.6	0.36%	2.68%
49	Printed books, newspapers, pictures and other products of the printing	3,301.5	5,572.3	0.34%	0.31%

	industry; manuscripts, type scripts and plans				
03	Fish and crustaceans, molluscs and other aquatic invertebrates.	2,929.6	1,758.0	0.30%	0.10%
91	Clocks and watches and parts thereof	2,872.6	1,594.3	0.29%	0.09%
57	Carpets and other textile floor coverings	2,396.2	1,724.0	0.25%	0.10%
48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	2,088.5	27,085.0	0.21%	1.50%
08	Edible fruit and nuts; peel of citrus fruit or melons	2,045.5	12,122.1	0.21%	0.67%
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof	1,948.3	28,391.8	0.20%	1.58%
63	Other made up textile articles; sets; worn clothing and worn textile articles; rags	1,900.7	9,197.8	0.20%	0.51%
68	Articles of stone, plaster, cement, asbestos, mica or similar materials	1,777.4	3,909.5	0.18%	0.22%
41	Raw hides and skins (other than furskins) and leather	1,633.5	116.3	0.17%	0.01%
86	Railway or tramway locomotives, rolling-stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electro-mechanical) traffic signalling equipment of all kinds	1,370.3	418.4	0.14%	0.02%
30	Pharmaceutical products	1,359.3	49,413.5	0.14%	2.74%
39	Plastics and articles thereof	1,054.3	30,745.7	0.11%	1.71%
44	Wood and articles of wood; wood charcoal	958.2	11,045.0	0.10%	0.61%
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	809.1	6,154.6	0.08%	0.34%
45	Cork and articles of cork	779.7	1,772.7	0.08%	0.10%
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal	769.3	3,037.7	0.08%	0.17%
60	Knitted or crocheted fabrics	722.9	1,760.5	0.07%	0.10%
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	658.3	1,661.1	0.07%	0.09%
54	Man-made filaments	630.3	1,680.3	0.06%	0.09%
21	Miscellaneous edible preparations	594.9	7,088.2	0.06%	0.39%
29	Organic chemicals	441.3	4,583.6	0.05%	0.25%
02	Meat and edible meat offal	412.8	28,397.0	0.04%	1.58%
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations	401.8	15,233.2	0.04%	0.85%
28	Inorganic chemicals; organic or inorganic compounds of precious	391.0	10,942.6	0.04%	0.61%

	metals, of rare-earth metals, of radioactive elements or of isotopes				
52	Cotton	377.4	3,272.6	0.04%	0.18%
97	Works of art, collectors' pieces and antiques	352.6	3,188.3	0.04%	0.18%
94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated name-plates and the like; prefabricated buildings	267.6	17,361.7	0.03%	0.96%
15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes	249.3	26,287.4	0.03%	1.46%
34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, "dental waxes" and dental preparations	221.8	10,737.0	0.02%	0.60%
88	Aircraft, spacecraft, and parts thereof	219.5	4,493.7	0.02%	0.25%
55	Man-made staple fibres	211.4	2,346.8	0.02%	0.13%
18	Cocoa and cocoa preparations	168.1	13,754.7	0.02%	0.76%
96	Miscellaneous manufactured articles	136.2	1,973.0	0.01%	0.11%
95	Toys, games and sports requisites; parts and accessories thereof	135.6	2,683.3	0.01%	0.15%
19	Preparations of cereals, flour, starch or milk; pastrycooks' products	132.8	7,225.1	0.01%	0.40%
64	Footwear, gaiters and the like; parts of such articles	101.4	11,118.7	0.01%	0.62%
35	Albuminoidal substances; modified starches; glues; enzymes	100.5	3,756.5	0.01%	0.21%
83	Miscellaneous articles of base metal	87.1	5,961.2	0.01%	0.33%
69	Ceramic products	81.1	11,735.3	0.01%	0.65%
32	Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints and varnishes; putty and other mastics; inks	80.0	7,119.3	0.01%	0.40%
07	Edible vegetables and certain roots and tubers	75.6	3,257.6	0.01%	0.18%
38	Miscellaneous chemical products	71.8	7,888.6	0.01%	0.44%
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric	63.6	143.2	0.01%	0.01%
17	Sugars and sugar confectionery	62.5	29,302.4	0.01%	1.63%
01	Live animals	50.4	1,280.5	0.01%	0.07%
06	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage	48.7	936.9	0.01%	0.05%
37	Photographic or cinematographic goods	48.7	971.9	0.01%	0.05%

58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery	42.7	95.7	0.00%	0.01%
92	Musical instruments; parts and accessories of such articles	39.3	64.4	0.00%	0.00%
23	Residues and waste from the food industries; prepared animal fodder	35.6	10,703.6	0.00%	0.59%
65	Headgear and parts thereof	27.2	235.6	0.00%	0.01%
78	Lead and articles thereof	25.7	5.3	0.00%	0.00%
11	Products of the milling industry; malt; starches; inulin; wheat gluten	10.6	9,216.4	0.00%	0.51%
42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)	10.6	2,059.5	0.00%	0.11%
59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use	10.4	439.2	0.00%	0.02%
05	Products of animal origin, not elsewhere specified or included	8.3	94.1	0.00%	0.01%
43	Furskins and artificial fur; manufactures thereof	2.9	1,114.0	0.00%	0.06%
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder	2.3	1,658.8	0.00%	0.09%
10	Cereals	1.6	53,745.2	0.00%	2.98%
36	Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations	0.2	1,565.8	0.00%	0.09%
53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn	0.2	34.2	0.00%	0.00%
	Umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and parts thereof	0.2	231.3	0.00%	0.01%
46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork	0.1	43.8	0.00%	0.00%
67	Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles of human hair	0.1	60.3	0.00%	0.00%
13	Lac; gums, resins and other vegetable saps and extracts	-	1,724.9	0.00%	0.10%
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included	-	0.9	0.00%	0.00%
31	Fertilisers	-	6,227.4	0.00%	0.35%
47	Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper or paperboard	-	93.7	0.00%	0.01%
50	Silk	-	4.7	0.00%	0.00%
75	Nickel and articles thereof	-	57.9	0.00%	0.00%

79	Zinc and articles thereof	-	31.4	0.00%	0.00%
80	Tin and articles thereof	-	76.7	0.00%	0.00%
89	Ships, boats and floating structures	-	212.5	0.00%	0.01%
	Total	973,920.5	1,801,735.7	100.00%	100.00%

Source: National Statistical Service (NSS) of Republic of Armenia, www.armstat.am/publications/

Table A6. Turkish Imports ranked as a Share of Total Imports, 2005

Chapter	Chapter name	Turkey Export, thous. US\$	Turkey Export Share	Turkey Import, thous. US\$	Turkey Import Share
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes	2,637,722	3.59%	21,232,662	18.22%
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	5,239,563	7.13%	16,316,150	14.00%
87	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof	9,565,630	13.02%	10,548,128	9.05%
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	5,423,871	7.38%	9,713,785	8.33%
72	Iron and steel	4,968,245	6.76%	9,409,697	8.07%
39	Plastics and articles thereof	1,720,389	2.34%	5,782,007	4.96%
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin	1,314,088	1.79%	4,226,726	3.63%
29	Organic chemicals	249,905	0.34%	3,525,897	3.02%
30	Pharmaceutical products	282,539	0.38%	2,849,105	2.44%
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof	179,701	0.24%	2,471,539	2.12%
52	Cotton	1,178,655	1.60%	2,076,911	1.78%
48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	584,800	0.80%	1,762,838	1.51%
74	Copper and articles thereof	511,106	0.70%	1,420,513	1.22%
76	Aluminium and articles thereof	874,220	1.19%	1,228,114	1.05%

40	Rubber and articles thereof	1,008,558	1.37%	1,202,594	1.03%
73	Articles of iron or steel	2,729,890	3.72%	1,183,163	1.02%
89	Ships, boats and floating structures	1,251,315	1.70%	1,165,987	1.00%
55	Man-made staple fibres	960,919	1.31%	1,135,713	0.97%
32	Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints and varnishes; putty and other mastics ; inks	234,143	0.32%	1,122,999	0.96%
54	Man-made filaments	893,748	1.22%	1,118,300	0.96%
38	Miscellaneous chemical products	154,474	0.21%	1,084,560	0.93%
44	Wood and articles of wood; wood charcoal	247,863	0.34%	793,825	0.68%
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of isotopes	372,789	0.51%	778,501	0.67%
15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes	511,299	0.70%	764,397	0.66%
31	Fertilisers	37,755	0.05%	754,689	0.65%
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder	96,565	0.13%	697,651	0.60%
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations	256,533	0.35%	530,053	0.45%
94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated name-plates and the like; prefabricated buildings	956,954	1.30%	528,723	0.45%
41	Raw hides and skins (other than furskins) and leather	87,461	0.12%	471,966	0.40%
70	Glass and glassware	631,185	0.86%	441,727	0.38%
62	Articles of apparel and clothing accessories, not knitted or crocheted	4,861,543	6.62%	433,289	0.37%
64	Footwear, gaiters and the like; parts of such articles	215,736	0.29%	412,715	0.35%
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric	180,202	0.25%	409,894	0.35%
83	Miscellaneous articles of base metal	282,124	0.38%	407,804	0.35%
26	Ores, slag and ash	277,918	0.38%	395,028	0.34%
34	Soap, organic surface-active agents, washing preparations,	412,027	0.56%	341,699	0.29%

	lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, "dental waxes" and dental preparations				
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal	65,801	0.09%	341,269	0.29%
23	Residues and waste from the food industries; prepared animal fodder	15,423	0.02%	341,256	0.29%
88	Aircraft, spacecraft, and parts thereof	247,591	0.34%	314,089	0.27%
96	Miscellaneous manufactured articles	79,484	0.11%	293,281	0.25%
47	Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper or paperboard	937	0.00%	277,763	0.24%
21	Miscellaneous edible preparations	235,515	0.32%	277,382	0.24%
24	Tobacco and manufactured tobacco substitutes	590,047	0.80%	275,504	0.24%
42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)	330,179	0.45%	275,451	0.24%
25	Salt; sulphur; earths and stone; plastering materials, lime and cement	1,122,890	1.53%	265,013	0.23%
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	178,876	0.24%	263,567	0.23%
61	Articles of apparel and clothing accessories, knitted or crocheted	6,590,092	8.97%	252,706	0.22%
93	Arms and ammunition; and accessories thereof	334,243	0.45%	250,875	0.22%
68	Articles of stone, plaster, cement, asbestos, mica or similar materials	753,199	1.03%	247,457	0.21%
95	Toys, games and sports requisites; parts and accessories thereof	26,859	0.04%	236,365	0.20%
35	Albuminoidal substances; modified starches; glues; enzymes	34,591	0.05%	236,345	0.20%
58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery	549,624	0.75%	235,428	0.20%
69	Ceramic products	683,053	0.93%	233,872	0.20%
79	Zinc and articles thereof	9,617	0.01%	228,677	0.20%
37	Photographic or cinematographic goods	7,537	0.01%	213,670	0.18%
59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for	260,765	0.35%	205,702	0.18%

	industrial use				
10	Cereals	114,634	0.16%	188,881	0.16%
18	Cocoa and cocoa preparations	242,736	0.33%	181,535	0.16%
53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn	25,092	0.03%	180,966	0.16%
60	Knitted or crocheted fabrics	570,884	0.78%	170,535	0.15%
08	Edible fruit and nuts; peel of citrus fruit or melons	2,499,524	3.40%	154,099	0.13%
91	Clocks and watches and parts thereof	7,339	0.01%	145,865	0.13%
57	Carpets and other textile floor coverings	669,831	0.91%	144,570	0.12%
49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, type scripts and plans	49,437	0.07%	137,892	0.12%
75	Nickel and articles thereof	2,944	0.00%	106,247	0.09%
43	Furskins and artificial fur; manufactures thereof	155,130	0.21%	83,585	0.07%
86	Railway or tramway locomotives, rolling-stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electro-mechanical) traffic signalling equipment of all kinds	30,938	0.04%	83,099	0.07%
78	Lead and articles thereof	3,510	0.00%	83,032	0.07%
07	Edible vegetables and certain roots and tubers	531,893	0.72%	78,628	0.07%
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	79,602	0.11%	75,787	0.07%
19	Preparations of cereals, flour, starch or milk; pastrycooks' products	347,413	0.47%	75,684	0.06%
03	Fish and crustaceans, molluscs and other aquatic invertebrates.	204,904	0.28%	67,913	0.06%
63	Other made up textile articles; sets; worn clothing and worn textile articles; rags	1,969,441	2.68%	65,009	0.06%
22	Beverages, spirits and vinegar	148,104	0.20%	51,142	0.04%
20	Preparations of vegetables, fruit, nuts or other parts of plants	1,281,121	1.74%	46,611	0.04%
17	Sugars and sugar confectionery	202,226	0.28%	43,789	0.04%
81	Other base metals; cermets; articles thereof	2,665	0.00%	40,242	0.03%
09	Coffee, tea, mate and spices	64,348	0.09%	39,647	0.03%
13	Lac; gums, resins and other vegetable saps and ex tracts	2,615	0.00%	38,561	0.03%
06	Live trees and other plants; bulbs, roots and the like; cut flowers and	35,751	0.05%	33,764	0.03%

	ornamental foliage				
05	Products of animal origin, not elsewhere specified or included	40,638	0.06%	31,223	0.03%
50	Silk	4,557	0.01%	29,200	0.03%
80	Tin and articles thereof	636	0.00%	24,755	0.02%
92	Musical instruments; parts and accessories of such articles	5,109	0.01%	20,224	0.02%
36	Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations	13,100	0.02%	20,222	0.02%
65	Headgear and parts thereof	8,152	0.01%	18,597	0.02%
67	Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles of human hair	454	0.00%	18,120	0.02%
11	Products of the milling industry; malt; starches; inulin; wheat gluten	483,488	0.66%	14,990	0.01%
01	Live animals	5,162	0.01%	14,074	0.01%
66	Umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and parts thereof	6,308	0.01%	12,902	0.01%
46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork	511	0.00%	10,361	0.01%
97	Works of art, collectors' pieces and antiques	418	0.00%	6,769	0.01%
45	Cork and articles of cork	320	0.00%	5,705	0.00%
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included	17,082	0.02%	2,730	0.00%
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	42,276	0.06%	1,136	0.00%
02	Meat and edible meat offal	36,204	0.05%	277	0.00%
	Total	73,472,289	100.00%	116,562,532	100.00%

Source: Turkish Statistical Institute (TURKSTAT), www.turkstat.gov.tr

Table A7. Turkish Exports ranked as a Share of Total Exports, 2005

Chapter	Chapter name	Turkey Export, thous. US\$	Turkey Export Share	Turkey Import, thous. US\$	Turkey Import Share
87	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof	9,565,630	13.02%	10,548,128	9.05%
61	Articles of apparel and clothing accessories, knitted or crocheted	6,590,092	8.97%	252,706	0.22%
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	5,423,871	7.38%	9,713,785	8.33%
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	5,239,563	7.13%	16,316,150	14.00%
72	Iron and steel	4,968,245	6.76%	9,409,697	8.07%
62	Articles of apparel and clothing accessories, not knitted or crocheted	4,861,543	6.62%	433,289	0.37%
73	Articles of iron or steel	2,729,890	3.72%	1,183,163	1.02%
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes	2,637,722	3.59%	21,232,662	18.22%
08	Edible fruit and nuts; peel of citrus fruit or melons	2,499,524	3.40%	154,099	0.13%
63	Other made up textile articles; sets; worn clothing and worn textile articles; rags	1,969,441	2.68%	65,009	0.06%
39	Plastics and articles thereof	1,720,389	2.34%	5,782,007	4.96%
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin	1,314,088	1.79%	4,226,726	3.63%
20	Preparations of vegetables, fruit, nuts or other parts of plants	1,281,121	1.74%	46,611	0.04%
89	Ships, boats and floating structures	1,251,315	1.70%	1,165,987	1.00%
52	Cotton	1,178,655	1.60%	2,076,911	1.78%
25	Salt; sulphur; earths and stone; plastering materials, lime and cement	1,122,890	1.53%	265,013	0.23%
40	Rubber and articles thereof	1,008,558	1.37%	1,202,594	1.03%
55	Man-made staple fibres	960,919	1.31%	1,135,713	0.97%
94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated name-plates and the like; prefabricated buildings	956,954	1.30%	528,723	0.45%
54	Man-made filaments	893,748	1.22%	1,118,300	0.96%

76	Aluminium and articles thereof	874,220	1.19%	1,228,114	1.05%
68	Articles of stone, plaster, cement, asbestos, mica or similar materials	753,199	1.03%	247,457	0.21%
69	Ceramic products	683,053	0.93%	233,872	0.20%
57	Carpets and other textile floor coverings	669,831	0.91%	144,570	0.12%
70	Glass and glassware	631,185	0.86%	441,727	0.38%
24	Tobacco and manufactured tobacco substitutes	590,047	0.80%	275,504	0.24%
48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	584,800	0.80%	1,762,838	1.51%
60	Knitted or crocheted fabrics	570,884	0.78%	170,535	0.15%
58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery	549,624	0.75%	235,428	0.20%
07	Edible vegetables and certain roots and tubers	531,893	0.72%	78,628	0.07%
15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes	511,299	0.70%	764,397	0.66%
74	Copper and articles thereof	511,106	0.70%	1,420,513	1.22%
11	Products of the milling industry; malt; starches; inulin; wheat gluten	483,488	0.66%	14,990	0.01%
34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, "dental waxes" and dental preparations with a	412,027	0.56%	341,699	0.29%
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of isotopes	372,789	0.51%	778,501	0.67%
19	Preparations of cereals, flour, starch or milk; pastrycooks' products	347,413	0.47%	75,684	0.06%
93	Arms and ammunition; and accessories thereof	334,243	0.45%	250,875	0.22%
42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)	330,179	0.45%	275,451	0.24%
30	Pharmaceutical products	282,539	0.38%	2,849,105	2.44%
83	Miscellaneous articles of base metal	282,124	0.38%	407,804	0.35%
26	Ores, slag and ash	277,918	0.38%	395,028	0.34%
59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use	260,765	0.35%	205,702	0.18%
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations	256,533	0.35%	530,053	0.45%
29	Organic chemicals	249,905	0.34%	3,525,897	3.02%

44	Wood and articles of wood; wood charcoal	247,863	0.34%	793,825	0.68%
88	Aircraft, spacecraft, and parts thereof	247,591	0.34%	314,089	0.27%
18	Cocoa and cocoa preparations	242,736	0.33%	181,535	0.16%
21	Miscellaneous edible preparations	235,515	0.32%	277,382	0.24%
32	Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints and varnishes; putty and other mastics; inks	234,143	0.32%	1,122,999	0.96%
64	Footwear, gaiters and the like; parts of such articles	215,736	0.29%	412,715	0.35%
03	Fish and crustaceans, molluscs and other aquatic invertebrates.	204,904	0.28%	67,913	0.06%
17	Sugars and sugar confectionery	202,226	0.28%	43,789	0.04%
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric	180,202	0.25%	409,894	0.35%
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof	179,701	0.24%	2,471,539	2.12%
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	178,876	0.24%	263,567	0.23%
43	Furskins and artificial fur; manufactures thereof	155,130	0.21%	83,585	0.07%
38	Miscellaneous chemical products	154,474	0.21%	1,084,560	0.93%
22	Beverages, spirits and vinegar	148,104	0.20%	51,142	0.04%
10	Cereals	114,634	0.16%	188,881	0.16%
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and fodder	96,565	0.13%	697,651	0.60%
41	Raw hides and skins (other than furskins) and leather	87,461	0.12%	471,966	0.40%
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	79,602	0.11%	75,787	0.07%
96	Miscellaneous manufactured articles	79,484	0.11%	293,281	0.25%
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal	65,801	0.09%	341,269	0.29%
09	Coffee, tea, mate and spices	64,348	0.09%	39,647	0.03%
49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, type scripts and plans	49,437	0.07%	137,892	0.12%
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	42,276	0.06%	1,136	0.00%
05	Products of animal origin, not	40,638	0.06%	31,223	0.03%

	elsewhere specified or included				
31	Fertilisers	37,755	0.05%	754,689	0.65%
02	Meat and edible meat offal	36,204	0.05%	277	0.00%
06	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage	35,751	0.05%	33,764	0.03%
35	Albuminoidal substances; modified starches; glues ; enzymes	34,591	0.05%	236,345	0.20%
86	Railway or tramway locomotives, rolling-stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electro-mechanical) traffic signalling equipment of all kinds	30,938	0.04%	83,099	0.07%
95	Toys, games and sports requisites; parts and accessories thereof	26,859	0.04%	236,365	0.20%
53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn	25,092	0.03%	180,966	0.16%
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included	17,082	0.02%	2,730	0.00%
23	Residues and waste from the food industries; prepared animal fodder	15,423	0.02%	341,256	0.29%
36	Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations	13,100	0.02%	20,222	0.02%
79	Zinc and articles thereof	9,617	0.01%	228,677	0.20%
65	Headgear and parts thereof	8,152	0.01%	18,597	0.02%
37	Photographic or cinematographic goods	7,537	0.01%	213,670	0.18%
91	Clocks and watches and parts thereof	7,339	0.01%	145,865	0.13%
66	Umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and parts thereof	6,308	0.01%	12,902	0.01%
01	Live animals	5,162	0.01%	14,074	0.01%
92	Musical instruments; parts and accessories of such articles	5,109	0.01%	20,224	0.02%
50	Silk	4,557	0.01%	29,200	0.03%
78	Lead and articles thereof	3,510	0.00%	83,032	0.07%
75	Nickel and articles thereof	2,944	0.00%	106,247	0.09%
81	Other base metals; cermets; articles thereof	2,665	0.00%	40,242	0.03%
13	Lac; gums, resins and other vegetable saps and extracts	2,615	0.00%	38,561	0.03%
47	Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper or paperboard	937	0.00%	277,763	0.24%
80	Tin and articles thereof	636	0.00%	24,755	0.02%
46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork	511	0.00%	10,361	0.01%
67	Prepared feathers and down and	454	0.00%	18,120	0.02%

	articles made of feathers or of down; artificial flowers; articles of human hair				
97	Works of art, collectors' pieces and antiques	418	0.00%	6,769	0.01%
45	Cork and articles of cork	320	0.00%	5,705	0.00%
	Total	73,472,289	100.00%	116,562,532	100.00%

Source: Turkish Statistical Institute (TURKSTAT), www.turkstat.gov.tr

Table A8. Armenian Imports ranked as a Share of Total Imports

Chapter	Chapter name	Armenia Export, thous. US\$	Armenia Import, thous. US\$	Export Share	Import Share
93	Arms and ammunition; and accessories thereof	-	-	-	-
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal, and articles thereof; imitation jewellery; coin	336,340.8	347,634.3	34.53%	19.29%
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes	27,187.3	264,366.4	2.79%	14.67%
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	16,886.7	156,620.2	1.73%	8.69%
87	Vehicles other than railway or tramway rolling-stock, and parts and accessories thereof	9,582.5	146,625.3	0.98%	8.14%
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	11,113.8	75,865.9	1.14%	4.21%
10	Cereals	1.6	53,745.2	0.00%	2.98%
30	Pharmaceutical products	1,359.3	49,413.5	0.14%	2.74%
24	Tobacco and manufactured tobacco substitutes	3,461.6	48,354.6	0.36%	2.68%
72	Iron and steel	243,717.4	38,652.6	25.02%	2.15%
73	Articles of iron or steel	4,355.2	34,745.3	0.45%	1.93%
39	Plastics and articles thereof	1,054.3	30,745.7	0.11%	1.71%
26	Ores, slag and ash	51,425.6	30,658.2	5.28%	1.70%
17	Sugars and sugar confectionery	62.5	29,302.4	0.01%	1.63%
02	Meat and edible meat offal	412.8	28,397.0	0.04%	1.58%
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof	1,948.3	28,391.8	0.20%	1.58%
48	Paper and paperboard; articles of paper pulp, of paper or of paperboard	2,088.5	27,085.0	0.21%	1.50%
15	Animal or vegetable fats and oils and their cleavage products; prepared edible	249.3	26,287.4	0.03%	1.46%

	fats; animal or vegetable waxes				
70	Glass and glassware	3,532.4	18,247.8	0.36%	1.01%
40	Rubber and articles thereof	7,621.8	17,554.1	0.78%	0.97%
94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated name-plates and the like; prefabricated buildings	267.6	17,361.7	0.03%	0.96%
62	Articles of apparel and clothing accessories, not knitted or crocheted	22,409.6	16,568.1	2.30%	0.92%
09	Coffee, tea, mate and spices	7,562.8	15,680.1	0.78%	0.87%
22	Beverages, spirits and vinegar	84,295.8	15,352.6	8.66%	0.85%
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations	401.8	15,233.2	0.04%	0.85%
04	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included	3,836.1	13,867.1	0.39%	0.77%
18	Cocoa and cocoa preparations	168.1	13,754.7	0.02%	0.76%
08	Edible fruit and nuts; peel of citrus fruit or melons	2,045.5	12,122.1	0.21%	0.67%
69	Ceramic products	81.1	11,735.3	0.01%	0.65%
64	Footwear, gaiters and the like; parts of such articles	101.4	11,118.7	0.01%	0.62%
44	Wood and articles of wood; wood charcoal	958.2	11,045.0	0.10%	0.61%
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of isotopes	391.0	10,942.6	0.04%	0.61%
34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, "dental waxes" and dental preparations with a	221.8	10,737.0	0.02%	0.60%
23	Residues and waste from the food industries; prepared animal fodder	35.6	10,703.6	0.00%	0.59%
11	Products of the milling industry; malt; starches; inulin; wheat gluten	10.6	9,216.4	0.00%	0.51%
63	Other made up textile articles; sets; worn clothing and worn textile articles; rags	1,900.7	9,197.8	0.20%	0.51%
76	Aluminium and articles thereof	4,445.6	8,939.5	0.46%	0.50%
20	Preparations of vegetables, fruit, nuts or other parts of plants	7,318.4	7,976.8	0.75%	0.44%
38	Miscellaneous chemical products	71.8	7,888.6	0.01%	0.44%
19	Preparations of cereals, flour, starch or milk; pastrycooks' products	132.8	7,225.1	0.01%	0.40%
32	Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints and	80.0	7,119.3	0.01%	0.40%

	varnishes; putty and other mastics; inks				
61	Articles of apparel and clothing accessories, knitted or crocheted	7,592.7	7,096.2	0.78%	0.39%
21	Miscellaneous edible preparations	594.9	7,088.2	0.06%	0.39%
31	Fertilisers	-	6,227.4	0.00%	0.35%
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates	809.1	6,154.6	0.08%	0.34%
83	Miscellaneous articles of base metal	87.1	5,961.2	0.01%	0.33%
49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, type scripts and plans	3,301.5	5,572.3	0.34%	0.31%
29	Organic chemicals	441.3	4,583.6	0.05%	0.25%
88	Aircraft, spacecraft, and parts thereof	219.5	4,493.7	0.02%	0.25%
68	Articles of stone, plaster, cement, asbestos, mica or similar materials	1,777.4	3,909.5	0.18%	0.22%
35	Albuminoidal substances; modified starches; glues; enzymes	100.5	3,756.5	0.01%	0.21%
52	Cotton	377.4	3,272.6	0.04%	0.18%
07	Edible vegetables and certain roots and tubers	75.6	3,257.6	0.01%	0.18%
97	Works of art, collectors' pieces and antiques	352.6	3,188.3	0.04%	0.18%
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal	769.3	3,037.7	0.08%	0.17%
95	Toys, games and sports requisites; parts and accessories thereof	135.6	2,683.3	0.01%	0.15%
25	Salt; sulphur; earths and stone; plastering materials, lime and cement	14,872.6	2,377.6	1.53%	0.13%
55	Man-made staple fibres	211.4	2,346.8	0.02%	0.13%
74	Copper and articles thereof	50,569.7	2,141.2	5.19%	0.12%
42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut (other than silk-worm gut)	10.6	2,059.5	0.00%	0.11%
96	Miscellaneous manufactured articles	136.2	1,973.0	0.01%	0.11%
45	Cork and articles of cork	779.7	1,772.7	0.08%	0.10%
60	Knitted or crocheted fabrics	722.9	1,760.5	0.07%	0.10%
03	Fish and crustaceans, molluscs and other aquatic invertebrates.	2,929.6	1,758.0	0.30%	0.10%
13	Lac; gums, resins and other vegetable saps and extracts	-	1,724.9	0.00%	0.10%
57	Carpets and other textile floor coverings	2,396.2	1,724.0	0.25%	0.10%
54	Man-made filaments	630.3	1,680.3	0.06%	0.09%
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof	658.3	1,661.1	0.07%	0.09%
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants; straw and	2.3	1,658.8	0.00%	0.09%

	fodder				
91	Clocks and watches and parts thereof	2,872.6	1,594.3	0.29%	0.09%
36	Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations	0.2	1,565.8	0.00%	0.09%
01	Live animals	50.4	1,280.5	0.01%	0.07%
43	Furskins and artificial fur; manufactures thereof	2.9	1,114.0	0.00%	0.06%
37	Photographic or cinematographic goods	48.7	971.9	0.01%	0.05%
06	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage	48.7	936.9	0.01%	0.05%
59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use	10.4	439.2	0.00%	0.02%
86	Railway or tramway locomotives, rolling-stock and parts thereof; railway or tramway track fixtures and fittings and parts thereof; mechanical (including electro-mechanical) traffic signalling equipment of all kinds	1,370.3	418.4	0.14%	0.02%
81	Other base metals; cermets; articles thereof	17,983.1	413.6	1.85%	0.02%
65	Headgear and parts thereof	27.2	235.6	0.00%	0.01%
66	Umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and parts thereof	0.2	231.3	0.00%	0.01%
89	Ships, boats and floating structures	-	212.5	0.00%	0.01%
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric	63.6	143.2	0.01%	0.01%
41	Raw hides and skins (other than furskins) and leather	1,633.5	116.3	0.17%	0.01%
58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery	42.7	95.7	0.00%	0.01%
05	Products of animal origin, not elsewhere specified or included	8.3	94.1	0.00%	0.01%
47	Pulp of wood or of other fibrous cellulosic material; waste and scrap of paper or paperboard	-	93.7	0.00%	0.01%
80	Tin and articles thereof	-	76.7	0.00%	0.00%
92	Musical instruments; parts and accessories of such articles	39.3	64.4	0.00%	0.00%
67	Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles of human hair	0.1	60.3	0.00%	0.00%
75	Nickel and articles thereof	-	57.9	0.00%	0.00%
46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork	0.1	43.8	0.00%	0.00%
53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn	0.2	34.2	0.00%	0.00%

79	Zinc and articles thereof	-	31.4	0.00%	0.00%
78	Lead and articles thereof	25.7	5.3	0.00%	0.00%
50	Silk	-	4.7	0.00%	0.00%
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included	-	0.9	0.00%	0.00%
	Total	973,920.5	1,801,735. 7	100.00%	100.00%

Source: National Statistical Service (NSS) of Republic of Armenia, www.armstat.am/publications/