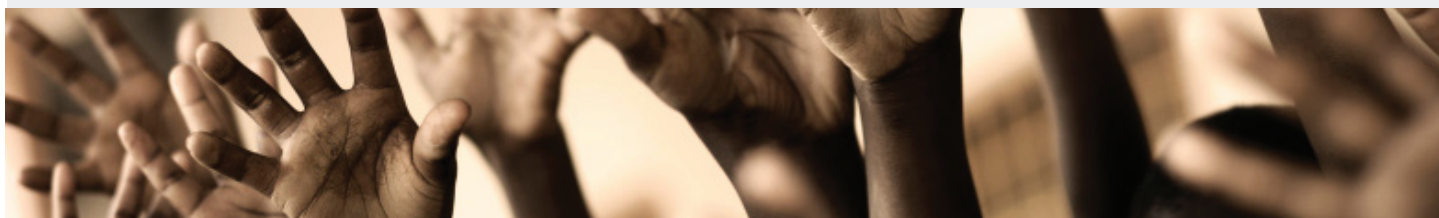# EU-Armenia trade liberalization: A poverty and social impact analysis

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EU-ARMENIA TRADE LIBERALIZATION:
A POVERTY AND SOCIAL IMPACT ANALYSIS

Abstract

This study set out to analyze the socioeconomic impact of increased trade liberalization between Armenia and the EU within the framework of Eastern Partnership initiative. In addition to a quantitative assessment of the potential impact of trade liberalization on the economic situation and poverty in Armenia, the study involves evaluations of existing foreign trade regimes and regulatory systems. Results of the analysis reveal that a simple free trade agreement or tariff liberalization will not result in significant socioeconomic benefits for Armenia. This is mainly caused by the already liberal trade regimes between Armenia and the EU. Armenia is already included in the Generalized System of Preferences in trade with the EU, yet the potential of this facility is not yet fully utilized. Armenia has relatively small and concentrated foreign exports which are limited by existent production capabilities and the current level of industrial development. Therefore, verification of a deep and comprehensive Free Trade Agreement (DCFTA) which implies harmonization of the partner countries' trade- and production-related legislation with EU standards is not feasible in the medium term. Enforcement of such standards on the domestic market – i.e. on production and imports – could paralyze the Armenian economy and most likely result in negative social consequences. If initial institutional and legislative harmonization is the matter, no direct economic and social benefits are to be expected for Armenia, as no structural changes will occur in the ability of Armenian producers to enter the EU market and the Armenian private sector will continue to be in non-compliant with EU standards. To this end, regional economic integration of Armenia with the EU is of great importance to long-term development of the country. However, it will only be economically justifiable and generate a positive social impact if the process that leads to such integration is based on development and harmonization of the capacities of domestic producers and enterprises. Therefore, the policy priority should move away from trade liberalization towards industrial development.

Keywords: Trade Liberalization; Free Trade Agreement; CGE; EU; Armenia; Poverty Analysis; Social Impact Analysis
Jel Codes: F15, F12, F16, I32, C68

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Abbreviations

AMD	Armenian dram
CIS	Commonwealth of Independent States
CNEAA	Commodity Nomenclature of External Economic Activity
CU	Customs union
DCFTA	Deep and Comprehensive Free Trade Agreement
EDRC	Economic Development and Research Center
EFTA	European Free Trade Association
ENP	European Neighborhood Policy
EU	European Union
EURO-MED	Euro-Mediterranean Partnership
EVRAZES	Eurasian Economic Community
FTA	Free trade agreement
GDP	Gross domestic product
GSP	Generalized system of preferences
IMF	International Monetary Fund
IPR	Intellectual property rights
MFN	Most Favored Nations
NSS	National Statistical Service of the Republic of Armenia
PCA	Partnership and cooperation agreement
PEP	Partnership for and Economic Policy research network
RA	Republic of Armenia
RF	Russian Federation
SME	Small and medium enterprise
SPS	Sanitary and phytosanitary
UAE	United Arab Emirates
UK	United Kingdom
UNDP	United Nations Development Programme
USA	United States of America
USD	United States dollar
WB	World Bank
WTO	World Trade Organization

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I. INTRODUCTION

- High economic growth over 2001-2007 resulted in substantial economic development in Armenia, yet the overall competitiveness of the economy is low. Industrial complexity and development is also low as exports are relatively small and rely on just a few items, predominantly of minerals and ore.

- Relations between the EU and Armenia started to develop in1996; today, Armenia is a member of the EU's Eastern Partnership which promotes political and economic reforms and assists the countries of the region to move closer to the EU. In this context, signing a Deep and Comprehensive Free Trade Agreement (DCFTA) between Armenia and the EU is prioritized.

- The EU-Armenia DCFTA implies not only liberalization of tariffs, but also harmonization of standards, SPS measures, IPR protection and other areas. The agreement is generally expected to result in a number of economic and social benefits for Armenia. Yet, crucial questions and important policy-making decisions remain which require careful consideration by all stakeholders.

- With this in mind, the Economic Development and Research Center initiated this assessment within the framework of the 2010 Poverty and Social Impact Assessment Research Grants project of the UNDP. The objective of the study is to define a framework for assessing liberalization, to shed light on potential consequent shifts in the economy and social situation in Armenia, and to create bases for further detailed assessments and sectoral impact forecasts. The study focuses on assessment of tariff regulations, along with general discussion of non-tariff regulations.

- The study identified the main potential directions of impacts of such an intervention and presented an assessment framework which was used to measure the economic impact. The impact assessment also involved a computable general equilibrium model (CGE), and the results were used to assess the impact on poverty through a separate micro model.

- This working paper presents a summary of the PSIA report published by EDRC in 2012. The first section of the paper provides a general overview of the Armenian socioeconomic situation. The second section is dedicated to analyses and examination of Armenia's trade regimes. Section 3 presents the core economic impact assessment with preliminary discussion of the economic consequences. Section 4is dedicated to the poverty impact analyses where a micro model transfers the computed macroeconomic impact to the level of household incomes and expenses and allows assessment of the possible impact of a DCFTA on poverty. Results of the analysis are summarized in the final section of the paper along with the main conclusions and policy recommendations.

- The study is expected to interest a wide audience, contribute to political and economic decision making and also serve as a basis for further studies and relevant policy evaluations on potential trade liberalization initiatives involving Armenia.

II. OVERVIEW OF THE ECONOMY AND POVERTY IN ARMENIA

2.1. General overview of the economy

After independence in the early 1990s, Armenia experienced a deep economic decline. Production and employment shrank drastically, former economic, production and social relations, and infrastructure collapsed or became insignificant, and poverty and acute social problems became widespread. Apart from those factors that emerged and were common in other former Soviet Union countries, the main reasons for economic and the subsequent social crises were the 1988 earthquake and the Nagorno-Karabakh self-orientation and independence, which resulted in a war and non-friendly relations with neighboring countries.

During 1991-1993, the Armenian economy shrank by more than 50%. However, economic recovery started in 1994 and continued until 2008. Notably, economic growth over 2002-2007 reached double digits. Annual real GDP growth averaged 5.6% over 1994-2001 and 13.1% over 2002-2007 (see figure 1).

Figure 1: Economic growth in Armenia, 1991-2010, %
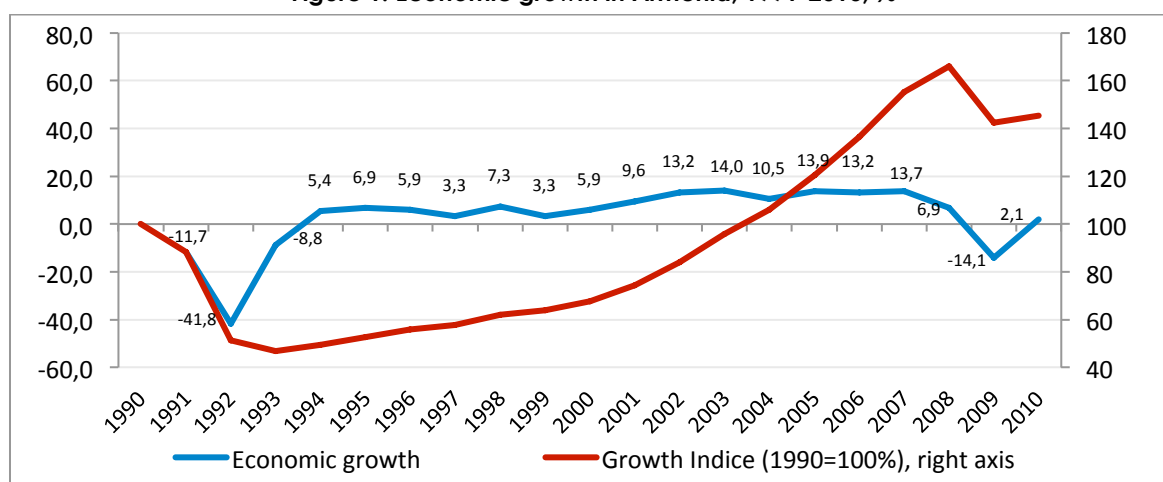
Source: NSS and EDRC calculations

The main source of economic growth was remittances from abroad that exceeded 10% of GDP. Aside from that, led by the construction sector, economic growth was recorded in almost all sectors of the economy. The construction sector grew by an annual average of 26.6% during 2001-2007; as a result, this sector constituted about a quarter of entire economy in 2007.

The impact of the recent global financial and economic crises in Armenia appeared in late 2008. Economic growth in 2008 significantly slowed down to 6.9%, while a 14.1% decline was recorded in 2009. Armenia had the second-largest decline in the CIS, following Ukraine. Economic growth recovered in 2010 to only 2.1%, and in April 2011, the IMF and WEO forecast growth of 4.6% in 2011 (IMF, WEO, April 2011).

The pre-crisis economic developments of the country took place in a context of significant growth of imports, remittances from abroad and official assistance. Therefore, these developments are subject to vigorous discussions and critics pointed towards issues such as sectoral concentrations within the economy and markets, non-diversified exports, fast expansion of non-tradable sectors, disproportionate regional development and emigration. Nevertheless, poverty in Armenia declined and the social situation improved during that period. According to the WB classification, in 2004 Armenia moved from being considered as a low-income country to medium-low-income status in 2004.

2.2. Social snapshot and poverty in Armenia

Situation prior to 2008

Developments that occurred in Armenia and the region in the early 1990s and the various associated economic and social implications resulted in an acute social situation and the emergence of a large poverty incidence in Armenia. Despite the ceasefire, as well as stabilization policies in the country and economic recovery starting in 2004, more than half of the Armenian population was classified as poor by the end of the 1990s. According to the Integrated Survey of Livings Standards of the NSS, 56.1% of the Armenian population was poor in 1999, while 21% of the population was extremely poor. During that period, the number of unemployed increased threefold and tremendous emigration took place, resulting in serious demographic and labor market problems.

Due to high economic growth rates during 2001-2007, Armenia managed to pass into the group of middle-income countries: per capita GDP in 2008 (PPP-adjusted) was USD 5,809, more than double its level in 2002. During that period, salaries rose, as did employment and remittances from abroad. Each percentage point of economic growth during 2004-2008 contributed to a 0.57-percentage point reduction in poverty. The poverty-reduction effect of growth was 0.12 percentage points higher in urban areas than in rural areas. As a consequence, according to the pre-2009 method of calculation, poverty incidence dropped to 23.5% in 2008 as compared to 34.6% in 2004. Extreme poverty reached 3.1% in 2008, about half of the 6.4% incidence of extreme poverty in 2004.

During 2004-2008, increases in consumption differed by income quintile. In particular, the highest growth rate was recorded in the richest 10% and poorest 10% groups of population: 141.0% and 138.1% respectively. Households in middle- and high-income groups benefitted most from economic growth during that period. The poverty gap and severity, improved during 2004-2008: they were respectively 3.1% and 0.8% in 2008 and 7.4% and 2.4% in 2004.

Situation after 2009 crisis

The recent global crisis interrupted economic and social progress in Armenia. Years with high economic growth were followed by deep recession (14.1% decline in 2009) and a slow recovery. The decline was particularly deep in the construction sector (42.3% decline) and the reduction in remittances from abroad (31.3%) had a serious social impact. The number of officially unemployed grew by 8.7% in 2009 compared to 2008. This took place due to reduction of employment by 18% in construction and 9.8% in industry (in particular, mining). Economic recovery rates in 2010 were not sufficient to improve the social situation.

During and after the crisis, the government made efforts to mitigate the tense social situation. Social sector and pro-poor expenditures of the government were generally maintained at the expense of reduced expenditures in other sectors. Nevertheless, that was not sufficient to neutralize the drop in living standards of the population. A new methodology of poverty assessment was introduced by the NSS in 2009. According to the adjustment method, poverty in 2009 increased from the previous year, especially in terms of very poor and extremely poor. However, the situation is still better than it was in 2004 (Figure2).

Figure 2: Poverty incidence in 2004, 2008 and 2009, according to the new methodology, %
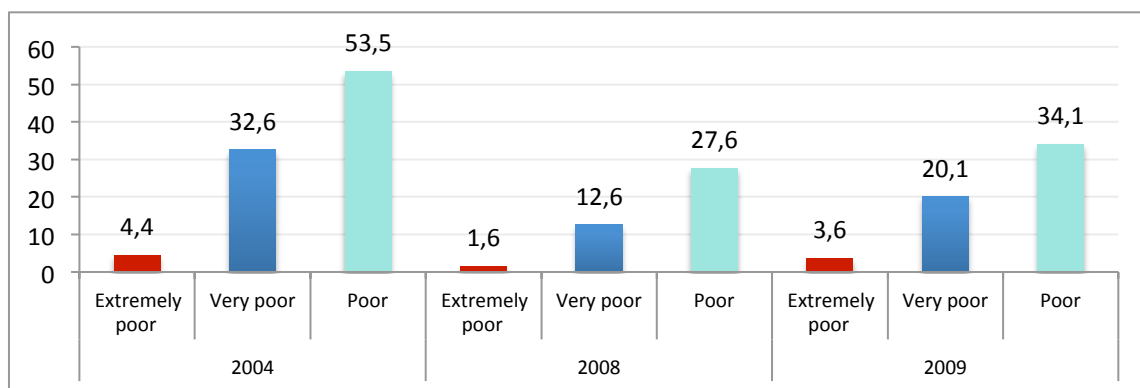
Source: Social Snapshot and Poverty in Armenia, NSS, 2010

III. TRADE REGULATIONS AND TRADE WITH THE EU

3.1. Trade regimes and preferential trade of Armenia

Since independence, Armenia started developing economic relations with states which had formerly belonged to the Soviet Union. In 1992, Armenia became a CIS member, and it was under this framework that Armenia signed a CIS Free Trade Agreement in 1994; however, the Agreement never became effective. In turn, Armenia started signing separate FTAs with CIS countries.[1]Since 2003, Armenia has also been an observing member of EVRAZES, participation within which can be viewed as an alternative to concluding a DCFTA with the EU.

Armenia became a WTO member in 2003 and also enjoys favorable trade regimes with the USA, the EU, Canada, Japan and Switzerland, as these countries have granted GSP to Armenia. In general, the trade system of Armenia is quite simple and liberal. Most of the customs duties are ad valorem. The policy review of Armenia's trade policy by the WTO in 2010 ranked Armenia as a model country. Armenia's trade system is so liberal that other countries do not typically have a huge interest in signing an FTA with Armenia. The majority of goods imported under FTAs (around 80% of tariff lines) are already subject to a zero-rate tariff. This indicates that regardless of having an FTA, the partners already enjoy preferential trade, which means that the additional benefits of signing an FTA are limited. In general, about 30% of Armenia's trade comes from countries that already have FTAs with Armenia.

Since 2006, Armenia has utilized the EU's GSP trade system; since 2009 this has been the GSP+ system. This allows the export of 6,400 tariff lines of goods into the EU at a 0-rate tariff. The main goods exported from Armenia to the EU and their coverage by the GSP+ system is illustrated in the following table.

Table 1: Armenian exports to the EU

Code	Product label	Exports, USD mn		GSP +
		2009	2010	
260300	Copper ores and concentrates	67.7	171.1	No
720270	Ferro-molybdenum	85.2	115.6	Yes
740200	Copper unrefined, copper anodes for electrolytic refining	60.5	92.6	Yes
710239	Diamonds, non-industrial not elsewhere specified (nes) excluding mounted or set diamonds	41.3	44.3	Yes
710231	Diamonds, non-industrial unworked or simply sawn, cleaved or bruted	3.3	16.3	Yes
810294	Unwrought molybdenum, incl. bars and rods obtained simply by sintering	9.5	15.5	Yes
260800	Zinc ores and concentrates	0.8	10.4	No
852990	Parts suitable f use solely/princ w the app of headings 85.25 to 85.28	3.2	3.9	Yes
400249	Chloroprene (chlorobutadiene) rubber (CR) nes	1.4	3.9	Yes
740400	Waste and scrap, copper or copper alloy	1.8	3.3	Yes
	Other	34.7	23.8	-
	Total	309.4	500.7	-

Eight in 10 major goods exported to the EU are covered by the GSP+ system. Thus, 76% of Armenia's exports (USD 234 mn) to the EU in 2009 were already covered by the GSP+ system. Consequently, by exporting its mining output (which represents a significant share of Armenian exports) to the EU, Armenia benefits from preferences under the GSP+ system. Yet, unfortunately, Armenia has not been able to take advantage of exporting more of the remaining 6,300 types of goods to the EU.

3.2. Trade of Armenia with EU countries

The total turnover of EU-Armenian trade is about USD 1.5 bn, of which 2/3 are imports. Notably, trade turnover between the EU and Armenia has increased significantly during the past 10 years. In particular, exports of Armenian goods to the EU grew at a significant pace in that period.Exports to the EU equaled 28% of exports in 2001, while in 2010, it reached 50%.The top 20 products exported

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[1] Armenia has signed FTAs with Russia (1993), Tajikistan (1994), Moldova (1995), Kyrgyz Republic (1995), Turkmenistan (1996), Ukraine (1996), Georgia (1998), Kazakhstan (2001) and Belarus (2003).

from Armenia to the EU in 2010 made up98% of total Armenian exports to the EU. Major exports are mining products: copper, iron, molybdenum, zinc, diamonds, etc.

Unlike exports, the share of imports into Armenia originating from the EU has continuously deceased since 2002, while the share of imports from other countries has grown. Goods imported from the EU are far more varied than trade in the other direction (exports). The 10main commodities imported from the EUconstitute45% of total imports in 2010. As shown in table 2, a large share of imports into Armenia from the EU in 2010 originated from Germany, Italy, Bulgaria, Romania, France and Belgium.

Table 2: Armenian imports from the EU, by main items and partners, USD mn

Code	Product label	2005	2006	2007	2008	2009	2010	Partner country in EU (2010)
2710	Petroleum oils, not crude	53.30	97.07	139.94	206.45	153.47	201.27	Bulgaria, Romania, Greece, UK
7102	Diamonds, not mounted or set	146.51	111.38	104.61	74.99	45.06	49.86	Belgium
3004	Medicament mixtures (not 3002, 3005, 3006), put in dosage	15.27	23.65	34.98	45.21	46.13	49.16	France, Germany, Hungary, Italy, etc.
8517	Electric app for line telephony, including current line system	14.94	9.99	55.10	84.28	48.67	34.35	France, Sweden, Germany, Hungary, etc.
7108	Gold unwrought or in semi-manufactured forms	27.24	43.05	114.48	141.11	34.95	33.05	Austria, Italy, Germany
8422	Dish washing machines; machinery for aerating bottles	3.18	5.32	6.40	5.45	5.42	15.41	Germany, Italy, Sweden, The Netherlands, etc.
8704	Trucks, motor vehicles for the transport of goods	3.86	6.70	6.77	10.04	6.58	13.90	Germany, Belgium, Sweden, Italy
8703	Cars (incl. station wagon)	7.15	14.97	30.85	33.21	12.26	13.34	Germany, UK, Hungary, Slovak Republic, etc.
2309	Animal feed preparations, nes	2.60	3.95	5.71	8.54	9.79	12.02	France, The Netherlands. Denmark, Spain, etc.
2402	Cigars, cheroots, cigarillos & cigarettes	8.37	11.44	15.73	17.45	5.93	11.40	Germany, Greece, Poland, The Netherlands, etc.
Total listed		301.02	377.08	568.32	713.16	452.21	525.78	
Other		281.29	311.86	444.24	504.19	385.43	435.67	
Total		**582.3**	**688.9**	**1012.6**	**1217.4**	**837.6**	**961.5**	

Source: EDRC calculations

IV. ECONOMIC IMPACT OF TRADE LIBERALIZATION

4.1. Main directions of DCFTA

A Deep and Comprehensive FTA (DCFTA) with the EU implies broad reforms and regulatory measures. The following six directions of the DCFTA can be identified based on a review of existing documents and the current negotiation process:

- Tariff regulations;
- Technical barriers to trade and non-tariff regulations;
- Sanitary and phytosanitary (SPS) measures;
- Intellectual property rights (IPR);
- Public procurement system;

- Other directions (improvement of business and investment climate).

Within the mentioned directions, various concrete changes are expected, which will have a direct influence on economic processes and behavior in the country along with various consequences.

4.2. Significance of the Tariff and Non-Tariff Regulations

Changes in exports in case of tariff liberalization

In cases of tariff liberalization, particularly elimination of customs tariffs, it is possible that exports will grow and therefore positively impact production. Tariff liberalization would not impact Armenia's customs revenues as Armenia does not apply any tariffs on exports. Possible changes in exports from Armenia can be considered in three directions:

- Expansion of currently exported Armenian goods to non-EU countries/exports to EU countries,
- Expansion of production/exports of goods currently exported to EU countries,
- New exports of goods not currently exported/produced.

The latter, supposing development of completely new products and production to be exported is a quite difficult process which depends on a level of technological development and investments. The liberalization of trade with the EU may create favorable conditions for such investment in Armenia; nevertheless, it is not a sufficient condition. Finally, the proposed conditions of access to EU markets are not unique and the flow of such investment into Armenia, among other countries of the region, first of all requires urgent changes in the business and investment climate, which can be viewed separately from the context of trade liberalization with the EU. These issues are not covered so directly by this study and thus we focus on possible changes in existing exports.

Therefore, we should consider the amount of Armenian products exported to non-EU countries in the case of changes in market conditions (notably tariff liberalization), and the expansion of exports to EU countries. Table 3 presents exports of products included and not included in the GSP+ system, classified by the direction of change of exports over2008-2009.

A major share of Armenian exports, about 80%, are products which are included in the EU GSP+ system and may be imported into the EU under a preferential regime. Of these exports,12.9% were exported to non-EU countries in 2008, and 10.5 % in 2009 were exported to non-EU countries.[2]This shows that the preferential conditions offered by the GSP and GSP+ systems are not fully utilized by Armenia, even when the production and export of relevant products to other countries do satisfy those systems' requirements. This means that tariff regulation is not most decisive in this case; more important are non-tariff barriers and the EU requirements (standards) regarding products or other costs, e.g. on transportation.

Table 3: The export of products included in GSP+ system

	2008	2009	2008	2009
	Volume, USD mn		*Share, %*	
Products included in GSP+ system	**882.9**	**528.9**	**83.7**	**77.3**
Exported solely to EU	102.2	71.9	9.7	10.5
Exported both to EU and other countries	644.3	385.0	61.1	56.3
Exported solely to other countries	136.5	72.1	12.9	10.5
Products not included in GSP+ system	**172.0**	**155.0**	**16.3**	**22.7**
Total exports	**1055.0**	**683.9**	**100.0**	**100.0**

Source: EDRC calculations

It is important to consider the Armenian products which are neither exported to the EU nor included in the GSP trade system. The table 4 shows that the export of these products is rather small – only USD 18mn in 2009.

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[2] In 2006-2008 Armenia was included in the EU GSP system, while in 2009-2011 – in GSP+ system.

Table 4: Export of products not included in GSP+ system

	2008	2009	2008	2009
	Volume, USD mn		Share, %	
Products included in GSP+ system	**882.9**	**528.9**	**83.7**	**77.3**
Products not included in GSP+ system	**172.0**	**155.0**	**16.3**	**22.7**
Exported solely to EU	24.4	9.8	2.3	1.4
Exported both to EU and other countries	135.5	126.9	12.8	18.6
Exported solely to other countries	12.2	18.3	1.2	2.7
Total exports	**1055.0**	**683.9**	**100.0**	**100.0**

Source: EDRC calculations

A major share of all exported products, which are not included in the GSP+ system (USD 172mn), are comprised of significant exports of 10 products that together total USD 158mn. Only 1 of these 10products – namely, fresh Armenian apricots (USD 2mn) – was not exported to the EU; exports of this product were mainly to the Russian market. Two other major export products which are not included in GSP system were exported only to the EU; the remaining seven products were exported to both EU and other countries (see table 5).

Table 5: The structure of Armenian exports in 2008 by size and inclusion in GSP+ system

	GSP+ Yes	GSP+ No	Total	GSP+ Yes	GSP+ No	Total
	Quantity (HS 4-digit code)			USD mn		
More that USD 10 mn	**9**	**3**	**12**	**660**	**142**	**802**
Exported solely to EU	2	1	3	78	20	98
Exported both to EU and other countries	6	2	8	546	122	669
Exported solely to other countries	1	0	1	36	0	36
More that USD 1 mn	**48**	**7**	**55**	**142**	**16**	**157**
Exported solely to EU	5	1	6	13	4	17
Exported both to EU and other countries	27	5	32	73	9	82
Exported solely to other countries	16	1	17	56	2	58
Total of 10 largestexport categories	**57**	**10**	**67**	**802**	**158**	**960**
Total exports				**883**	**172**	**1055**

Source: EDRC calculations

Exports of Armenian products to non-EU countries are not large, but most of this trade (USD 136.5mn in 2008) was comprised of products included in the GSP system. Tariff liberalization therefore cannot affect access to the EU market for the sale of these products, as all these already can be exported under the preferential regimes of GSP and GSP+. At the same time, existing geographical and transportation conditions and standards required of products make Armenian products less competitive in EU markets.

If products are already included in the GSP+ system, exports will not expand as these already enjoy preferential trade conditions and consequently tariff liberalization will have a large impact. If products are not included in the GSP+ system, then the general tariff regime of the EU must be studied to evaluate how much this restricts Armenian exports to the EU, or what kind of improvements may be expected in the case of EU tariff liberalization.

Currently, the volume of all Armenian products exported to the EU totals about half a billion USD. The peak was reached in 2008 (pre-crisis), when exports to the EU reached USD 575mn. Armenian export to EU countries is mainly comprised of exports of 5-6 large product groups (HS 4-digit code).200-250 types of Armenian products are exported to the EU. However, the export volumes of a majority of these products (about 150 products) are extremely small: the annual export volume of those products is less than USD 2mn.

Table 6: The structure of exports from Armenia to EU, 2001-2010

	2001		2005		2008		2010	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Up to USD 50k	130	1.3	149	1.6	159	1.9	147	1.7
USD 20-250 k	21	2.3	23	2.5	47	5.2	35	4.0
USD 250-500 k	5	1.9	5	1.8	16	5.5	9	3.3
USD 0.5-1 mn	7	5.0	5	3.8	12	7.8	4	2.4
USD 1-10 mn	9	22.2	9	29.5	16	52.1	10	23.4
USD 10 mn and more	2	59.3	5	402.8	7	503.0	6	465.9
Total	**175**	**92**	**196**	**442**	**257**	**576**	**211**	**501**

Quantity is the number of exported products, by HS 4-digit classification. Value is the value of exported products for each volume group, in mn USD. **Source: EDRC calculations**

In the case of liberalization of trade with the EU, nullification of EU tariffs on imports may have a positive economic impact on expansion of existing Armenian exports to the EU. The 30 largest product groups cover more than 97% of Armenian exports to the EU. Only 5 of those products are not included in the GSP+ system. I.e., in the case of the DCFTA with the EU, the liberalization of tariffs may have a specific positive impact on these products. The most important in this list is the "copper ores and concentrates" (code 2603), which have a rather large volume – USD 100-170mn.

Table 7: The largest groups of exports to EU classified as included or excluded from GSP+ system

	2005	2008	2010
Total exports to EU	**442**	**576**	**501**
Total, the largest 30, millions	**432**	**560**	**489**
Share in total, %	*97.8*	*97.3*	*97.6*
Included in GSP+, millions	**399**	**422**	**290**
Share in total, %	*90.3*	*73.4*	*58.0*
Non-sensitive	121	98	66
Sensitive	278	325	225
Excluded in GSP+, millions	**33**	**138**	**198**
Share in total, %	*7.6*	*24.0*	*39.6*

Source: EDRC calculations

Despite the fact that copper and zinc ores and concentrates are not included in the GSP+, these already have liberalized access to the EU, i.e. the tariff for the imports of those products to Europe is 0%. Table 8clearly shows that the GSP+ system is not that significant for Armenia; besides, future tariff liberalization of EU-Armenia trade will have low significance, as generally implied by the fact that the EU import regime is already liberalized for all those products, which Armenia already exports to the EU.

Table 8: EU tariff regime for imports of 10 largest products, already exported from Armenia

HS Code	Product name	GSP +	EU tariff regime for import
260300	Copper ores and concentrates	No	free
260800	Zinc ores and concentrates	No	free
810294	Unwrought molybdenum, incl. bars and rods obtained simply by sintering	No	3%
720270	Ferro-molybdenum	Yes	2.70%
740200	Copper unrefined, copper anodes for electrolytic refining	Yes	free
710239	Diamonds, non-industrial nes excluding mounted or set diamonds	Yes	free
710231	Diamonds, non-industrial unworked or simply sawn, cleaved or bruted	Yes	free
85299049	Parts suitable for use solely or principally with transmission and reception apparatus for radio-broadcasting or television, etc.	Yes	0.03
400249	Chloroprene (chlorobutadiene) rubber (CR) nes	Yes	free
740400	Waste and scrap, copper or copper alloy	Yes	free

Source: EDRC calculations

Armenian exports are mainly included in the GSP+ system, i.e., the EU already offers Armenia preferential conditions of imports. Even in the case of products excluded from the GSP+, this means preferential or even null MFN tariffs. The expansion of Armenian exports is therefore restricted by non-tariff barriers, which is explained by the low level of development of Armenian production capacities and quality infrastructure. To conclude, in the short- and medium-term, trade tariff liberalization between Armenia and the EU will not lead to a positive production effect resulting from increased exports.

Changes in imports in the case of tariff liberalization

Tariff liberalization may lead to changes in imports and trade diversion, which can impact consumption, production and customs revenue. In general, Armenian imports are far more diversified than exports and cover a wide geographic area. In 2010, the total volume of imports amounted to USD 3.8 billion and exceeded exports by 3.7 times. The main import partners of Armenia are the EU, Russia, China, Ukraine, Iran, Turkey, USA, South Korea, Switzerland, Japan, Brazil and Georgia. Imports from these 12 countries account for85-90% of total imports into Armenia, of which imports from the EU account for 25%. The largest imports are natural gas and oil products, which comprise more than 15% of total imports.

Armenia also has free trade agreements with CIS countries, which are considered as main partner countries for Armenia. In general, 31% (USD 1.2 billion) of total imports of Armenia in 2010 were comprised of imports of products under FTA. The multiplicity of the products imported under the 0% tariff regime are numerous and therefore it is somewhat of a misnomer to refer to trade liberalization of these products given that trade of these products is already liberalized. Changes in non-tariff regulations and tightening of product requirements may nevertheless lead to trade diversion, with ensuing effects on prices and consumption; some negative impact on production can be expected, but customs revenues can be expected to remain constant. The impact on customs revenues would be in relation to products imported from the EU under a 10% tariff regime, with substitution of products imported from other countries (if there is not presently an FTA with those countries).

Table 9: Total imports and imports of products under 10% tariff regime by country groups, 2001-2010

	2001	2005	2006	2007	2008	2009	2010
Total imports	**837.5**	**1691.5**	**2194.4**	**3052.6**	**4101.2**	**3174.6**	**3781.8**
CIS countries	*205.0*	*374.5*	*692.4*	*1062.0*	*1280.1*	*1076.6*	*1185.3*
EU countries	*271.5*	*582.3*	*688.9*	*1012.6*	*1217.4*	*837.6*	*961.4*
Other countries	*361.0*	*734.7*	*813.0*	*978.0*	*1603.7*	*1260.4*	*1635.1*
Total imports under 10% tariff regime	**227.6**	**463.2**	**708.4**	**933.2**	**1480.7**	**948.6**	**1257.9**
*CIS countries**	*30.3*	*131.7*	*187.5*	*273.5*	*359.6*	*252.5*	*270.5*
EU countries	*70.3*	*136.1*	*182.4*	*269.1*	*367.4*	*219.3*	*251.7*
Other countries	*127.0*	*195.4*	*338.6*	*390.6*	*753.7*	*476.8*	*735.7*

* The indicator shows the volume of turnover, which would be imported under a 10% tariff regime in the absence of an FTA with CIS countries. **Source: EDRC calculations**

In 2010, the volume of all products imported from the EU under a 10% tariff regime totaled USD 252mn. This is the total value of products which would avoid general tariff regimes under liberalization of the related markets. This will lead to a decrease of state budget revenues of about USD 25mn for customs revenues and a USD 5 mn decrease in VAT revenues. Thus, state budget revenues would decline by about USD 30mn annually, about3% of total budget revenues. This does not include revenue losses relating to trade diversion or potential revenues losses from any negative impact on production.

In order to assess possible trade diversion, Armenian imports from non-CIS and non-EU countries will need to be assessed. As we only discuss tariff liberalization, it should be noted that trade diversion is possible only under substitution from other countries of imports conditioned by price competitiveness (imports from CIS countries are already liberalized despite the fact that some of those products are under the 10% tariff regime).

Table 10: Armenian imports by MFN tariff rates and by country group

	RA MNF tariff		Total	RA MNF tariff		Total
	0%	10%		0%	10%	
	Value			Quantity		
Total import	**2,524**	**1,258**	**3,782**	**716**	**320**	**1036**
Imports from EU	710	252	962	568	286	854
Imports from other countries	1,814	1,006	2,820	680	314	994
Imported both from EU and other countries	2,073	1,107	3,180	532	280	812
From EU	*703*	*251*	*954*			
From other countries	*1,370*	*856*	*2,226*			
Imported solely from EU	7	1	8	36	6	42
Imported solely from other countries	444	150	594	148	34	182

A significant share (USD 591mn) of products imported from non-EU countries is also currently imported from EU sources. I.e. the possibility of substitution of imports of those products is rather high. It is therefore possible that tariff liberalization will lead to an increase in the competitiveness of European products and to substitution of some share of products imported from other countries (with a total value of USD 591mn). The extent of substitution of imported products from other countries depends on the price elasticity of such products, which required much more detailed evaluation.

We assume that the total decline in prices may be as high as 12% in the case that both the 10% tariff regime and the VAT are not in place. In this case, the coefficient of import substitution (i.e. the decrease in imports from other countries) is evaluated as 10%. Thus, we anticipate an approximately USD 60mn decrease in of the value of products imported into Armenia from other countries (with total imports of such products equal to USD 600mn) under a 10% tariff regime applied in accordance to the MFN concept, and instead, a substitution of those products for European ones. In turn, Armenia can anticipate a USD 7.2mn decline in customs revenues (a USD 6mn reduction in customs duties and a USD 1.2mn decline in VAT collected). All together, the annual loss in customs revenues will amount to about USD 37mn.

Taking into account relatively high product prices in Armenia, and the fact that products imported from the EU are usually considered as competitive (or at least alternative) options to both locally produced products and those imported from other countries, trade liberalization with the EU may bring a decline in import prices, which will certainly have a positive impact on consumption. Nevertheless, this may also lead to reduced production in agriculture, manufacturing and food production, and some other minor industries in favor of growth in imports from the EU. Tariff liberalization will not lead to a visible decline in the prices of imported production inputs and reduction of local costs on production, as the imports of products used as production inputs in Armenia are already charged a 0% tariff.

Impact of non-tariff regulation and standards harmonization

In terms of assessing the economic impact of the DCFTA, the level of harmonization of technical regulations, SPS measures and industrial standards applied in Armenia is very important. Coverage and application of these may considerably change the pattern of the trade liberalization impact. The following questions are crucial in that regard:

- Whether the EU standards and sanitary and phytosanitary measures should also apply to all products imported into the Armenian market,

- Whether the EU standards and sanitary and phytosanitary measures should apply to all products produced in Armenia and sold in the Armenian market.

The DCFTA implies that Armenia shall have a unified trade regulation area where the same standards, technical regulations and SPS measures shall apply. Under this assumption, any product imported or sold in the Armenian market shall comply with the EU standards.

It is necessary to differentiate the legislative adjustment or harmonization of such standards, technical regulations, and SPS measures from actual Acts to bring domestic production into

conformity with such requirements. A major challenge is the actual compliance of the private sector with those requirements as various questions arise such as, how should these take place? What investments are required? Is the private sector able and willing to undergo that change? Etc. These issues relate to industrial development policy and economic transformation which are essential for signing the DCFTA. Thus, the main issue is private sector harmonization: reconstruction and development of enterprises.

Tariff liberalization will most likely not inspire the private sector to make investments to comply with standards for export to the EU market. Then again, this is not a simple task: this could already have taken place as an ongoing opportunity; moreover, this was expected to be achieved under the GSP and GSP+ systems. Therefore, if it is feasible to ensure that production of goods in Armenia comply with EU standards that can be competitive; Armenia would be able to gain significant economic and thus social benefits. Improving the quality of infrastructure, together with expected reforms in the business and investment environment, will lead to reduction of costs of production and standards compliance; however, the issue of enterprise development and investments remains crucial.

Adoption of European standards in any case implies huge import diversion, particularly from CIS countries, China, Iran, Turkey and elsewhere: imports from these countries are likely to be substituted for imports from the EU, resulting in huge losses of tariff revenues. On the other hand, expensive and high quality imports of goods complying with the EU standards from other countries will result in price increases. If legislative compliance with the EU legislation in terms of technical regulations, SPS measures and standards, along with its obligatory application in Armenia takes place without enterprise restructuring and technological upgrading, improvement of the business environment and the quality infrastructure development are likely to lead to a considerable economic recession and thus a sharp increase in poverty. An obligatory application of EU technical regulations and standards is only possible over a rather long period of time, following the results of the industrial development policy.

Summarizing the factor analysis of tariff and non-tariff liberalization, we can insist that:

A) In general, tariff liberalization cannot lead to desirable economic consequences for Armenia in the short- or medium-term. The loss of state revenues will total AMD 37mn annually and no increase in production or employment will be recorded (although a decline is possible), although access to some consumer goods will become easier. If taking into account that those are goods of European origin, which are of high quality and price, then their main consumers are the non-poor. Therefore, the potential positive impact will not be pro-poor. Those results are summarized in the table below.

Table 11: Possible impact in case of tariff liberalization

Type of impact	Impact assessment	Overall assessment
Impact on production • Expansion of exports • Growth in new exports • Reduction of local production costs • Substitution of local production and decrease in employment	• Negligible • Negligible • Negligible • In some branches of food production and manufacturing	**Not positive**
Impact on consumption • Decrease in consumer prices • Improvement of product quality • Growth in variety and availability of products	• Some decline is possible • Possible • Possible	**Positive**
Impact on customs revenues	• Loss of USD 30mn annually from trade with the EU • Loss of USD 7mn annually from trade diversion	**Negative**
Impact on development	• Possible only in long-term, if business environment and quality of infrastructure improve	**Indefinite**

Source: EDRC calculations

B) Non-tariff regulations, which are the core preconditions for the DCFTA, are only possible to meet in the long term and through phased transition. Going too far too soon will result in large import diversion, and economic decline will be tangible, with the negligible increase in exports and

rapidly rising prices. Non-tariff regulation should come after the results of the industrial development policy and enterprise development programs.

4.3. CGE analysis

Two previous studies, by Maliszewska et al. (2008) (hereinafter, the CASE study) and by Jensen and Tarr (2011) (hereafter, the Jensen-Tarr study), are dedicated to assessment of the impact of increased trade liberalization between Armenia and the EU. Both studies were carried out by CGE model computations.

The CGE model developed by Jensen and Tarr, as well as analysis based on it, are more inclusive and describe our reality more accurately. To assess the complete and comprehensive impact of trade liberalization with the EU on Armenia's economy, we applied the model developed by Jensen and Tarr to update the database and make small changes in the initial assumptions of the model.

Description of the Jensen-Tarr CGE model

The algebraic description of the model developed by Jensen and Tarr is presented in detail in papers by Balistreri and Tarr (2011, Appendix F), and Jensen and Tarr (2011).According to Jensen and Tarr, the impact of the trade liberalization on Armenia is quite weak both in the medium-term and in the long-term.

The authors estimated 0.1-1.3% economic growth depending on the scenario modeled. In the most favorable scenarios, in the medium-term, the highest possible level of real GDP growth is 1.1-1.3% in the long-term (this scenario involved complete unilateral liberalization).

Updating and modification of the Jensen-Tarr model

Application of recent data in the model is very important to illustrate the real picture, holding everything else constant. Therefore, we updated the Jensen-Tarr model database using the most recently available data (comparable data from the 2008input-output table). This also allowed comparison of results of the model based on data from different periods. We also slightly modified the Jensen-Tarr model in order to specify 31 sectors in the modified model. Some assumptions were adjusted in this modified model. Unlike the Jensen-Tarr model, we assumed that:

> a) Costs to comply with the standards will decrease to a small extent, by 5%; and

> b) No reduction in border costs will occur.

The authors assume that, as a result of signing the DCFTA with the EU, border costs in Armenia will decrease to be equal to those in Ukraine and Georgia. The authors also mention the experience of Bulgaria, where expected cost reductions did not occur. According to Doing Business 2012, both import and export costs per container rose in Armenia, Georgia and Ukraine. Despite various reforms in Armenia, transportation costs continue to comprise a major part of export/import costs per container, and the potential to reduce border costs (included in transportation costs) is limited. With this in mind, we neutralized their reduction impact by applying a version where they remained unchanged.

Like in the Jensen-Tarr model, our modified model assumes that the compliance with current EU technical regulations and industrial standards is not compulsory and does not apply to domestic production and imports.

Main results

Our results pointed towards a smaller impact of a DCFTA between Armenia and the EU on social welfare in Armenia. Real GDP growth is estimated to be 0.3% compared to the1% computed in the Jensen-Tarr model (see table 12). The main deprivations of the results are reasoned by our more conservative assumptions on standards and on border costs, and application of more recent data. The two approaches have broadly similar results, and the main conclusion is that the DCFTA will not have a major impact on welfare, whether considering medium-term or long-term perspectives.

Table 12: Medium-term and long-term impact of the DCFTA between Armenia and the EU (%change from the initial equilibrium)

Scenario definition	EU FTA	EU FTA steady-state	EU FTA	EU FTA steady-state
	Jensen-Tarr		EDRC	
Reduction of discriminatory barriers on the EU services firms	Yes	Yes	Yes	Yes
Removal of tariffs on EU sourced goods	Yes	Yes	Yes	Yes
Reduction in border costs	Yes	Yes	No	No
Reduction in standards for EU exports	Yes	Yes	Yes	Yes
Steady-state capital stock	No	Yes	No	Yes
Aggregate welfare				
Welfare (EV as % of GDP)	1.0	1.2	0.3	0.4
Welfare (EV as % of consumption)	1.4	1.8	0.5	0.6
Government budget				
Tariff revenue (% of GDP)	0.6	0.6	0.6	0.6
Tariff revenue	-40.9	-40.4	-41.4	-41.2
Aggregate trade				
Real exchange rate	0.6	0.9	0.9	1.0
Aggregate exports	13.9	15.1	2.7	3.2
Factor remuneration				
Capital	2.0	1.0	1.1	0.6
Labor	2.0	2.9	1.1	1.5
Factor adjustments				
Capital	0.4	0.0	0.3	0.0
Labor	0.4	0.6	0.3	0.4
Capital stock and investment		1.9		0.9

Source: Jensen-Tarr (2011), EDRC (2012)

The results point towards an estimated increase in exports by just2.7% in the medium term and by 3.2% in the long term. Similarly, the rate of return on capital will increase only by 0.9% (as opposed to 1.9% in the Jensen-Tarr model). Meeting higher EU standards and reduction in border costs are the main sources of Armenia's economic growth and welfare. The reduction in customs revenues is almost the same in both models, and is about 41.4% in our (EDRC) model; in both cases, this amount to about 0.6% of GDP.

Impact on production and labor income

Assessment of the impact of the DCFTA by the modified CGE Model shows that its impact on production in different sectors of Armenia's economy is either insignificant or negative indirection (see table 13).

Table 13: Medium-term impact of the DCFTA between Armenia and the EU on production and labor incomes, and on foreign trade (%change from base values)

	Output	Labor income	Exports			Total exports	Imports			Total imports
			EU	CIS	RoW		EU	CIS	RoW	
Total	**0.3**	**1.1**	**2.8**	**3.2**	**1.8**	**2.7**	**33.1**	**-0.2**	**-6.5**	**3.8**
Business services										
Transport via railways	0.8	0.9		1.2		1.2		-0.2		-0.2
Transport via pipelines	0.8	0.9		1.2		1.2		-0.2		-0.2
Air transport	8.3	8.4	0.5	0.5	0.5	0.5	-3.9	-15.6	-16.5	-12.5
Telecommunications	1.2	1.3	1.5	1.5	1.5	1.5	-0.4	-0.6	-0.5	-0.5
Insurance	1.0	1.9	-0.9	-0.9	-0.9	-0.9	5.2	-2.5	-3.6	-0.4
Banking	1.0	1.9	0.1	0.1	0.1	0.1	2.7	0.0	-0.1	0.5

Dixit-Stiglitz goods										
Mining and quarrying	0.3	1.3	0.8	0.8	0.8	0.8	-0.3	-0.3	-0.8	-0.4
Food manufacturing	-1.7	-0.8	8.5	4.3	4.3	4.4	53.8	-0.5	-17.2	6.5
Cigarrete manufacturing	-1.6	-0.8	2.5	0.9	0.9	1.3	38.9	-0.5	-10.5	5.6
Textiles manufacturing	0.6	1.4	9.1	0.9	0.9	7.1	28.3	2.0	-3.7	4.4
Chemical manufacturing	-0.5	0.4	3.2	1.4	1.4	2.0	24.7	1.2	-6.5	4.4
Manufacture of non-metallic mineral products	0.0	0.9	12.8	0.5	0.5	1.0	3.2	3.2	3.2	3.2
Metalic manufacturing	-0.4	0.5	2.2	1.0	1.0	2.0	74.9	1.3	-4.9	4.2
Manufacture of fabricated metal products	-0.2	0.7	1.7	0.7	0.7	1.6	23.7	1.7	-2.5	3.9
Machine manufacturing	-0.8	0.0	12.4	5.2	5.2	6.8	28.6	0.7	-12.4	6.0
Furniture manufacturing	0.2	1.1	6.2	1.0	1.0	3.9	25.7	1.9	-3.4	4.0
Jewelry	-1.5	-0.6	6.3	3.9	3.9	5.0	14.9	-0.4	-16.6	6.4
Other manufacturing	-0.8	0.1	12.7	4.3	4.3	5.7	32.5	0.7	-11.8	5.7
Other goods and services										
Agriculture, hunting, forestry and fishing	-0.5	0.4	3.9	-0.1	-0.1	0.3	76.6	-4.4	-4.4	3.0
Electricity, gas and water supply	-0.2	0.6			0.4	0.4			-0.8	-0.8
Construction	0.0	1.0			0.6	0.6			-0.6	-0.6
Wholesale, retail trade and repair	1.4	2.3			0.0	0.0			0.0	0.0
Hotels and restaurants	2.8	3.1			4.9	4.9			-0.7	-0.7
Other land transport	1.2	1.5			3.0	3.0			-1.1	-1.1
Auxiliary transport activities	1.2	1.5			3.0	3.0			-1.1	-1.1
Post and courier activities	1.2	1.5			3.0	3.0			-1.1	-1.1
Real estate and professional services	0.6	1.5			0.9	0.9			0.3	0.3
Public administration and defence	0.1	0.7			1.5	1.5			-1.3	-1.3
Education	-0.2	0.7			-0.3	-0.3			-0.2	-0.2
Health and social work	-0.1	0.8			0.6	0.6			-0.9	-0.9
Other social and personal services	0.0	0.8			0.7	0.7			-0.5	-0.5

Source: EDRC (2012)

Output will increase in 18 of 31 economicsectors; the remaining 13 sectors experience a relative decline (table 14).The highest growth in production is estimated in the services sector. Relative growth is less than 1.2% in 15 sectors and labor revenues increase by a maximum of 1.9% (table 14). In 10 sectors of the economy, signing of the DCFTA will lead to a decrease in output of up to 0.8%. A more notable reduction in output (1.7%) is antiicpated in the food manufacturing sector, while labour income in this sector declines by 0.8%. Production in thecigarrete manufacturing sector decreases by 1.6%, while labour income in this sector declines by 0.8%. Production of jewelry decreases by 1.5% and labor income declines by 0.6%.

Table 14: Grouping of estimated growth rates in production and labor incomes by sector (%change against base values)

	Sectors	Output	Labor income
1	Air transport	8.3	8.4
2	Hotels and restaurants	2.8	3.1
3	Wholesale, retail trade and repair	1.4	2.3
4-18	15 Sectors	from 0 to 1.2	from 0.9 to 1.9
19-28	10 Sectors	from -0.8 to -0.01	from 0.02 to 0.8
29	Jewelry	-1.5	-0.6
30	Cigarette manufacturing	-1.6	-0.8
31	Food manufacturing	-1.7	-0.8

Source: EDRC (2012)

Agricultural production will decrease by 0.5% and construction will not be significantly affected by the DCFTA (production in this sector increases by 0.01%).

If the DCFTA is signed, the most vulnerable sector will be manufacturing, where all subsectors are expected to decline (table 13). Our calculations assumed that application of EU industrial standards and technical regulations is not compulsary for Armenia (otherwise the impact would be quite unfavorable).At the same time, the results show that labor revenues will decrease in only 3 of 31 sectors: food manufacturing, cigarettes manufacturing and jewelry (see table 14).

Impact on exports

Trade liberalization with the EU is expected to lead to a 2.7% increase inArmenia's export volume.Export volumes would be expected to decrease in just 2 of 31 economic sectors. Nevertheless, the relative expansion in exports would not exceed 2% in 19 sectors, and it will range from 3% to 4.9% in 6 sectors. Only 4 sectors would be expected to expand by 5% ormore (see table 13). This means that for exports, like in the case of production and labor incomes, the impact of the DCFTA is positive butsmall. Therefore, this should not be considered asa basis or perspective for singificantly improvedeconomic development. The highest increase in exports (7.1%) is expected in textiles manufacturing, and this increase results from a 9.1% expansion in exports to the EU.

Exportswould be expected to increase by 2.8% to EU countries, by 3.2% to CIS countries and by 1.8% to other countries. Exports to the EU will especially increase inthe machine manufacturing, manufacturing of non metalic mineral products, textiles and food manufacturing sectors. Such modest rates of export growth are anticipated underthe existing GSP+ trade regime and the level of liberalized entry to the EU market.

Impact on imports

Trade liberalization with the EU will lead to a 3.8% increase in imports into Armenia, including an expected sharp 33.1% increase in imports from the EU. In general, imports from CIS countries will not be affected by Armernia-EU trade liberalization (a relatively small 0.2% decline);the decline in imports from other countries is much larger, at about 6.5%, with these imports being diverted to EU origins.

Table 15: Increase in EU imports and volumes of possible trade diversion (% change from base values)

Sectors	Imports			Total imports
	EU	CIS	RoW	
Total	**33.1**	**-0.2**	**-6.5**	**3.8**
Agriculture, hunting, forestry and fishing	76.6	-4.4	-4.4	3.0
Metallic manufacturing	74.9	1.3	-4.9	4.2
Food manufacturing	53.8	-0.5	-17.2	6.5
Cigarette manufacturing	38.9	-0.5	-10.5	5.6
Other manufacturing	32.5	0.7	-11.8	5.7
Machine manufacturing	28.6	0.7	-12.4	6.0
Textiles manufacturing	28.3	2.0	-3.7	4.4
Furniture manufacturing	25.7	1.9	-3.4	4.0
Chemical manufacturing	24.7	1.2	-6.5	4.4
Manufacture of fabricated metal products	23.7	1.7	-2.5	3.9
Jewelry	14.9	-0.4	-16.6	6.4
Insurance	5.2	-2.5	-3.6	-0.4
Manufacturing of non-metallic mineral products	3.2	3.2	3.2	3.2
Banking	2.7	0.0	-0.1	0.5

<div align="center">Source: EDRC (2012)</div>

Import prices would be expected to rise in15 of 31 economic sectors. Apart from agriculture, expandedimports from the EU would mainly be in industrialsectors, where the volume of importsrisesexcept inmining industries (see table 15). Trade diversion will be especially notable in the food manufacturing, jewelry, machine manufacturing and cigarrete manufacturing sectors. The main reductions in imports from CIS countries would be in agricultural products and business services.

V. POVERTY AND SOCIAL IMPACT ANALYSIS

The risk of increased poverty is most likely to result from reduced incomes, employment and social transfers, as well as due to price increases and reduced accessibility of some consumer goods. In the present analysis we focus on the consequences of tariff liberalization (non-tariff regulation is assumed to be applied sequentially over the long term).

The methodology of poverty calculation

Poverty is calculated by comparing aggregate consumption to poverty lines. Aggregate consumption is calculated per adult equivalent household member. Consumption of each adult equivalent household member is calculated by dividing the total consumption of a household by the number of adult equivalent members.

Poverty is calculated using the food poverty line for extreme poverty(AMD 17,483 per month in 2009), and using the total poverty line of AMD 30,920 per month per adult equivalent to define poverty.

The modeling of households' income and consumption

To assess the impact of labor income from various sectors on households' consumption, we applied the results of the CGE computations and data from the Integrated Living Conditions Survey (ILCS) conducted by the NSS.[3]

In order to ensure data comparability it was necessary to group data in the ILCS database according to the sectoral aggregations applied in the CGE model. In particular, the main employment sectors of household members classify household members across seven sectors in the CGE model. Table 16presents the aggregated sectors and estimations of poverty and employment experienced by individuals working in these sectors.

Table 16: Population structure by economic sector, 2009

	Total	Non-poor	Poor	Of which: extremely poor
Employed population	**100.0**	**67.3**	**32.7**	**2.8**
Sector1. **Agriculture**	100.0	62.8	37.2	2.6
Sector2. **Mining and quarrying**	100.0	69.5	30.5	1.2
Sector 3. **Electricity, gas and water**	100.0	71.2	28.8	5.5
Sector 4. **Construction**	100.0	62.3	37.7	2.8
Sector 5. **Manufacturing**	100.0	60.3	39.7	2.7
Sector 6. **Business services**	100.0	73.1	26.9	1.9
Sector 7. **Other**	100.0	74.1	25.9	2.8
Unemployed population	**100.0**	**58.8**	**41.2**	**8.0**
Total	**100.0**	**65.9**	**34.1**	**3.6**

Source: EDRC calculations based on NSS ILCS database

Based on the sectoral classification of employed and unemployed household members, a link between the CGE model and the micro model of households' incomes and costs was created.

It was also necessary to assess how changes in wages and employment affected overall income growth in these sectors; this makes it possible to see how much of overall increases in income can be attributed to rising wages and which share can be attributed to new employment in each sector. For this purpose, the sectoral elasticity of wages and the elasticity of employment with respect to labor income changes are applied. Using indicators of average nominal wages and employment for 2004-2009, we evaluate arc elasticity coefficients.[4]

We use the elasticity of wages with respect to labor income and the elasticity of employment with respect to labor income in the CGE model to determine how wages and the level of employment will change in each sector as a result of changes in labor income as determined by the CGE model. In table 17we present the calculated elasticity coefficients.

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[3] The last available ILCS data related to 2009.
[4] See "Labour market in the Republic of Armenia for 2005-2009", NSS: http://armstat.am/am/?nid=82&id=1206

Table 17: Elasticity coefficients of wages and employment with respect to labor income

	Sector 1 Agriculture	Sector 2 Mining and quarrying	Sector 3 Electricity, gas and water supply	Sector 4 Construction	Sector5 Manufacturing	Sector6 Business services	Sector7 Other
Elasticity of average wages to labor income, %	1.02	0.76	1.64	1.05	0.75	0.74	0.99
Elasticity of employment to labor income, %	-0.02	0.24	-0.64	-0.04	0.25	0.26	0.01

Sources: EDRC estimations

Main results

Using the labor income growth rates estimated by the CGE model, we calculated wages and employment growth rates on a sectoral basis (see table 18). Then, poverty indicators were estimated, as presented in table 19.

Table 18: Growth rates for labor income, wages and employment

	Labor income growth rate (LI_GR), %	Wage growth rate (W_GR), %	Employment growth rate (Emp_GR), %
Sector1. **Agriculture**	0.40	0.41	-0.01
Sector2. **Mining and quarrying**	1.30	0.99	0.31
Sector 3. **Electricity, gas and water supply**	0.60	0.98	-0.39
Sector 4. **Construction**	1.00	1.05	-0.04
Sector 5. **Manufacturing**	-0.10	-0.07	-0.02
Sector 6. **Business services**	2.70	2.01	0.69
Sector 7. **Other**	1.30	1.28	0.02

Sources: EDRC estimations

The estimated poverty incidence was 33.6% and extreme poverty was estimated at 3.4%. In particular, our analysis shows that a0.5-percentage point reduction in poverty (1.5% decline) is possible. The anticipated reduction in extreme poverty would be smaller. The tables illustrate the poverty reduction profiles in each of the seven sectors in the model.

We assumed a quite conservative approach to localization of standards and technical regulations; we didn't estimate significant changes in the economic output, and so in this case it is not surprising that we do not observe significant changes in the poverty snapshot.

Table 19: Estimates of poverty and extreme poverty, %

	Poverty Incidence		Extreme poverty		Change in poverty	
	Current	Estimation 1	Current	Estimation 1	Percentage points	%
Employed population	**32.7**	**32.2**	**2.8**	**2.7**	**-0.5**	**-1.5**
Sector1. **Agriculture**	37.2	37.1	2.6	2.5	-0.2	-0.4
Sector2. **Mining and quarrying**	30.5	30.5	1.2	0.04	0.0	0.0
Sector 3. **Electricity, gas and water supply**	28.8	28.2	5.5	5.3	-0.6	-2.1
Sector 4. **Construction**	37.7	36.9	2.8	2.8	-0.8	-2.0
Sector 5. **Manufacturing**	39.7	38.9	2.7	2.7	-0.8	-2.0
Sector 6. **Business services**	26.9	24.4	1.9	1.4	-2.6	-9.5

|						
Sector 7. **Other**	25.9	25.4	2.8	2.6	-0.6	-2.2
Unemployed population	41.2	40.8	8.0	7.4	-0.4	-1.0
Total population	34.1	33.6	3.6	3.4	-0.5	-1.5

Source: EDRC estimations

Impact of price changes

As mentioned before, price pressures will take place if Armenia is to follow through on compliance of a number of industrial standards and regulations as well as SPS measures, both in relation to production for its domestic market and imports. It is worth nothing that, in the case of a simple FTA, which only implies tariff liberalization, no price increase is expected, whereas non-negligible price increases are entirely possible in the case of a deep FTA which includes standardization of regulations.

Although price changes were not considered in our model, we must make some effort to account for these potential changes in order to have a complete picture of the potential impacts of a deep FTA on poverty. As the final expected prices change is unclear, we use a simplified approach and performed a price increase scenario; this scenario assumes a 10% increase in prices, roughly in line with what we feel to be a likely outcome of a potential EU-Armenia deep FTA. This enabled us to understand how much of an impact such a price increase would have on poverty. For this purpose, we adjusted the calculated aggregate consumption of an adult member using the generalized consumer price index of all households.

As illustrated in Figure3, the aggregate consumption distribution curve shifts down in our10% price increase scenario. Comparing new consumption aggregates with the existing poverty line gives us new estimates of poverty. In table 20, poverty and extreme poverty estimates following this 10% price increase are presented.

Figure 3: Distribution of households by consumption aggregate per adult equivalent member and an impact of 10% rise in prices
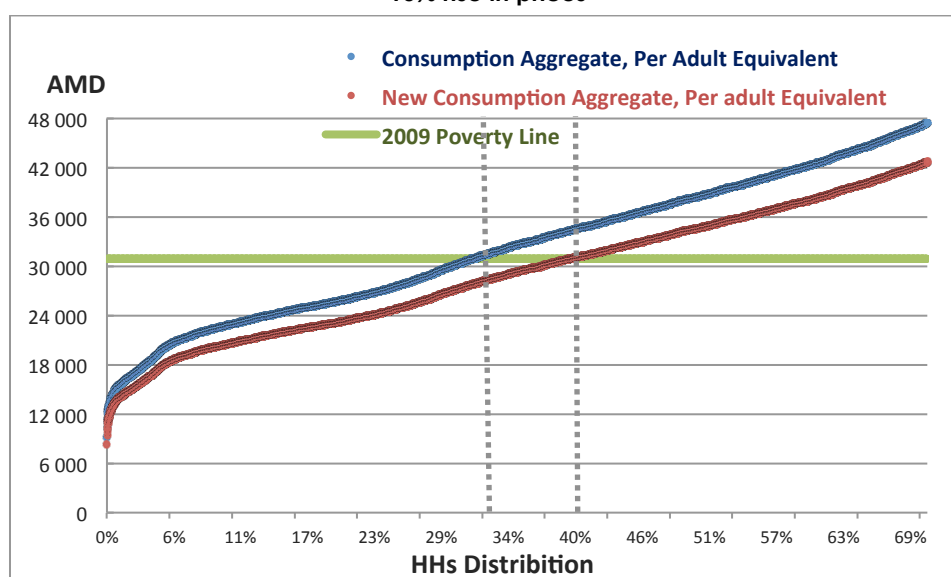
Source: EDRC estimations

Table 20:
Estimated changes in poverty from the initial level, based on assumed 10% price increase (estimation 2)

	Poverty		Extreme poverty	
	Incidence, %	Change, percentage points	Incidence, %	Change, percentage points
Sector1. **Agriculture**	44.5	7.2	4.4	1.8
Sector2. **Mining and quarrying**	32.7	2.2	1.6	0.4
Sector 3. **Electricity, gas and water supply**	35.1	6.3	5.8	0.2
Sector 4. **Construction**	43.9	6.2	4.4	1.6

Sector 5. **Manufacturing**	45.0	5.3	4.1	1.5
Sector 6. **Business services**	34.8	7.9	2.2	0.3
Sector 7. **Other**	32.7	6.8	3.7	1.0
Total population	**41.2**	**7.1**	**5.1**	**1.4**

Source: EDRC estimations

Table 21: Comparison of poverty estimates

	Poverty incidence, %			Extreme poverty incidence, %		
	Current	Estimation 1	Estimation 2	Current	Estimation 1	Estimation 2
Sector1. **Agriculture**	37.2	37.1	**44.5**	2.6	2.5	**4.4**
Sector2. **Mining and quarrying**	30.5	30.5	**32.7**	1.2	0.04	**1.6**
Sector 3. **Electricity, gas and water**	28.8	28.2	**35.1**	5.5	5.3	**5.8**
Sector 4. **Construction**	37.7	36.9	**43.9**	2.8	2.8	**4.4**
Sector 5. **Manufacturing**	39.7	38.9	**45.0**	2.7	2.7	**4.1**
Sector 6. **Business services**	26.9	24.4	**34.8**	1.9	1.4	**2.2**
Sector 7. **Other**	25.9	25.4	**32.7**	2.8	2.6	**3.7**
Total population	**34.1**	**33.6**	**41.2**	**3.6**	**3.4**	**5.1**

Source: EDRC estimations

Thus, the 10% price rise discussed in this paper carries a rather high risk of exacerbating existing poverty conditions in Armenia. It can lead to a 7.1-percentage point increase in the level of poverty, with extreme poverty rising by 1.5 percentage points. The risk is especially high among households employed in agriculture.

Summary of results

The results of our evaluations point to a positive effect of trade liberalization with the EU on poverty in Armenia, leading to a comparatively small 0.5-percentage point reduction in poverty. These results are based on the hypothesis that EU standards and technical regulations will not be compulsory in all sectors of production and foreign trade of Armenia.

Analysis of an alternative scenario of a 10% rise in prices pointed towards a rapid increase in poverty. This also suggests that processes to implement non-trade regulations incompliance with the EU standards comes with certain price rise risks and should therefore be managed carefully. Thus, generally speaking, obligatory compliance with a number of industrial standards and regulations according to EU criteria comes with high risks in terms of increased poverty. Applying them to both domestic and imported goods will lead to a rapid decline in output and employment in the agricultural and manufacturing sectors, reduction in imports from other countries and diversion to EU imports, big losses in customs revenues and rapid rises of consumer prices.

VI. CONCLUSIONS AND RECOMMENDATIONS

1. The EU-Armenia DCFTA is a "North-South" type of regional integration process which involves implementation of a number of institutional and regulatory reforms in Armenia, as well as harmonization of economic and trade regulation legislation with EU legislation, effectively allowing improved entry and access to EU markets.

2. Armenia already has a wide agenda of cooperation with the EU. The EU supports the reforms in Armenia within the framework of that cooperation. At the same time, Armenia benefits from the EU GSP preferential trade system.

3. Armenia is a WTO member country and has quite liberal and simplified trade regimes. Nevertheless, Armenia does not have high measures of economic openness; Armenian exports are highly concentrated and are mainly comprised ofmining or raw materials, and fuel (gas and oil products) accounts for more than half of the value of imports.

4. Armenian exports are mainly limited by production capacities and insufficient industrial development. This hampers access to developed markets due to difficulties complying with standards and requirements set for products in foreign markets. Furthermore, transaction costs are quite high in Armenia, most notably transport costs.

5. Most items exported to the EU from Armenia fall under the GSP+ system, i.e., the EU has already granted wide import preferences to Armenia. For those items exported from Armenia to the EU that are not included in the GSP+, the EU has very favorable or zero-rated MFN (Most Favored Nations) tariffs.

6. Armenia is not able to fully benefit from the GSP+ (formerly GSP) or EU MFN import tariffs. Even in cases when Armenia exports such items to foreign markets, these goods are not necessarily exported to EU countries.

7. Mere tariff liberalization will not have a substantial economic impact since the potential for export expansion is small. Meanwhile, current liberalized import regimes mean that there are only limited risks of lost customs revenues or diversion of imports. It is worth noting that imports of goods that will be used as production inputs are already subject to a zero-rate tariff, and therefore domestic production costs are not expected to decline as a result of imported inputs (parts, raw materials etc.).

8. Our analysis pointed towards a much smaller positive impact of trade liberalization with the EU compared to previous studies. The potential impact on poverty is also very small, although positive. Poverty is expected to decrease by 0.5 percentage points, as is extreme poverty, by 0.2 percentage points.

9. There are high social risks linked to compulsory harmonization with EU standards and regulations. Namely, a 10% rise in consumer prices rise will result in a drastic increase in poverty and extreme poverty, respectively by 7.1 and 1.5 percentage points.

10. Full harmonization with EU industrial standards, technical regulations, etc., along with compulsory implementation of these standards both on the domestic market and in foreign trade will result in a drastic decline in production and employment in agriculture and in the processing industry, reduced imports and import diversion, a sharp decline in customs revenues and an increase in consumer prices. Therefore, the process of legislative and regulatory harmonization must take place gradually and in a phased manner following the harmonization and compliance of the private sector and industrial development. Otherwise, this process will paralyze the economy and result in huge negative social impacts.

11. Despite the DCFTA and the creation of a unified trade regime having certain potential for growth and development, in practice, its implementation is uncertain. If initially only institutional and legislative harmonization and preparation takes place which will not be compulsory for the domestic market, entry of Armenian products into the EU market will either not change or Armenian products will continue to be non-compliant with entry requirements.

12. Legislative harmonization in areas of technical regulations and industrial product standards will be a burden for businesses in the short term which will require adequate investments and technological upgrading. In the medium term, it may improve the quality of products and the level of access to developed markets. In order to avoid economic downturn it is necessary to apply a selective, phased and smooth transition approach.

13. Reforms and development of national quality infrastructure (technical regulations, standardization, certification, metrology and institutional systems of market oversight) will better support business activities and reduce production costs associated with standards compliance.

14. SPS measures will directly impact agriculture, in particular cattle breeding and production and sales of other products of animal origin. It contains huge risks and will have a large social impact in rural poverty and elsewhere. It is necessary to have a sufficiently long preparatory period, and more detailed studies and assessments are required.

15. The area of IPR also requires special attention. It is very complex and can have various impact mechanisms, both positive and negative. Overall, this may be very costly for a country and bring in a number of restrictions, while the mechanisms of expected positive benefits are not very clear and visible, at least in the short run. Nevertheless, the need for some degree of regulation is obvious.

16. Public procurement systems and trade of services in Armenia are already quite liberalized or are in the process of liberalization. The major problem lies in the air transportation liberalization which can be considered in the context of improving the business and investment climate.

17. Improvements in the business and investment climate are not actually a major subject in the EU-Armenia FTA, but rather are preconditions to that agreement. This is crucial and can have huge economic impact; however, it needs to be discussed separately from trade liberalization policies.

18. It is necessary to delineate the effects of trade liberalization and the economic impacts of regulatory reforms implemented in the country. Armenia may enjoy economic and social benefits from the suggested liberalization model in trade with the EU if it is capable of competitively producing goods in compliances with EU standards.

19. Thus, economic transformation and industrial development must be the priority of economic policy which implies development and implementation of policy programs aimed at enterprise development and technological modernization. At the same time, reforms in the business climate and the National Quality Infrastructure should continue. If these conditions can be met, it will be possible to embark on a pathway where gradual implementation of European standards can be reached while also achieving economic and social benefits from foreign trade.

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