International Trade and the Armenian Diaspora

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Abstract

Ethnic networks are known for their active enrollment to the home country's development in the globalized world of 20-21th centuries. The focus of this paper is the special role that social networks can maintain in the international trade. Using tools of standard gravity model I investigate the impact of the Armenian ethnic communities on the bilateral trade. In my paper I argue that social networks that quite often become business networks may overcome informal barriers of international trade such as poor enforcement of contracts, inadequate information about trading opportunities and weak knowledge of local market. Ethnic communities can intervene bringing a preference for home country products and reducing trading transaction costs. Moreover, I also claim that the importance of the Diaspora varies across trading product and partner country characteristics. The strength of the Diaspora will be measured by the product of the ethnic Armenians' shares in the total population of the country pair.

JEL codes: F10, F14, F22

Keywords: International trade, Armenian Diaspora, networks, Rauch classification

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I. Introduction

Various historical, political, socio-economic and technological factors are considered as key drivers of the current globalized world, where many people live far from their country of origin (hereafter Homeland) within formal or informal ethnic communities (hereafter Diaspora[1]). Driven by the desire of being connected to their Homeland ethnic communities often use their financial, technical, intellectual resources and hence play a significant role in the Homeland's development. As the globalized world has mainly shifted to transnational economic and business activities, the support that Diasporas may provide can be of more importance nowadays. There is growing theoretical and empirical literature discussing the economic ties between Diasporas and their Homeland[2]. The research is not only directed to the observation of the Diaspora impact through financial inflows (remittances) and investments, but also through various other contributions from networks such as transfer of skills, information, experience. Overall, the economic ways of cooperation obtained from Diaspora-Homeland relationships can be classified into the following blocks:

- ✓ remittances,
- ✓ skills and technology transfers,
- ✓ facilitation of bilateral trade,
- ✓ marketing intermediary activities,
- ✓ foreign direct investments (FDI).[3]

The research based on all kinds of mechanisms mainly confirm the positive contribution of the Diaspora[1].

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[1] The Diaspora: A Journal of Transnational Studies defines the term Diaspora as the condition of a geographically dispersed people who had settled in different political entities but who maintained, in spite of this dispersion, some form of unity and solidarity.
see Diaspora: A Journal of Transnational Studies, Volume 8, Number 3, Winter 1999, http://www.utpjournals.com/Diaspora/Diaspora83.html

[2] See Warren Cohen review of "Tribes: how Race, Religion and Identity Determine Success in the New Global Economy," by Joel Kotkin (Winter/Spring 1994)
also see http://info.worldbank.org/etools/docs/library/152385/richarddavone.pdf

[3] Hasmik Chakhalyan "The Role of Armenian Diaspora in Homeland economic development: challenges and opportunities", 2007

My paper focuses on the Diaspora role in the international trade. The importance of the networks here is explained with their possible intervention in the process by overcoming informal barriers of bilateral trade. Rauch (1996) states: "Networks can have a significant role when transmitting information about current opportunities for international trade. For example, transnational Diaspora networks can facilitate opportunity matching through the provision of market information (mainly about the distributors and component suppliers), they may also let the suppliers know what consumers in a particular country will be receptive to their products, or how to adapt their products to consumer preferences or trends in a given country". Ellerman (2003) notes: "Business Diasporas can offset information asymmetries and other market failures by creating or substituting for trust through cultural ties that supplement formal channels within weak market institutions, facilitating movement in business environments that would not otherwise have occurred".

Armenia is a country situated on the southeastern part of Europe, and is on the gateway between the Middle East and all of Asia. Throughout the history its geographical position has been playing a crucial role in the economic development; there is evidence of both positive and negative impact. For ages, the area has been considered important enough for the trade between continents, but at the same time for quite a long time it was conquered and ruled by various empires such as the Roman, Byzantine, Arab, Persian, and Ottoman. In 387 AD Armenia has lost its statehood as Armenia for the first time and this date is conditionally considered as the starting point of the Diaspora formation. Since then Armenians got dispersed across all the five continents forced by various economic, religious and political reasons. Armenian historians point out certain

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[1] For different Diaspora mechanisms through which they contribute to the Homeland's development see Johnson B. and Sedaca S. "Diasporas, Emigres and Development: Economic Linkages and Programmatic Responses, 2004

also see Skeldon R. "More than Remittances: other Aspects of the Relationship between Migration and Development", 2004

for the Diaspora/Migration effects via remittances see Newland K. and Patrick E. "Beyond remittances: The Role of Diaspora in Poverty Reduction in Their Country of Origin", 2004

for the Diaspora/Migration effects via trade facilitation see Rauch J. "Networks Versus Markets in International Trade", 1996

"waves" of the Diaspora formation. In the Middle Ages (13-16th centuries) the dispersion was mainly driven by Armenian merchants' successful integration to the world trade, they were carriers of the East-West trade. During the time under the Ottoman Empire (17-20th centuries), when the economic and cultural oppression was strong enough Armenians' outflow rates raised substantially to the countries like Russia, France, Bulgaria, Egypt, Iran, Lebanon, Syria, India, the USA. Afterwards the First World War and the Genocide (1915) caused forced deportation from the country opening a new wave of Diaspora to both the old and some new destinations. Considerably, new Diaspora was formed at late 1970s and 1980s and especially after the collapse of the Soviet Union, when the main reason for leaving the Homeland including to the near abroad (Russia, Ukraine, other NIS countries) was the improvement of socio-economic conditions. In short, history provides evidence of older, therefore larger and more organized Diasporas in more than 30 countries, while there are Armenians living in almost 80 countries in the world.[1] The expectations connected to the importance of the older Armenian communities in the facilitation of trade is not straightforward. The old Diaspora may indicate stronger linkages and already established relationships with the Homeland with increasing role over time. But at the same time long period of living out of the Homeland can as well indicate the deeper integration into the host country's socio-economic life and thus weaker economic ties. Another supporting argument for easier cooperation with the New Diaspora is that unlike the old ones that have media as the main source of their information, young communities still have better knowledge of the ongoing situation in the Homeland and still obtain stronger ties with the economic institutions there[2]. In short the abovementioned point needs empirical investigation that will be discussed later.

Considering relatively low attractiveness of Armenian economy as a business environment, assistance from Diaspora can play a crucial role in the

[1] See the same place, Appendix, Table 1

[2] For historical background see
T. Manaseryan, "Diaspora, the comparative advantage for Armenia", 2004
В. Дятлов, Э. Мелконян, "Армянская Диаспора: Очерки социокультурной типологии", 2009

development of different aspects of the economy. Following to Manaseryan (2004) "…often Armenian investors from Diaspora may be satisfied not as much from gaining profits but from bearing no losses…". Nevertheless, a proper environment based on trust and confidence should exist in order to have expectations of cooperation. In 2003, Aslan Global Survey was conducted among Armenians living in and out of the country in order to address the abovementioned question.

Table 1. Diaspora views towards Armenia[1]

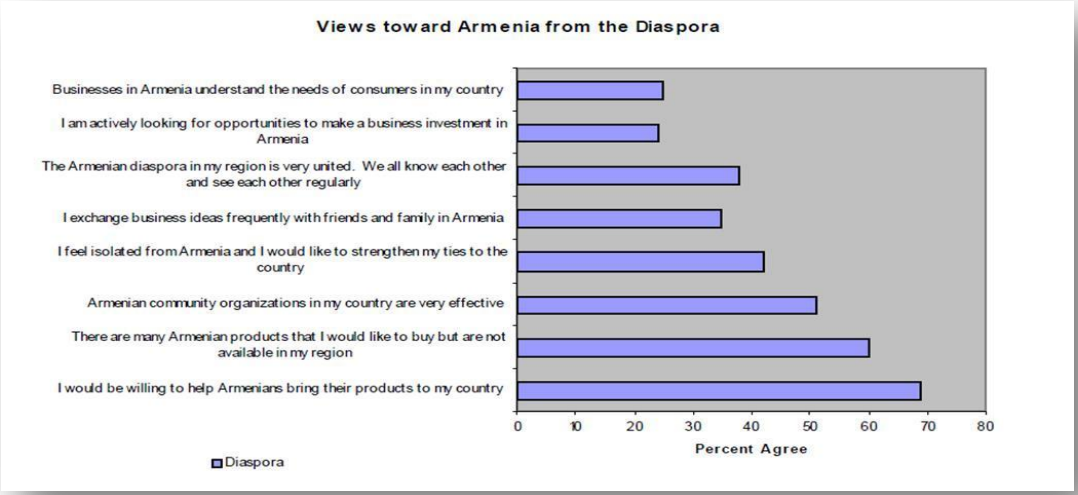
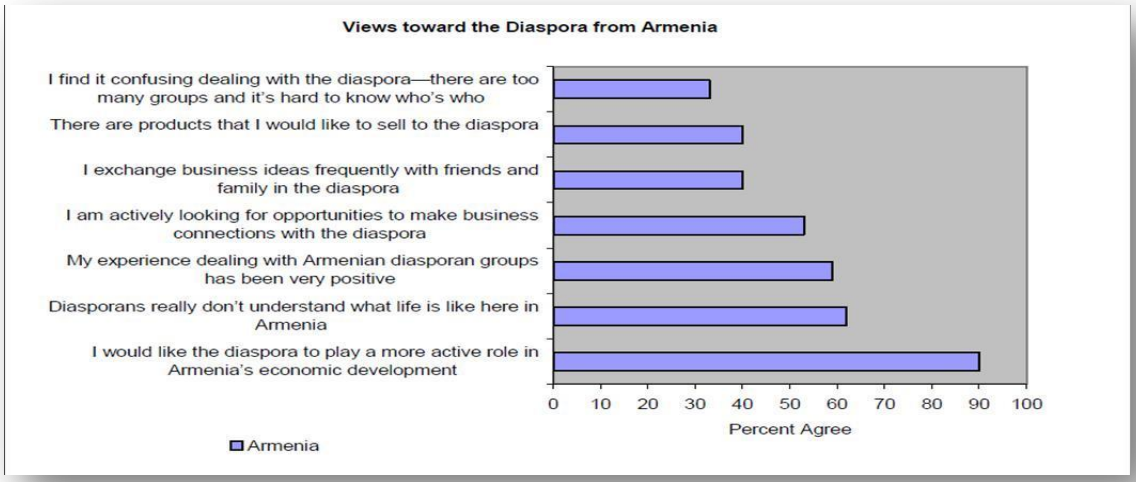


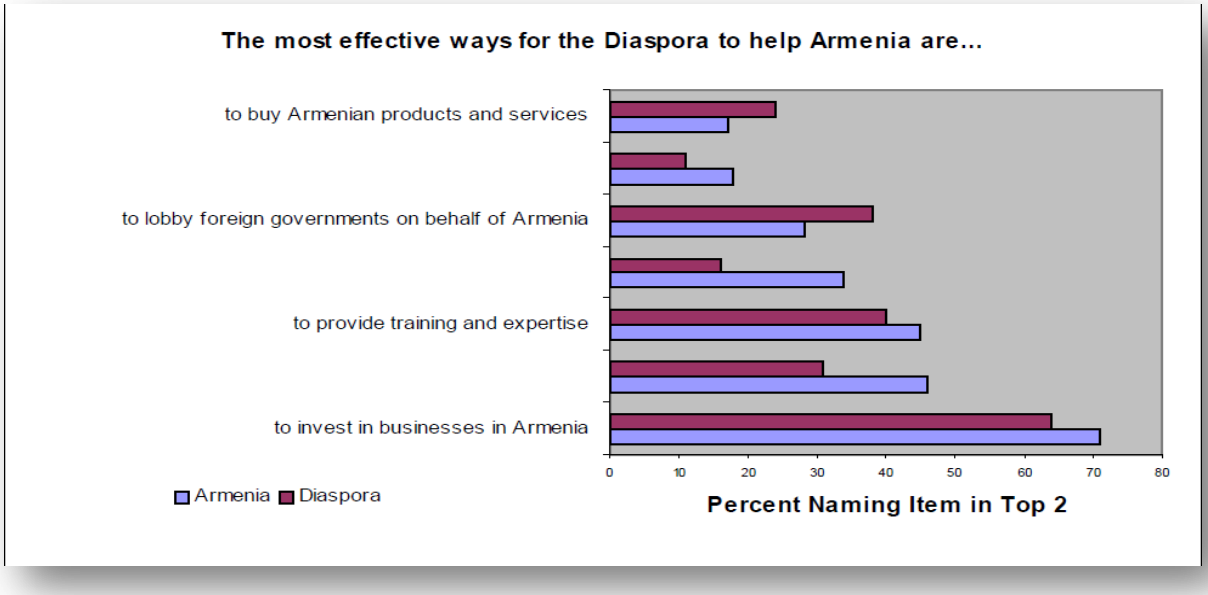
Table 2. Armenians views towards Diaspora



[1] Source: Aslan Global Survey of Armenians in Armenia and the Diaspora, February-April 2003 taken from Manaseryan T. (2004) "Diaspora, the Comparative Advantage for Armenia"

The survey results mainly confirm the expectation that people from the same ethnic group but brought up in totally different cultural and economic circumstances assess the results expected from each other. The Table 3 below provides the survey results pointing out the willingness of local Armenians and Diaspora members to expand their relationships by variety of programs. As expected, the trade promotion is among them, it is not the most effective mechanism so far, but the mutual confirmation provides an objective for empirical investigation of the current situation. Another supporting fact is the existence of organized communities in Middle East, Western Europe, North America, Russia as well as the activities of already established institutions such as Canadian Business Council and Unions of Russian Armenians.

Table 3. The most effective ways for the Diaspora to help: views both from Armenia and Diaspora



The basic theory and case studies are detailed in the "Theoretical framework" section and the main model with the evaluation process of the quantitative importance is discussed in the following "Methodology" section. Afterwards the main research questions are summarized, which are referred in the "Estimation results" section.

II. Theoretical framework

Studying the ethnic Armenians' role in the international trade, I have to observe the theory from two different points of view. First, it's the existing literature covering variety of socio-economic ties between Armenia and Diaspora and then the basic theory of international trade, where the role of the social networks is discussed.

The historical, sociological, cultural aspects of the Armenian Diaspora are quite highly debated in both Armenian and foreign literature (K. Dallakyan (2004), E. Melkonyan(2000), A. Boudjikanian-Keuroghlian (1986), L. Frienkman (2000), E. Gellner (1983)), but studies for the economic and business aspects have recently been conducted. These are mainly observations of Diaspora impact through FDI and remittances, the analysis of these factors' dynamics, also discussions of the main obstacles for further and deeper development accompanied by some policy suggestions. There is no study covering the trade facilitation aspects by Armenian Diaspora, hence I'll use few Armenian papers for historical background and foreign experience for the general model and estimation.

The Diaspora history by Eduard Melkonyan and Victor Dyatlov (2009) is the main source for the descriptive part of my work. The authors give a brief description of the going on processes inside and outside of the country since the 4-th century. Relying on the historical data, the authors give the description of the Diaspora formation, as well as some details of Armenians' main activities in various parts of the world.

The article "Diaspora, the Comparative Advantage for Armenia" by Tatoul Manaseryan (2004) discusses the main obstacles of Armenia-Diaspora relations. In particular it highlights the heterogeneity of the Diaspora driven both by the time periods of formation and from the destinations. The author also indicates the weak points of the Diaspora-Homeland ties affected by the lack of a strategic approach from the Armenian government.

The relevant papers for economic activities have been discussed by Roberts (2004) and Hergnyan and Makaryan (2006). The first investigates the impact of remittances and private financial transfers to the country's economic performance. Hergnyan and Makaryan observe the increasing role of Diaspora in generating FDI-s in Armenia. They draw attention to the fact, that although the Diaspora played an important role in FDI attraction process, the impact was less than one could predict. They suggest that the Armenian government should implement more differentiated policy to attract the Diaspora members and to enjoy the competitive advantage of that network.

Being a pioneer to discuss the Armenian Diaspora role in the trade, I am going to use foreign literature and empirical tests. The most relevant study has been done by Rauch (1999), where he argues that immigrants can reduce transaction costs by networks with people from the Homeland and achieve better trading conditions between those countries. The innovation that Rauch has in his papers is the distinguished impact of migrants on the trade across homogenous and differentiated products or correspondingly products that possess or not reference prices[1]. The definition of the reference price is "a price that is quoted without mentioning a brand name or other producer identification". Rauch states: "The commodities that possess reference prices are taken to be sufficiently homogenous that, if traders see the price differential between two countries' markets is large enough to cover customs and transport costs, they know it is profitable to sheep the product. Commodities that do not possess reference prices are taken to be differentiated, that is prices cannot convey all the information relevant for the international trade: buyers and sellers must be matched in characteristics space". Rauch suggests and using ethnic Chinese data later confirms the hypothesis that the necessary information is more thick and desirable for the bilateral trade of differentiated goods than for the homogenous ones.

There are papers that use the augmented gravity equation to apply the abovementioned trade analyses for certain countries. In particular, Blanes-Cristobal

[1] J. Rauch, V. Trindade, "Ethnic Chinese networks in International trade", 1999, page 117

(2005) estimates immigrants' impact on trade for Spain. Moreover, he runs separate equations for exports and imports claiming that import elasticity captures a taste effect and trust effect, and export elasticity reflects only the trust effect. Girma and Yu (1997) argued that if the immigrants have an individual specific effect then they should influence on the trade of all host countries identically. But the research for United Kingdom led to different, stronger measures for the immigrants from non-Commonwealth countries than the ones from Commonwealth countries. The conclusion that the authors provide is that immigrants support via total market knowledge and not individual information including personal and business contacts. In short, the impact on the trade is "non-universal". Gould (1994) supports the last idea with two main points; firstly, the extra information that immigrants may provide can be more necessary and sufficient for consumer goods than for producer goods. And the personal characteristics of immigrants can also matter; the more skilled are the immigrants the higher is the possibility of using the contacts, possessing the knowledge and thus influencing on the trade structure. Those papers motivated me to check for the non-universality of the Diaspora impact that will be more thoroughly discussed in the analytical part.

There are two more very important papers that I will use for the model implementation. First one is the study done by J. Eaton and A. Tamura (1994). They use a modified gravity model for empirical investigation of the Japanese and U.S. bilateral trade flows and FDI positions. Here I'll make use of their application of the Tobit model, so called threshold Tobit model. Second paper by Sarah Tong (2003) focuses again on the Ethnic Chinese networks but emphasizing their role for attracting FDIs to the home country. My work is similar to this paper in two ways. I have the similar structure and follow the idea of dividing the host countries into groups based on their bureaucratic quality. Tong confirms her expectation of higher Diaspora contribution for the countries with weaker institutions.

III. Methodology

a) *Basic Gravity Model Description*

The paper examines the impact of the Armenian Diaspora on bilateral trade using the standard gravity tools. The basic gravity model predicts that the amount two countries may trade depends positively on their economic volumes (usually represented with gross domestic products) and negatively on the distance between them. Helpman (1987) was the first suggesting the proportionality of the bilateral trade to the product of the trading partners' GDPs; "every country consumes its own output and that of every other country in proportion to its share of world demand". The distance measure stands as a proxy for trading costs, the larger is the distance between two countries, the more obstacles and risks they can face; these makes trading more expensive. Per capita GDP is another explanation of trade that is more recently added to the gravity models. Frankel (1999) suggests that it can capture the diverse stage of development of different countries. There are various dummy variables for former colonial relationship, common border, common native language or membership to different institutions usually added into the gravity model to capture some aiding or resisting factors for trading. The dummy for common border can logically be added into the model to strengthen the role of physical distance. The distance between Armenia and Georgia and between Armenia and Germany cannot be considered as a perfect measurement of the geographical separation. The dummy variables for common language and colonial ties are added to capture the historical and cultural links that increase the probability and quality of cooperation. Dummies for direct or indirect colonial ties can indicate an already established business language, and thus facilitate supplier-consumer matching. The trader's geographical remoteness from all the other partners can also be added among the basic gravity variables (two countries like Australia and New Zealand mainly trade with each other as they are very far from the rest of the world). There are additional dummies to capture the membership to the European Union, the statuses of former USSR, a developed or a transition country.

b) ***Ethnic Armenian Networks***

The main aim of this paper is to estimate the importance of the Armenian Diaspora in facilitating trade between home and host countries. This kind of strength measurement doesn't have many applications yet, hence I will be using proxy that Rauch(1999) has suggested when applying the model for Chinese ethnic networks. The variable will represent the probability that randomly picked two individuals from different countries will be both Armenians. Obviously the probabilities will be very small varying from 0 to 1, as despite the popularity of Armenian Diaspora, they are quite small in absolute figures. Table 4 below is the summary table: the average number of Armenians living in a foreign country is 73130 (excluded Armenia), the average share is 0,0027, and the probability of randomly picking an Armenian from each country in the pair is .00007, so they are quite small figures corresponding to my expectations.

Table 4. Summary table for Armenians

	Mean	**Std. Dev.**	**Min**	**Max**
Number of Armenians in the reporter country	73130	298091.4	8	2250000
Share of Armenians in the total population of the reporter country	.0027	.009	1.24e-08	.059
Product of the ratios from the reporter and partner countries	.00007	.00144	5.81e-16	.058

In the introduction I mentioned the possible variance of the impact originating from old and new Diasporas. For that purpose I'll later generate a dummy variable based on the number of Armenians in the host country and also using the information from the historical paper by Melkonian.

c) ***Empirical model***

As mentioned above the role of the Diaspora in the bilateral trade will be examined by the standard gravity model.

$$\boldsymbol{V_{ijk}} = \boldsymbol{\alpha * GDP_i^{\beta} * GDP_j^{\gamma} * PGDP_i^{\delta} * PGDP_j^{\rho} * DIST^{\sigma} * exp(\epsilon Contig + \lambda Remotindex + \theta Comlang_{off} + \mu colony + \varphi membership + \omega ARMshare + u_{ijk})}$$,[1]

where

V_{ij} bilateral nominal value of trade (exports +imports) between reporter and partner countries, k stands for commodity groups - differentiated, homogenous and goods with reference prices.

GDP_i (or GNP) nominal GDP (or GNP) of the reporter country

PGDPi per capita nominal GDP,

DIST distance between capital cities of the reporter and partner countries

Contig = 1 if countries share common border,

Remotindex = sum($dist_{ij}/GDP_j$), the weighted sum of reporter's distances from all partners

Comlang_off = 1 if countries have official common language,

colony set of dummy variables capturing colonial ties

- comcol =1 for common colonizer post 1945
- col45 =1 for pairs in colonial relationship post 1945
- smctry =1 if countries were or are the same country

membership set of dummy variables capturing various "membership"

- ECmember =1 if the partner is a member of EC
- formerUSSR =1 if partner is a former USSR country

[1] J. Rauch, V. Trindade, "Ethnic Chinese networks in international trade", 1999

ARMshare the product of the Armenians' share in the total population of the reporter and partner countries.

u_{ijk} Gaussian white noise error term associated with trade.

The dependent variable V_{ij} is bounded below by zero because of the impossibility of negative trade volumes. And one often faces 0 trade between countries driven by various reasons. Following Eaton and Tamura(1994), I will modify the model based on the idea that that the right-hand side of equation should reach some threshold value **A** before positive trade values occur. In other words; there exists iceberg transportation cost A, a minimum cost that a country should overcome to be able to have positive trade volumes. Thus, the model takes the following form:

$$\boldsymbol{V_{ij}} = \max\{\boldsymbol{A} + \boldsymbol{\alpha} * \boldsymbol{GDP_i}^{\boldsymbol{\beta}} * \ \boldsymbol{GDP_j}^{\boldsymbol{\gamma}} * \boldsymbol{PGDP_i}^{\boldsymbol{\delta}} * \boldsymbol{PGDP_j}^{\boldsymbol{\rho}} * \boldsymbol{DIST}^{\boldsymbol{\sigma}} * \boldsymbol{exp}(\boldsymbol{\epsilon Contig} + \boldsymbol{\lambda Remotindex} + \ \boldsymbol{\theta Comlang_{off}} + \boldsymbol{\mu Colony} + \ \boldsymbol{\varphi membership} + \ \boldsymbol{\omega ARMSshare} + \boldsymbol{u_{ij}}), \quad \boldsymbol{O}\}$$

After some manipulations the final version is:

$$\boldsymbol{ln}(\boldsymbol{A} + \boldsymbol{V_{ijk}}) = \ \boldsymbol{max}\ \{\boldsymbol{ln}(\boldsymbol{\alpha}) + \boldsymbol{\alpha} + \boldsymbol{\beta GDP_i} + \boldsymbol{\gamma GDP_j} + \boldsymbol{\delta PGDP_i} + \boldsymbol{\rho PGDP_j} + \boldsymbol{\sigma DIST} + \ \boldsymbol{\varepsilon contig} \ + \ \boldsymbol{\lambda Remotindex} + \ \boldsymbol{\theta Comlang_{off}} + \ \boldsymbol{\mu}\mathbf{Colony} + \ \boldsymbol{\varphi mermbership} \ + \ \boldsymbol{\omega ARMshare} \ + \boldsymbol{u_{ijk}}, \quad \boldsymbol{ln}(\boldsymbol{A})\}$$

This equation will be estimated using ML technique, in particular by Threshold Tobit model, because the estimators from the standard Tobit ML regressions constructed for 0 censoring will produce inconsistent parameter estimates, when the constant for censoring is unknown. Carson and Sun (2007) refer to Monte Carlo results showing that the bias coming from wrong threshold can be sufficiently large and introduce the minimum value of the dependent variable as a new and consistent estimator for the threshold, the latter follows an exponential distribution in large samples.

Following Blanes – Cristobal (2005) I also claim that various economic factors may have adverse effects on the export and import. Hence the basic

gravity equation will be run not only for the total trade but also for separate trade flows – exports, imports.

The initial model across 80 countries assumes that there is network effect from ethnic groups: that is the Diaspora members from different countries (also other than Armenia) cooperate with each other and improve the total trade balance of their host countries. Even though Armenians are widespread and there is large evidence of their successful integration to the host countries' economic life, the expectations of having a strong network effect is not so straightforward. This argument leads me to distinguish network effect from pure Diaspora – Homeland effect introducing a dummy variable for the country pairs including Armenia.

Various other applications will be investigated to capture the Diaspora impact level differences across product and country pair characteristics. Rauch's classification will be used for the evaluation of the difference across products. The trader or the trading country looking for a relatively homogenous good can gather information sufficiently easily, and in the decision making process the Diaspora can't have a significant role. But the commodities that don't possess reference prices are taken as sufficiently differentiated, and here is stronger necessity for relevant information for traders; this is where the ethnic groups can intervene and have crucial importance. Correspondingly I expect to get higher positive coefficient after the regression on the differentiated goods, then weaker on the goods with reference prices, and no or very week effect in homogenous goods' case. Additionally I suspect that the diversified impact levels will be more robust within Diaspora-Homeland than Diaspora-Diaspora relationships.

In the introductory part of the article I have discussed Diaspora history indicating its heterogeneity. It's quite difficult to distinguish "old" vs "new", or "organized" vs "nonorganized" Diasporas, but their role can be very crucial and I try to capture some evidence via dummy variables. Following Melkonyan and Dyatlov (2009) and historical data for Armenian Diaspora I have obtained almost 100% correspondence of the oldest and largest communities. That is the countries

with the highest number of Armenians happen to be the ones that have Armenians living there for more than decades (for many countries it's even centuries). For capturing the possible difference in the impact magnitudes I'll introduce a dummy variable "Prominent" for the first 29 countries from the Table 1 (countries that have Armenians more than 6000). As discusses in the first section the expectations for the different margins of Diaspora contribution from more prominent countries versus non-organized ones is not that straightforward. It needs careful empiric investigation.

Following Tong (2003) I also expect to have Diaspora impact variation dependent on the partner country's institutional background. I assume that government effectiveness, bureaucratic quality, law regulation, control of corruption can have some aiding or resisting impacts on the bilateral trade.

d) Data

The sample of countries that I use in the analysis is based on the historical stock data that exists for Armenian Diaspora (see Appendix, Table 1, 2); 81 countries, including Armenia. Therefore I may have (81*80)/2 = 3240 country pairs, thus observations. The list includes countries from Middle East, Western Europe, North America, almost all NIS countries[1].

Aggregated and per capita GDPs are taken from the World Bank database (in USD). The distance variable represents the physical distance between the capital cities. The dummy variables for common colonial ties and language are based on the Encyclopedia Britannica. For the trade data I used United Nations COMTRADE database. But trade researchers often point the inconsistency of this data, hence for maximum avoidance of the measurement error, I have gathered only import data and then used mirror techniques for constructing the dependant variable (trade = import + export). For 6 countries such as Cuba, Iran, Iraq,

[1] I don't have Azerbaijan in my sample. There is no official data on the number of Armenians living there and there is official 0 trade between Armenia and Azerbaijan.

Uzbekistan, Tajikistan and Turkmenistan similar technique has been used based on the export data. The trade data was collected with SITC (rev.2), with the version Rauch constructed the trading product classification.[1] Basically as Rauch(1999) states "all commodities at the 5-digit SITC level were classified by looking them up in *International Commodity Markets Handbook* and *The Knight Reader CRB commodity Yearbook* (to check for organized exchanges) and *Commodity Prices* (to check for reference prices such as price quotations *published in industry journals)".* For minimizing the ambiguities Rauch has conservative and liberal classifications, but I'll be using only the conservative classification in my paper[2]. The dummy variables for the heterogeneous Diaspora effects will be defined as discussed in the previous section. Governance indicators are taken from the World Bank. They are measured in units ranging from -2.5 to 2.5 with higher values corresponding to better governance outcomes. Here are the definitions directly taken from the source:

1. **Voice and accountability** – captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.
2. **Political stability and no violence** - measures the perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including domestic violence and terrorism.
3. **Government effectiveness** - captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

[1]http://www.macalester.edu/research/economics/PAGE/HAVEMAN/Trade.Resources/TradeData.html#classification

[2] Actually there were missing products in the Rauch's table, so I classified them by myself mostly giving the median code of the same subgroup, see the same place, Table 3.

4. **Regulatory quality -** captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
5. **Rule of law -** captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.
6. **Control of corruption** - captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

e) Research questions

In short the questions that are put forward in this paper are as follows:

- evaluation of the Diaspora impact on the bilateral trade (separately also on the export and import)
    - evaluation of the possible variance in the Diaspora impact magnitudes across trading product characteristics
- discussion of pure Diaspora effect versus to an organized social network effect
- investigation of the possible variance of the Diaspora impact level originated from old and newly formed communities
- estimation of the Diaspora importance across the host countries' characteristics. Main attention will be drawn on the institutional development of the partner country including the law regulation, control for the corruption and so on.

IV. Estimation results

a) Main estimation results.

In this section I will discuss basic estimations based on the full sample with the standard gravity model variables. As mentioned above the analysis will be carried using ML tools, in particular with threshold Tobit estimation, but for very brief comparison you can see OLS regression outputs also in the Table 5. Following the discussion from the model specification part, the dependent variables including both total and classified trades are shifted by their minimum values to avoid 0-s. Those minimum values are proxies for the "iceberg melting costs" that the countries necessarily face before positive trade volumes occur. When having a closer look at the threshold values one can expect to have a higher initial costs for differentiated goods than for the more homogenous ones supporting the idea that trading of a differentiated product is relatively more resource, finance and time consuming. Table 4 from the appendix includes those thresholds; one can easily see that the total trade thresholds are in line with the prediction, when with the separate export and import variables the patterns are inconclusive.

Going back to the OLS regressions, outputs show most of the gravity predictions confirmed (The interpretation will be in the next paragraph). The total trade estimation also allows to derive that 1803 country pairs have trade volumes more than predicted by the model versus 1437, which don't even reach the estimated point. In particular, Armenia "overtrades" with 44 countries and "undertrades" with 36[1]. Nevertheless, before turning to the interpretation of main results here I will stop on some very important quality measures for the model. First of all I have a cross-sectional model with independent variables (residual - variables correlation matrix confirmed this). Table 6 doesn't show any problem of multicollinearity as well. Basically, there is no highly correlated pair of variables which may mislead the estimation. I have also checked the heteroscedasticity issue carrying the Breusch–Pagan test. The F-stat = 20.83 is high enough to

[1] Based on the estimated residual sign after OLS regression.

accept the existence of heteroscedasticity in the model. Although the first block of regressions lead to consistent coefficient estimates, the heteroskedasticity robust regressions will add efficiency and that will let me discuss the quality of the model, and interpret the significance of the coefficients (hereafter all the regressions will be robust to heteroskedasticity).

Table 7 represents the Tobit threshold estimations with and without the variable capturing the strength of Armenians (Armshare). As in all the standard gravity models I have GDPs of both the reporter and partner countries significant in all cases. Trading amount is positively correlated to the market sizes of both countries. The intuition behind the coefficients of per capita GDPs can be more logical, although as I have trade = export + import as the dependent variable the interpretation is not very straightforward. Basically, higher is the welfare in a country, higher will be the demand for the imported foreign goods especially for the differentiated ones. This logic from both reporter's and partner's point of view confirms the demand for both export and import, thus explains the positive significant coefficients on the differentiated goods. On contrary, the welfare doesn't tell much about the necessity of homogenous goods. The negative coefficients on the partner's per capita GDP cannot be easily interpreted as well. The logic can be behind the costs, lower are the average costs of the partner country, higher are the opportunities of entering the foreign markets. But still low income people will not have high demand, so there are 2 contrary effects here. This uncertainty leads to the idea of running separate regressions for export and import, here the signs can have stronger interpretation.

The distance, which theory takes as a proxy for the trading costs is significantly negative corresponding to the prediction. The contiguity and remoteness do not provide significant contribution to the model. Generally one assumes to get positive impact for common border indicating higher chances of efficient cooperation between neighbor countries. The remoteness index could have negative sign indicating difficulties of any kind of ties.

As expected earlier common language and trade correlation is positive and it always turns out to be significant. This points out that the common language can be an efficient way to overcome the informal barriers of cooperation. Moreover, the highest contribution of language is for the differentiated goods which strengthens the Diaspora role. The signs of colonial tie indicators are also in line with our expectations. The established personal or business links can successfully increase the probability of cooperation between two countries with similar colonial past. But at the same time the ranking of importance levels corresponds to the increase of homogeneity, which is different from our expectations. The dummy for two countries ever happening to be the same country is mainly insignificant. One can expect both positive and negative correlations here, as those kind of countries afterwards could have become friends or enemies with similar expectations. The dummy variables for partner country characteristics may be interpreted as very similar to per capita GDP variable discussion. The richer(poorer) is the partner country the higher(lower) is the desire, ability and chance of cooperation.

Lastly, I turn to the discussion of the main variable of interest (Armshare). The inclusion of the variable helped me to improve the model, it significantly fits the model. The positive coefficients for all the regressions confirm the expectation of Diaspora's positive contribution. Because of the not an ordinary structure of the model, the coefficients cannot be interpreted as percentage change to a response to percentage change of the dependant variable. I follow Tong(2003) for the coefficient description. Positive thresholds generally will mean an increase of trade for zero to positive. In the case of positive trade, the coefficient is the lower bound for the percentage change of bilateral trade as a response to the simultaneous 1% increase of Armenians share within the country pair. The slope coefficient for Armshare from the total trade Tobit estimation (Table 7) is 64.2, so 1% increase of the Diaspora share in both countries will lead to $(1+0.64)^2 = 2.68$, thus 168% increase of trade between those countries (note, both from partner to reporter and reporter to partner). The large figure is logical as 1% increase of the Armenians' share will be quite a dramatic change. Nevertheless, I

have to consistently reject my expectation of higher importance for the trade of differentiated goods in contrary to the more homogenous goods. Here comes the necessity of checking another hypothesis: whether the difference between the impact levels across the product groups is significant enough. If the coefficients will happen not to differ from each other significantly that will mean Diaspora's inability or weakness in trade promotion. The test results in the Table 8 indicate for general significant difference across those group estimates. But our fear of significant no-difference for the Diaspora effect across groups has also been confirmed, hence I'll state the positive contribution of Armenian communities without mentioning any variation of the impacts.

As noted in the earlier sections there is a scope to control Diaspora heterogeneity. First test will evaluate the pure Armenia-Diaspora cooperation even if the network effect is not that much significant. A dummy variable Armenia is introduced for the country-pairs having Armenia either as a reporter or a partner. Table 9 represents the main regressions with 2 extra variables: Armenia and Arm_Armshare: I assume that those pairs will change the impact levels of Armenians on the trade together with some specific drift. The results indicate of no special drift by the subsample, but very similar Diaspora slope estimates; therefore, they support the hypothesis of strong Diaspora-Homeland and very poor network effect. The estimation here also points for very low significance of the Diaspora facilitation of the homogenous goods, which is a better fit to our expectations. Regressions with the countries without Armenia as a pair lead to meaningless and insignificant coefficients for the Diaspora. In summary, the Rauch expectations work for pure Diaspora-Homeland subsample and are very week for the whole sample.

The second control is the inclusion of the Prominent Diaspora dummy variable. Those countries will be the first 29 countries from the Table 1, as they are ranked in a descending order. Those counties above the threshold 6000 also coincide with the countries that the history provides established relationships too. Two ways of estimation can be carried here: one similar to the previous regressions using dummy variable and the other just having 2 blocks of

regressions for countries with and without Prominent Diaspora. Table 9 is the output for the second-way estimation. But both of them lead to the same intuition: slope coefficients follow almost the same pattern as the first-run regressions when I have first 29 countries, that is the initial estimated effect is mainly due to those countries. Following our discussions one can state that Armenians from older destinations do not lose their desire of promoting the Homeland development. It also deserves to note that the established communities have partially proved the Rauch hypothesis as the significance of homogenous trade promotion has decreased. Generally the evidence is favoring the positive contribution but strategic approaches by the Armenian Government or the Community Organizations can necessarily make better use the of the advantages that networks have.

b) Export / Import separate estimations

When discussing the Per capita GDP variable importance in the model, I came up with the idea of separate export/import estimations. As one can see now from the Table 11 GDP volumes from both directions still have the positive correlation with the level of export and import. The per capita GDP and distance coefficients do have similar behavior with the full-sample trade regressions. Our main variable of concern gives very interesting picture; the Diaspora is more powerful when facilitating import than export. Using various mechanisms of promotion communities can be more helpful with promotion of imports than for exports. David Gould in his research for US had similar point; he suggests to take the import elasticity as a measure of taste and trust effects, where the export elasticity only has to do with trust effect. The other important prediction of higher Diaspora contribution with the differentiated goods is also mainly satisfied here.

c) Introduction of governance indicators

In the context of my paper, Diaspora contribution is assumed to overcome some informal barriers of trade. Weak institution, bureaucracy and corruption can be easily ranked among the barriers for a country to become a prosperous partner for trade. There are many indexes that one can use for this analysis, but I include the governance indicators from the World Bank. The regression results are shown in Table 12. The model has certainly improved; 5 out of 6 new variables are significant. But surprisingly the same kind of variables ranking from -2.5 to 2.5 indicate on different picture here. The positive coefficients for Political Stability, Government Effectiveness and Regulatory Quality can indicate of positive relationship between better governance, less bureaucracy, higher stability and the chances of the country of becoming a favorite trade partner. Interestingly better control of corruption and more precise use of law seem to have negative effect. Reality mostly goes in line with this result as businessmen see the possible use of bribes as an effective mechanism within weak institutions.

Conclusions

Using a standard gravity model I have examined the role that Armenian Diaspora can maintain in the international trade. Despite having large Diaspora Armenians are still a very small nation in order to examine their role in the world market. Initially being aware of this I've decided to be a pioneer and see Armenian communities' role in the trade. Generally, the positive contribution of Armenians in facilitating trade is confirmed. Nevertheless the idea that Armenians' help is more significant for the differentiated products than for the homogenous ones has been partially accepted. The latter is a hypothesis suggested by James Rauch, who has observed the ethnic Chinese networks behavior in international trade.

The strength of Armenian Diaspora is measured by the probability that randomly selected Armenians from reporter and partner countries will both be Armenians. I am checking the contributions to the 2007 trade data based on the assumption that this is the latest data that is maximum clear from unpredicted processes. The gravity model expectations for the countries' GDP-s, per capita GDP-s, distances are almost always confirmed. Besides, there are dummies for colonial ties and common language, which being significantly positive prove their ability of overcoming the informal barriers. For capturing effects driven by factors working differently for import and export, two block of regressions were ran. It turns out that Diaspora support was more significant in the facilitation of import than for export, which can indicate that import elasticity is a measure of both taste and trust effect between the traders while export elasticity mainly goes with trust effect. Another important point with this regressions is the correspondence of the effect magnitudes across products; especially for export the facilitation of differentiated goods is the strongest one, when there is no significant correlation with the export of homogenous goods.

Besides the basic model, various extensions have been carried out to capture some impact diversity across country groups. First was the test for pure

Diaspora – Homeland effect, which was strongly confirmed, i.e. even if there is no strong network effect between Armenians abroad yet, communities still have the strong affinity with respect to their Homeland. The other was introduction of Prominent Diaspora dummy variable for 29 countries with largest and oldest Armenian Diaspora. It turns out that their role in the trade facilitation is the most effective and significant one. The regressions for the other countries didn't show any evidence of Diaspora support. Moreover, Rauch's hypothesis of decreasing impact ranging from differentiated to homogenous goods also had a better fit within the countries considered as old destinations.

The last thing that I've tried was the inclusion of series of governance indicators in the model, as I assume Diasporas' assistance will be more effective for the countries with weak institutions and bureaucratic inefficiencies. Indeed, the governance indicators such as regulatory quality, government effectiveness have become very strong explanations of trade cooperation assuming that communities here can contribute with common language, local connections and other cultural and religious factors.

In summary, Armenian Diaspora can be considered as an "enough powerful" network to facilitate trade, but still there is a scope for real improvement. I don't exclude upward bias in my estimations because of missing relevant variables; and because having regression for only 2007 but the general picture favors the idea that besides remittances and FDI-s facilitation of the bilateral trade is a prospective tool that ethnic Armenians may use to contribute to the Homeland's development.

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Abbreviations:

Abbreviation	Label
iso_o	Reporter
iso_d	Partner
GDPreporter	Nominal GDP of reporter in 2007
GDPpartner	Nominal GDP of partner in 2007
PGDPreporter	Nominal per capita GDP of reporter in 2007
PGDPpartner	Nominal per capita GDP of partner in 2007
contig	1 for contiguity
comlang_off	1 for common official of primary language
comcol	1 for common colonizer post 1945
col45	1 for pairs in colonial relationship post 1945
smctry	1 if countries were or are the same country
dist	simple distance (most populated cities, km)
remotindex	remoteness index for the reporter
ECmember	1 if the partner is a member of EC
formerUSSR	1 if partner is a former USSR country
Armshare	Product of Armenians share in the reporter and partner countries
Arm_Arm	product of Armenian populations in the reporter and partner countries
Armenia	Armenia is either the reporter or the partner country
Arm_Arm_net	Arm_Arm*(1-Armenia)
VA	Voice and accountability
PV	Political stability and Absence of violence
GE	Government effectiveness
RQ	Regulatory quality
RL	Rule of law
CC	Control of corruption

Appendix

Table 1. Distribution of Armenian Diaspora by country[1]

#	Country	Code	Diaspora	#	Country	Code	Diaspora
1	Armenia	ARM	3000000	41	Denmark	DNK	3000
2	Russian Federation	RUS	2250000	42	Austria	AUT	3000
3	USA	USA	1400000	43	Cyprus	CYP	2740
4	France	FRA	450000	44	Venezuela	VEN	2500
5	Georgia	GEO	248000	45	Lithuania	LTU	2500
6	Lebanon	LBN	234000	46	Latvia	LVA	2500
7	Ukraine	UKR	150000	47	Italy	ITA	2500
8	Syria	SYR	150000	48	Estonia	EST	2000
9	Argentina	ARG	130000	49	Thailand	THA	1000
10	Poland	POL	92000	50	Sudan	SDN	1000
11	Turkey	TUR	80000	51	Spain	ESP	1000
12	Iran	IRN	80000	52	Norway	NOR	1000
13	Canada	CAN	80000	53	Finland	FIN	1000
14	Uzbekistan	UZB	70000	54	Chile	CHL	1000
15	Australia	AUS	59400	55	Honduras	HND	900
16	Germany	DEU	42000	56	New Zealand	NZL	600
17	Brazil	BRA	40000	57	India	IND	560
18	Turkmenistan	TKM	32000	58	Mexico	MEX	500
19	Bulgaria	BGR	30000	59	Ethiopia	ETH	400
20	Kazakhstan	KAZ	25000	60	Colombia	COL	250
21	Belarus	BLR	25000	61	South Africa	ZAF	200
22	Greece	GRC	20000	62	Qatar	QAT	150
23	Uruguay	URY	19000	63	Cuba	CUB	100
24	United Kingdom	GBR	18000	64	Dominican Rep.	DOM	75
25	Hungary	HUN	15000	65	Ireland	IRL	50
26	Romania	ROM	10000	66	Singapore	SGP	35
27	Czech Republic	CZE	10000	67	Zimbabwe	ZWE	28
28	Rep. of Moldova	MDA	7000	68	Côte d'Ivoire	CIV	20
29	Egypt	EGY	6500	69	Costa Rica	CRI	20
30	Tajikistan	TJK	6000	70	China, Hong	HKG	16

[1] http://www.armeniadiaspora.com/population.html

					Kong		
31	Jordan	JOR	5500	71	China	CHN	16
32	Switzerland	CHE	5000	72	Senegal	SEN	15
33	Sweden	SWE	5000	73	Ghana	GHA	15
34	Kuwait	KWT	5000	74	South Korea	KOR	12
35	Belgium	BEL	5000	75	Zambia	ZMB	10
36	Kyrgyzstan	KGZ	3285	76	Luxembourg	LUX	10
37	United Arab Emirates	ARE	3000	77	Japan	JPN	10
38	Netherlands	NLD	3000	78	Indonesia	IDN	10
39	Israel	ISR	3000	79	Vietnam	VNM	8
40	Iraq	IRQ	3000	80	Swaziland	SWZ	8
				81	Philippines	PHL	8

Table 2. The map of the Armenian Diaspora

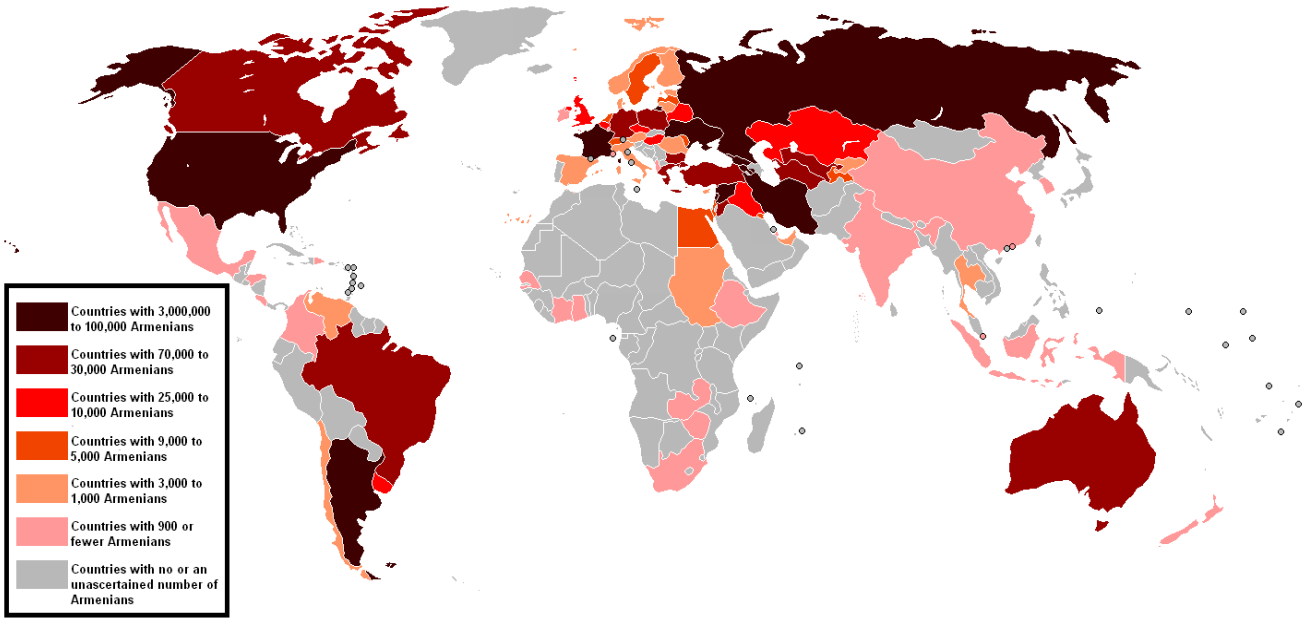

Table 3. Products that were missing in the Rauch classification table.

(n – "differentiated", r – "reference – price", w – "homogenous" goods)

0482	MALT,ROASTED OR NOT (INCLUDING MALT FLOUR)	n	n
1221	CIGARS AND CHEROOTS; CIGARILLOS	r	r
2231	COPRA	r	r
2239	FLOURS OR MEALS/OIL SEEDS/OLEAG.FRUIT NON DEFATTED	n	n
2634	COTTON,CARDED OR COMBED	r	w
2652	TRUE HEMP,RAW OR PROCESSED,NOT SPUN;TOW AND WASTE	w	w
2655	MANILA HEMP,RAW OR PROCESSED,NOT SPUN;TOW & WASTE	w	w
2713	NATURAL CALCIUM PHOSPHAT.,NATUR.ALUMINIUM C. PHOS.	r	r
2714	POTASSIUM SALTS,NATURAL,CRUDE	r	r
2742	IRON PYRITES,UNROASTED	r	r
3222	OTHER COAL,WHETHER/NOT PULVERIZED,NOT AGGLOMERAT	n	r
3223	LIGNITE,WHETHER OR NOT PULVERIZED,NOT AGGLOMERATED	n	n
3414	PETROLEUM GASES AND OTHER GASEOUS HYDROCARBONS N	r	r
3415	COAL GAS, WATER GAS,PRODUCER GAS & SIMILAR GASES	r	r
4233	COTTON SEED OIL	w	w
4235	OLIVE OIL	w	w
4244	PALM KERNEL OIL	w	w
5514	MIXTURES OF TWO OR MORE ODORIFEROUS SUBSTANCES	n	n
5828	ION EXCHANGERS OF CONDENSATION,POLYCONDENSAT.ETC.	r	r
6121	ARTICLES OF LEATHER OR OF COMPOSITION LEATHER	n	n
6122	SADDLERY AND HARNESS,OR ANY MATERIAL FOR ANIMALS	n	n
6123	PARTS OF FOOTWEAR	n	n
6129	OTHER ARTICLES OF LEATHER OR OF COMPOSIT. LEATHER	n	n
6281	HYGIENIC AND PHARMACEUTICAL ARTICLES OF RUBBER	n	n
6349	WOOD,SIMPLY SHAPED,N.E.S.	r	r
6352	CASKS,BARRELS,VATS,TUBS,BUCKETS & OTH.COOPERSPROD	n	n
6354	MANUFACTURES OF WOOD FOR DOMESTIC/DECORATIVE USE	n	n
6422	WRITING BLOCKS,ENVELOPES,ETC.CORRESPONDENCE CARD	r	r
6423	REGISTERS,EXERCISE BOOKS,NOTE BOOKS,ETC.	n	n
6546	FABRICS OF GLASS FIBRE,PILE FAB.TULLE,LACE,KNITTED	n	n
6635	SLAG WOOL.ROCK WOOL AND SIMILAR MINERAL WOOLS	n	n
6637	REFRACTORY GOODS(EG.,RETORTS,CRUJCIBLES ETC) N.E.S	n	n
6639	ARTICLES OF CERAMIC MATERIALS,N.E.S.	n	n
6652	GLASSWARE USED FOR TABLE,KITCHEN,INDOOR DECORATION	n	n
6671	PEARLS,UNWORKEDNVORKED,NOT MOUNTED,SET OR STRUN	r	w
6673	OTH.PRECIOUS & SEMI-PRECIOUS STONES,UNWORK.CUT ETC	n	n
6727	IRON OR STEEL COILS FOR RE-ROLLING	n	n
6784	HIGH-PRESSURE HYDRO-ELECTRIC CONDUITS OF STEEL	n	r

6911	STRUCTURES & PARTS OF STRUC.:IRON/STEEL;PLATES	n	n
6912	STRUCTURES& PARTS OF STRUC.;ALUMINIUM;PLATES,RODS	n	n
6921	RESERVOIRS,TANKS,VATS AND SIMILAR CONTAINERS	n	n
6924	CASKS,DRUMS,BOXES OF IRON/STEEL FOR PACKING GOODS	n	n
6994	SPRINGS & LEAVES FOR SPRINGS,OF IRON/STEEL/COPPER	n	n
7119	PARTS OF BOILERS & AUX.PLANT OF 711.1-/711.2-	n	n
7126	STEAM & OTHER VAPOUR POWER UNITS,STEAM ENGINES	n	n
7129	PARTS OF THE POWER UNITS OF 712.6-	n	n
7131	INTERNAL COMBUSTION PISTON ENGINES FOR AIRCRAFT	n	n
7144	REACTION ENGINES	n	n
7148	GAS TURBINES,N.E.S.	n	n
7169	PARTS OF ROTATING ELECTRIC PLANT	n	n
7187	NUCLEAR REACTORS AND PARTS	n	n
7223	TRACK-LAYING TRACTORS	n	n
7239	PARTS OF THE MACHINERY OF 723.41 TO 723.46	n	n
7368	WORK HOLDERS,SELF-OPENING DIEHEADS & TOOL HOLDERS	n	n
7429	PARTS OF THE PUMPS & LIQ.ELEVATORS OF 742-	n	n
7432	PARTS OF THE PUMPS & COMPRESSORS OF 743.1-	n	n
7433	FREE-PISTON GENERATORS FOR GAS TURBINES,PARTS	n	n
7439	PARTS OF THE MACHINES OF 743.5-,743.6-	n	n
7449	PARTS OF THE MACHINERY OF 744.2-	n	n
7521	ANALOGUE & HYBRID DATA PROCESSING MACHINES	n	n
7524	DIGITAL CENTRAL STORAGE UNITS,SEPARATELY CONSIGNED	n	n
7599	PARTS OF AND ACCESSORIES SUITABLE FOR 751.2-,752-	n	n
7723	RESISTORS,FIXED OR VARIABLE AND PARTS	n	n
7841	CHASSIS FITTED WITH ENGINES FOR MOTOR VEHICLES	n	n
7842	BODIES FOR THE MOTOR VEHICLES OF 722/781/782/783	n	n
7911	RAIL LOCOMOTIVES,ELECTRIC	n	n
7913	RAILWAY & TRAMWAY COACHES,VANS,TRUCKS ETC.	n	n
7914	RAILWAY & TRAMWAY PASSENGER COACHES & LUGGAGE VAN	n	n
7915	RAIL&TRAMWAY FREIGHT AND MAINTENANCE CARS	n	n
7919	RAIL&TRAMWAY TRACK FIXTURES&FITTINGS,SIGNALL.EQUI.	n	n
7921	HELICOPTERS	n	n
7922	AIRCRAFT NOT EXCEEDING AN UNLADEN WEIGHT 2000 KG	n	n
7924	AIRCRAFT EXCEEDING AN UNLADEN WEIGHT OF 15000 KG	n	n
7929	PARTS OF HEADING 792--,EXCL.TYRES,ENGINES	n	n
7933	SHIPS,BOATS AND OTHER VESSELS FOR BREAKING UP	n	n
8743	INSTR.NON ELECTRICAL,FOR MEASURING,CHECKING FLOW	n	n
8821	CHEMICAL PRODUCTS & FLASHLIGHT MATERIALS	n	n
8924	PICTURE POSTCARDS,GREETING CARDS	n	n
8935	ART.OF ELECTRIC LIGHTING OF MATERIALS OF DIV.58	n	n
8973	JEWELLERY OF GOLD,SILVER OR PLATINUM	n	n
8974	OTHER ARTICLES OF PRECIOUS METAL	n	n
8989	PARTS OF AND ACCESSORIES FOR MUSICAL INSTRUMENTS	n	n

Table 4. Thresholds for the dependent variables

Category	Threshold (minimum value)	Number of non - zero values
Total trade of differentiated goods	24	3131
Total trade of goods with reference prices	19	3010
Total trade of homogenous goods	2	2752
Total import of differentiated goods	4	3015
Total import of goods with reference prices	1	2791
Total import of homogenous goods	8	2433
Total export of differentiated goods	1	2974
Total export of goods with reference prices	13	2781
Total export of homogenous goods	3	2362

Table 5. OLS regressions

	Total_trade	Dif_trade	Ref_trade	Hom_trade
Armshare	62.68*	71.89*	87.16*	98.57
lnGDPrep	1.295***	1.340***	1.353***	1.898***
lnGDPpart	1.263***	1.332***	1.453***	1.868***
lnPGDPrep	0.0342	0.134***	0.0125	-0.330***
lnPGDPpart	-0.126***	-0.0763*	-0.143**	-0.571***
contig	-0.117	-0.360	0.0720	0.672
lndist	-1.009***	-1.135***	-1.187***	-1.209***
lnremotindex	-0.135	-0.238	0.304	-0.509
comlang_off	1.064***	1.350***	1.192***	1.283***
comcol	1.768***	1.741***	2.115***	2.431***
col45	0.853*	0.870*	1.066*	1.560*
smctry	0.779	0.730	0.601	1.381
ECmember	0.349**	0.474***	0.464**	0.318
formerUSSR	-0.377***	-0.451***	-0.225	-0.536*
_cons	-39.89***	-45.12***	-41.77***	-70.11***
N	3240	3240	3240	3240
R-sq	0.70	0.71	0.62	0.51

* p<0.05, ** p<0.01, *** p<0.001

Table 6. Correlation matrix

	Armshare	lnGDPrep	lnGDPp~t	lnPGDP~p	lnPGDP~t	lndist	lnremo~x	contig	comlan~f	comcol	col45	smctry	ECmember	former~R
Armshare	1.0000													
lnGDPrep	-0.0734	1.0000												
lnGDPpart	-0.0179	-0.0004	1.0000											
lnPGDPrep	-0.0346	0.5088	-0.0006	1.0000										
lnPGDPpart	-0.0076	0.0028	0.6130	-0.0071	1.0000									
lndist	-0.0838	0.0709	-0.0117	-0.1002	-0.0887	1.0000								
lnremotindex	-0.0479	0.2506	0.0106	-0.0503	-0.0006	0.4717	1.0000							
contig	0.0633	0.0037	0.0542	0.0129	0.0259	-0.4043	-0.0674	1.0000						
comlang_off	-0.0140	0.0328	-0.0143	-0.0344	-0.0041	-0.1008	0.1018	0.1434	1.0000					
comcol	0.0167	-0.1658	-0.1675	-0.0473	-0.0866	-0.1581	-0.1325	0.0887	0.1330	1.0000				
col45	0.0275	0.0512	0.0337	0.0404	0.0057	-0.0531	-0.0390	0.0843	0.1292	-0.0241	1.0000			
smctry	0.1644	0.0049	0.0047	0.0180	0.0112	-0.1651	0.0227	0.2232	0.1100	0.0051	-0.0071	1.0000		
ECmember	-0.0120	0.0137	0.2453	0.0052	0.3512	-0.2801	0.0346	0.0452	-0.0689	-0.0791	-0.0218	0.0274	1.0000	
former USSR	0.0339	-0.0025	-0.3405	-0.0031	-0.3290	-0.1590	-0.0190	0.0521	-0.1440	0.1174	0.0371	-0.0228	-0.0473	1.0000

Table 7. Threshold Tobit Regressions

	total_trad	dif_trad	ref_trad	hom_trad	total_trade	dif_trade	ref_trade	hom_trade
model								
lnGDPrep	1.302***	1.353***	1.349***	1.922***	1.305***	1.357***	1.353***	1.927***
lnGDPpart	1.270***	1.345***	1.452***	1.889***	1.271***	1.346***	1.453***	1.890***
lnPGDPrep	0.0351	0.137***	0.0113	-0.327***	0.0360	0.138***	0.0125	-0.325***
lnPGDPpart	-0.125***	-0.0733*	-0.142**	-0.568***	-0.125***	-0.0741*	-0.143***	-0.569***
contig	-0.134	-0.391	0.0784	0.650	-0.139	-0.396	0.0720	0.643
lndist	-1.021***	-1.151***	-1.195***	-1.242***	-1.015***	-1.144***	-1.187***	-1.233***
lnremotindex	-0.141	-0.253	0.304	-0.524	-0.141	-0.252	0.304	-0.523
comlang_off	1.063***	1.356***	1.174***	1.277***	1.076***	1.372***	1.192***	1.299***
comcol	1.783***	1.775***	2.111***	2.523***	1.785***	1.778***	2.115***	2.528***
col45	0.878**	0.898**	1.105***	1.559***	0.849**	0.864**	1.066***	1.513***
smctry	0.995*	0.981	0.896	1.672*	0.778	0.729	0.601	1.332
ECmember	0.348***	0.474***	0.454***	0.293	0.356***	0.483***	0.464***	0.305
former USSR	-0.377**	-0.453**	-0.219	-0.526*	-0.381**	-0.458**	-0.225	-0.533*
Armshare					64.20***	74.32***	87.16***	100.8**
_cons	-40.25***	-45.84***	-41.55***	-71.21***	-40.41***	-46.03***	-41.77***	-71.47***
sigma								
_cons	2.304***	2.492***	2.977***	4.509***	2.302***	2.490***	2.974***	4.507***
N	3240	3240	3240	3240	3240	3240	3240	3240
pseudo R-sq	0.21	0.20	0.16	0.12	0.21	0.20	0.16	0.12
log lik.	-7266.1	-7485.1	-8131.6	-8602.5	-7263.6	-7482.2	-8128.8	-8600.9

* p<0.05, ** p<0.01, *** p<0.001
Note - standard errors are robust to heteroskedasticity

Table 8. Testing the coefficient differences across groups

	differentiated vs reference pr.		differentiated vs homogeneous	
	Chaw test statistics	p	Chaw test statistics	p
all the variables	106.37	0.0000	370.89	0.0000
Armshare	2.04	0.1530	1.06	0.3034
lnGDPpart	21.43	0.0000	151.79	0.0000
comlang_off	1.73	0.1887	0.08	0.7746
comcol	2.87	0.0905	4.03	0.0447

Table 9. Tobit estimations for Armenia-Diaspora subsample

	Arm_tot_tr~e	Arm_dif_tr~e	Arm_ref_tr~e	Arm_hom_tr~e
model				
Armenia	0.181	-0.0449	0.109	-0.0347
Arm_Armshare	56.76***	73.58***	81.20***	94.18*
lnGDPrep	1.308***	1.356***	1.355***	1.926***
lnGDPpart	1.271***	1.346***	1.453***	1.890***
lnPGDPrep	0.0362	0.138***	0.0126	-0.325***
lnPGDPpart	-0.125***	-0.0741*	-0.142***	-0.569***
contig	-0.138	-0.396	0.0726	0.643
lndist	-1.016***	-1.145***	-1.188***	-1.234***
lnremotindex	-0.132	-0.254	0.309	-0.525
comlang_off	1.079***	1.371***	1.193***	1.297***
comcol	1.781***	1.778***	2.111***	2.526***
col45	0.848**	0.866**	1.066***	1.517***
smctry	0.791	0.733	0.613	1.355
ECmember	0.352***	0.483***	0.461***	0.304
former USSR	-0.379**	-0.457**	-0.223	-0.532*
_cons	-40.38***	-46.02***	-41.74***	-71.45***
sigma				
_cons	2.302***	2.490***	2.974***	4.507***
N	3240	3240	3240	3240
R-sq				
pseudo R-sq	0.21	0.20	0.16	0.12
log lik.	-7263.5	-7482.4	-8128.9	-8601.1

* p<0.05, ** p<0.01, *** p<0.001
Note - standard errors are robust to heteroskedasticity

Table 1o. Prominent Diaspora

	dif_prom0	ref_prom0	hom_prom0	dif_prom1	ref_prom1	hom_prom1
model						
Armshare	321846.7	300576.8	568441.0	64.82***	67.83***	77.34*
lnGDPrep	1.478***	1.496***	2.151***	1.327***	1.327***	1.824***
lnGDPpart	1.537***	1.663***	2.273***	1.241***	1.337***	1.668***
lnPGDPrep	0.136**	0.115	-0.182	0.133*	-0.100	-0.463***
lnPGDPpart	-0.182***	-0.190**	-0.626***	0.0319	-0.108	-0.530***
contig	1.218	1.843**	2.498**	-0.995	-0.699	0.0917
lndist	-1.075***	-1.016***	-1.310***	-1.162***	-1.259***	-1.099***
lnremotindex	-0.0537	0.636*	-0.163	-0.373	0.249	-0.418
comlang_off	1.534***	1.364***	1.431**	1.376***	1.405***	1.603***
comcol	1.047**	1.268**	2.199***	2.969***	3.897***	3.885***
col45	-0.730	-1.278	-1.007	1.200***	1.388***	1.726***
smctry	-0.225	-0.294	0.406	1.442*	1.583*	2.131**
ECmember	0.514**	0.688**	0.244	0.500***	0.348**	0.312
formerUSSR	-0.688*	-0.380	-0.478	-0.343*	-0.373	-0.878**
_cons	-51.24***	-49.10***	-83.51***	-44.82***	-37.42***	-61.90***
sigma						
_cons	2.583***	3.114***	4.973***	2.356***	2.782***	4.114***
N	1326	1326	1326	1914	1914	1914
R-sq						
pseudo R-sq	0.20	0.16	0.12	0.21	0.17	0.12
log lik.	-3098.7	-3387.9	-3467.2	-4327.4	-4673.9	-5072.0

* p<0.05, ** p<0.01, *** p<0.001
Note - standard errors are robust to heteroskedasticity

Table 11. Export/Import

	dif_import	ref_import	hom_import	dif_export	ref_export	hom_export
model						
Armshare	116.4***	147.3***	109.3**	81.94*	96.79*	16.92
lnGDPrep	1.286***	1.617***	1.828***	1.885***	1.784***	1.955***
lnGDPpart	1.820***	2.050***	1.861***	1.417***	1.665***	1.982***
lnPGDPrep	0.0682	-0.0239	-0.132*	0.345***	0.119	-0.589***
lnPGDPpart	-0.236***	-0.181*	-0.915***	-0.0512	-0.157**	-0.321***
contig	0.217	0.438	0.971*	-1.163*	-0.956	0.111
lndist	-0.955***	-1.129***	-1.361***	-1.658***	-1.801***	-2.044***
lnremotindex	-1.060***	-1.359***	-2.721***	0.522*	1.628***	2.642***
comlang_off	1.863***	2.154***	1.672***	1.467***	1.281***	1.437***
comcol	1.749***	2.946***	2.033***	2.668***	2.817***	2.535***
col45	1.108**	1.418**	1.429*	1.263**	0.986	2.129**
smctry	0.990	1.238	1.717*	0.987	0.584	-0.0105
ECmember	1.703***	1.446***	-0.463*	0.340*	0.516**	1.008***
formerUSSR	-0.906***	-0.561*	-0.903***	-0.124	0.104	-0.233
_cons	-66.74***	-84.34***	-91.39***	-52.63***	-41.35***	-35.53***
sigma						
_cons	3.551***	5.024***	4.611***	3.927***	4.122***	4.837***
N	3240	3240	3240	3240	3240	3240
R-sq						
pseudo R-sq	0.15	0.11	0.10	0.14	0.14	0.11
log lik.	-8424.5	-9021.1	-9549.4	-8671.4	-8429.5	-9704.7

* p<0.05, ** p<0.01, *** p<0.001
Note - standard errors are robust to heteroskedasticity

Table 12. Tobit regressions with governance indicators.

	dif_trade_~v	ref_trade_~v	hom_trade_~v
model			
Armshare	62.11***	73.39***	90.41**
lnGDPrep	1.352***	1.347***	1.929***
lnGDPpart	1.119***	1.196***	1.590***
lnPGDPrep	0.126***	0.000532	-0.349***
lnPGDPpart	-0.189***	-0.324***	-0.721***
contig	-0.501	0.00102	0.382
lndist	-1.365***	-1.428***	-1.601***
lnremotindex	0.0252	0.615***	-0.0608
comlang_off	1.162***	0.928***	0.959***
comcol	1.811***	2.163***	2.640***
col45	0.997**	1.280***	1.787***
smctry	0.213	0.0186	0.455
ECmember	-0.256*	-0.711***	-0.771**
formerUSSR	-0.715***	-0.386*	-0.817**
VA	-0.0581	0.172	0.363*
PV	0.382***	0.350**	0.713***
GE	2.098***	1.802***	3.401***
RQ	0.656***	0.650***	0.00123
RL	-1.124***	-0.575*	-1.814***
CC	-0.967***	-1.094***	-1.181***
_cons	-34.15***	-27.85***	-54.10***
sigma			
_cons	2.382***	2.848***	4.401***
N	3240	3240	3240
pseudo R-sq	0.22	0.18	0.13
log lik.	-7342.3	-7988.7	-8526.3

* p<0.05, ** p<0.01, *** p<0.001
Note - standard errors are robust to heteroskedasticity