OVERVIEW OF FINDINGS OF THE INTERNATIONAL CONFERENCE ON THE ECONOMIC AND SOCIAL CONSEQUENCES OF OPENING THE ARMENIA-TURKEY BORDER

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The closure of the border between Armenia and Turkey is a type of *economic sanction*. Economic sanctions are implemented by a country, groups of countries, or international bodies such as the United Nations in order to influence the policies of the targeted country. Sanctions bring about a range of economic and social impacts that are intended to make the costs of defiance of the sanctions' goals higher than compliance. The studies and presentations of the AIPRG conference on "The Economic and Social Impacts of Opening the Armenia-Turkish Border" each address different aspects of the impacts of the border closure sanction. Their key findings are summarized here, and an estimate of the overall impact of the closed border on the Armenian economy is developed.

Efficiancy of Sanctions

The degree to which a particular sanction is enforced typically varies and ranges from little more than a fig leaf to a complete blockade. Most sanctions in actual practice are somewhere in between these two extremes. The effectiveness of a sanction will also usually degrade over time, as the target country and its trading partners find ways to evade it

In the keynote presentation of the conference, Gary Hufbauer (2006) shows that the use of economic sanctions rose over the previous century, and that the U.S. has imposed them more often than other countries or international bodies. However, the success of U.S.-imposed sanctions to influence the policies of targeted countries fell during 1945 to 2000, and sanctions now typically succeed in only one out of four instances. Hufbauer discusses Turkey's sanction on Armenia in detail and notes that Turkey has not achieved any of its political goals for which the border was closed, and that the chance that either Turkey or Azerbaijan will achieve the political goals for which the border was closed is essentially nil. Although sanctions are ineffective at achieving political goals, they do bring economic costs: "trade barriers of all kinds (tariffs, quotas, sanctions) create vested interests that invoke every available argument to perpetuate the barriers. For a crossroads country,[1] the economic damage that cut off trade with neighboring nations is severe." Hufbauer reviews the cases of three crossroads

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[1] Such as Armenia, which is a 'crossroads country'.

countries that ended hostilities with a key neighbor, Singapore, Jordan, and Panama, and notes that all three have a much higher level of trade and inward foreign direct investment (FDI) as a percentage of the economy (GDP) than Armenia.

Transport Cost and Trade Flows

One of the key impacts of closing a border is to restrict transport options for trade flows of the target country, boost the cost of trading, and thus reduce trade and income. Prior to the conference, several studies that quantitatively evaluated this impact were published. The first was Polyakov (2001), who used a gravity model and found that opening the border would increase Armenian exports by 200% and GDP by 38%. Gravity models relate the level of trade flows between pairs of countries to factors such as the size of their economies, distance between the countries, policy variables such as free trade agreements, having a common border and/or common language, and other factors. The impact of the closed border on trade can be evaluated by using the estimates of a gravity model to predict what level of trade *should* take place, and then comparing this prediction to the *actual* trade level. This can be done for trade flows between a pair of countries (Armenia and Turkey) or for the total trade flows of one particular country (Armenia.).[2]

Freinkman, Polyakov and Revenco (2004) (hereafter FPR) subsequently used a trade-openness model and a gravity model to evaluate the impact of the closed border on Armenian trade flows and GDP. Their trade-openness model relates the ratio of trade to GDP to explanatory factors such as country size, participation in trade blocs, and institutional quality. Results from the trade-openness model suggest that the closed border did have a very significant impact on exports and GDP, although the GDP impact declined somewhat from 40% in the late 1990s to 30% in the early 2000s. They then estimated a gravity model whose specification is different from that of Polyakov (2000). Results from this model were dramatically different and suggested that the closed border had no significant impact on Armenian trade flows. Because the authors had more confidence in their gravity model than their trade openness model, they concluded that the impact of the closed border on trade flows was marginal, and that the more important impact of the closed border was to depress investors' expectations, increase their perception of risk, and thus depress investment. They also argued that Armenia's private sector has been more heavily impacted by a poor business environment than by the closed border. Beilock (2004) disputed these conclusions on several grounds, including gravity model specification.

AEPLAC (2005) uses a gravity model to estimate the impact of border opening on Armenia's trade flows and embeds this into a computable-general-equilibrium (CGE) model in order to evaluate impacts on GDP. CGE models explicitly model the structure of an economy and take into account the interactions between different sectors and induced (secondary) economic impacts of changes such as opening the border. In the gravity modeling of trade flows, assumptions were made on the ability of trade flows to respond to shocks such as opening the border in the short, medium, and long run. In particular, capacity constraints on the ability of Armenian exporters to respond to border opening in the short run were imposed. The key results of this study, which were

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[2] To predict the total trade flows of a particular country using a gravity model, trade flows between that country and each of its partners is predicted and then summed up.

presented at the conference, are that border opening will result in increases of 17.7% in exports, 13.0% in imports, and 2.7% in real GDP over the medium run (5 years.) These impacts are much smaller than those of Polyakov (2000) and the trade openness model of FPR (2004).

The conference study presented by Torosyan, Gangidze, and Beilock (2006a) (hereafter, TGBa) offers a strategy for opening the border that would be phased and designed to offer incentives to agree to the change in policy to each affected country in the region.[3] TGBa (2006) estimate the impact of border opening on Armenian trade flows using a gravity model whose specification differs from those of FPR (2004) and AEPLAC (2005). Their results suggest that border opening *per se* will increase Armenian imports from Turkey by 50% and exports to Turkey by 38%. As TGBa (2006) notes, these results do not take into account the additional positive impacts that an open border will reduce the effective distance that trade flows must travel, and an Armenian-Turkish railroad connection is likely to open up.

Baghramyan's (2006) conference study takes a different approach to evaluate the impact of opening the border on trade flows. He assumes that Armenian and Georgian consumers have similar (homogenous) preferences, and that Turkish and Iranian consumers have similar preferences. This permits estimating what Armenian consumers will import from Turkey and Turkish consumers will import from Armenia after border opening respectively. He finds that total Armenian imports should increase by 4%, and total exports by 4-12%, after free trade prevails between Armenia and Turkey. It should be noted that change in total imports and exports reflects only change in trade flows between Armenia and Turkey – the impact of border opening on Armenian trade with other countries is not considered.

Finally, Sargsyan's (2006) conference study evaluates the direct impact on transport cost of a closed border by surveying the largest freight transport company in Armenia. He finds that the necessity to ship goods via Georgia adds 10% to transport cost due to an extra 2 days of transport time. This result can be compared to a similar one in the AEPLAC study, which found a 4.1% decline in transport cost and a fall of 172 km in average distance traveled for freight shipments. TGBa (2006) also evaluated the impact of an open border on distance traveled for specific shipping routes, but did not convert this into an overall (weighted) impact.[4]

The literature in this area to date displays a revealed preference for using the gravity model of trade to evaluate the impact of the closed border on Armenian trade flows. Because specification of the gravity model has varied from study to study, the issue of what is the "best" specification of a gravity model is important. Unfortunately, theoretical justifications of the gravity model are a matter of dispute and controversy,

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[3] Including Georgia and Azerbaijan as well as Armenia and Turkey.

[4] No study has attempted to evaluate the specific impact on transport cost and distance traveled of a re-opening of the railroad connection between Armenia and Turkey. As AEPLAC notes, there are no modern container ports on Turkey's northern shore, and they argue that the bulk of Armenian freight shipments will continue to go to Georgian container ports even if the border is opened. However, the re-opening of the railroad will offer links to container ports in Turkey on the Mediterranean such as Mersin (near Adana), and these routes may (or may not) offer lower costs than a road-sea shipment through Georgian container ports on the Black Sea.

and it is not possible to appeal to theory to determine an optimal specification. The gravity model is popular because it performs well in explaining actual levels of trade between country pairs, not because it is based on a compelling theory of such trade.[5] Fortunately, as will be discussed further below, the estimates of impacts of the closed border on Armenian trade flows are reasonably close.[6] The second key issue that arises in these studies is how to convert an impact on trade flows into an impact on GDP, which will also be discussed further below.

Investment and Capital Accumulation

Analysts have noted that a key impact of the current state of the relationship between Armenia and its neighbors is the impact of uncertainty on investment, particularly inward foreign direct investment (FDI). The closed border, lack of diplomatic relations, and tension brought about by existing disputes has created a situation in which Armenia is perceived to face a high risk of external conflict. The conference study by Banaian and Roberts (2006) confirms that Armenia is perceived to have one of the highest levels of external conflict risk in the world. They then evaluate the impact of this perceived risk on FDI by estimating a cross-country regression that relates FDI to explanatory factors such as country size, political risks, degree of fuels and metals exporting, and other variables. External conflict risk has a very significant impact on FDI. If Armenia normalized its relationships with Turkey and Azerbaijan and its external conflict risk rating fell by 25% as a result, so that Armenia moved from the first to the third deciles of most risky countries, the stock of FDI is estimated to increase by roughly 50%. This will have a significant impact on GDP, which will be discussed further below. Banaian and Roberts (2006) also evaluate the impact of external conflict risk on military spending using a cross-country regression and find a very significant relationship. A fall in Armenia's risk rating by 25% is estimated to produce a "peace dividend" reduction in Armenian military spending by 0.7% of GDP, which would free up a significant amount of budgetary funds for spending on education, healthcare, low-income family support, and/or pensions.

Labor Market Impacts

Derderian (2006) analyzes aspects of how a rapprochement between Armenia and Turkey could impact migration flows between the two countries, and in particular the new opportunities that would open for Armenians to work in Turkey. The vast majority of Armenian migrant laborers currently work in Russia. However, some Armenians already work in Turkey in spite of the closed border and tense political relationship. Current conditions for Armenian migrants in Russia and Turkey are compared, and positive and negative aspects identified for both destinations. The magnitude of potential flows to Turkey is suggested by a comparison to Georgia: during 1997-2005, the level of arrivals of Armenians and Georgians to Russia has been roughly the same, but the entry of Georgians to Turkey has been nine times higher than the entry of Armenians. The number of Georgians going to Turkey vastly outnumbers the number going to Russia. Current patterns suggest that Turkey could be a major

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[5] For an overview of issues regarding the gravity model of trade, see
http://en.wikipedia.org/wiki/Gravity_model_of_trade

[6] With the one exception of the initial estimates of Polyakov (2000).

destination for Armenian migrant labor flows if relations improved. Having the opportunity to migrate to Turkey is likely to increase the total volume of migrant flows, and to redirect flows from Russia to Turkey. This will have implications for the amount of remittance flows that Armenia receives from migrant workers, which Derderian (2006) discusses but does not attempt to quantify.

Sectoral and Regional Impacts of Border Opening

In addition to overall impacts on the level of Armenian trade, investment, and national income, opening the border would have differential impacts on specific economic sectors and geographical regions of Armenia and Turkey. Some sectors and regions would do well, but others might suffer.

Khanjian (2006) uses four methods to evaluate the competitiveness of various sectors of the Armenian economy versus their Turkish counterparts: comparative advantage based on factor endowments (CAFÉ), revealed comparative advantage (RCA), comparative advantage based on productivity, wages, and exchange rates (CAPWE), and export and import rankings (EIR). A comparison of data on various productive factors available in the two countries suggests that Armenia might be human skill-abundant and capital- and land-scarce as compared to Turkey. Turkey might have a comparative advantage in agriculture based on the CAFÉ approach. The RCA approach identifies sectors for which one country almost exclusively exports and the other country almost exclusively imports, suggesting that the first country is likely to export to the second country for that sector. Using actual data on Turkish and Armenian trade flows, a small number of Armenian sectors are identified as having comparative advantage under the RCA approach (mainly the metals sector), whereas a significantly larger number of Turkish sectors have comparative advantage (including many in the agricultural/food and textile domains.) Khanjian (2006) notes the fact that Armenia's economy is small relative to Turkey's might lead to misleading results under this method for Armenian sectors, as greater access to a large Turkish market might make it profitable for an Armenian sector to export that currently does not. He argues that the most useful method for evaluating comparative advantage is the CAPWE approach, which is based on comparing relative labor productivities to relative wage rates. Using data for 2000, 9 sectors are identified for which Armenia has comparative advantage that account for 64% of total Armenian manufacturing output, and sectors that clearly appear to be at a comparative disadvantage account for 6.3% of manufacturing output. These results are sensitive to exchange rate values, and the appreciation of the dram and depreciation of the lira against the dollar since 2000 has apparently reduced the number of Armenian sectors enjoying comparative advantage.[7] Finally, the EIR approach suggests that there is some scope for intra-industry trade between the two countries, due to both product differentiation and geographical factors. Khanjian (2006) argues that Armenian policymakers should consider developing a Trade Adjustment Assistance program to support those who lose from trade liberalization, and to focus on improving productivity as the best way to improve Armenian living standards.

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[7] If relative productivities and wages are assumed to have not changed during 2000-06, then if 2006 exchange rate values are used to compute CAPWE, Armenian sectors comprising only 36% of Armenian manufacturing output in 2000 would have had comparative advantage, and 49% would have been at a disadvantage. It would be useful to update this exercise in its entirety to 2006, as relative wages and productivities may have changed from 2000 to 2006.

Torosyan, Gangidze and Beilock (2006b) (hereafter TGBb) evaluate what provinces of Turkey would be most impacted by a border opening, which they would expect to be provinces in the eastern region of Turkey that border Armenia. TGBb treat each province of Turkey as a separate "country" and use the gravity model of TGBa described above to estimate change in exports and imports between Armenia and the province resulting from border opening. As expected, border provinces in eastern Turkey experience the most dramatic change in trade flows with Armenia.   For example, Kars and Van are projected to experience increases in total trade turnover of 882% and 790%, respectively. It is important to note that this analysis controls for the low income levels of Turkey's eastern provinces, which is taken into account in the gravity model. Although increased trade with Armenia might not be of great significance to Turkey at the national level, the increases in exports to Armenia from eastern provinces that TGBb's analysis suggest could be significant for these local economies.

The potency of border opening for border economies is suggested by Gokcekus (2006), who evaluates the economic impacts of partial opening of the internal Cyprus border in 2003.   During 2003-2006, 11 million crossings of the border took place without incident, the labor market began to integrate and offered opportunities in particular to northern (Turkish) Cypriot workers, cross-border shopping rose rapidly in 2004 to an enduring equilibrium level, and retail prices in the two Cypruses converged. Perhaps the most striking finding of the study is that in 2002, per capita income in Turkish Cyprus was 30% of that in Greek Cyprus, but by 2005 the ratio had risen to 50%. This is a remarkably fast rate of convergence that, if it can largely be attributable to border opening, indicates the potential of such a policy shift to rapidly and significantly impact the incomes of border communities.

Other Impacts, Challenges and Risks of Border Opening

The Service Sector. Bagratyan (2006) proposes an economic and political policy program designed to achieve a "Carrefour" model of an integrated regional economy. He notes that Armenia could become a crossroads financial center. Implications of border opening for the service sector, the largest component of the economies in the region, were little addressed by the conference. Several service sectors could conceivably be impacted by border opening and political rapprochement. Analysis of these impacts are a topic for future research.

Promotion of Competition and Productivity Growth. Bagratyan (2006) also notes the high concentration of ownership and monopolization of the Armenian economy, and Hufbauer (2006) notes that "vested interests" have an interest in continuing trade sanctions to protect the returns to their market power. Opening the border will arguably promote the degree competition that Armenian producers face, and this will bring gains to Armenian consumers and promote productivity growth.[8] These kinds of gains are usually not captured in models used to evaluate changes in trade policy, in particular the CGE model. However, as will be discussed further below, we will attempt to

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[8] Schiantarelli (2005) reviews the literature on the relationship between competition, product market regulation, and various measures of economic performance and outcomes. Evidence suggests a significant and sizeable positive link between the degree of competition and productivity growth.

capture the impact of increased openness of the economy on productivity and therefore GDP.

Infrastructure Programs and Regional Integration. Bosbotinis and Ghaplyan (2006) discuss the potential positive impact of border opening on regional economic integration through transport and energy projects. Of particular note are the EU programs TRACECA (Transport Corridor Europe-Caucasus-Central Asia), a multi-modal transport infrastructure program, and INOGATE (Interstate Oil and Gas to Europe), a program to facilitate the development of an integrated energy market with Europe and the Caspian/Central Asian states. Both of these projects "are dependent on a stable and prosperous environment existing in the South Caucasus, and the opening of the border would allow the maximisation of the benefits offered by TRACECA and INOGATE and allow the development of a trans-European transportation and trading system."

Institutional Preparedness. Ohanyan (2006) evaluates whether Armenian institutions are prepared for the challenges that will emerge if the border is opened. Using southeastern Europe as a case study, she identifies challenges that nations in that region face in their efforts to promote cross-border engagement, including political problems, unstable economies, lack of cooperation structures, lack of modern infrastructure at the borders, and untrained staff at border crossings. This region does benefit from good cooperation between private-sector businesses, similar cultural heritages, cooperation at the experts' level, and substantial international engagement to promote cross-border engagement. Ohanyan (2006) conducted interviews with public-sector and private-sector officials in Armenia to assess prospects for border opening. Interviews with public-sector officials reveal a range of concerns on the issue, both with respect to potential impacts on the Armenian economy and Armenian capacities to take advantage of new opportunities. In the private sector, 28 interviewed small- and medium-size enterprises (SMEs) were in favor of opening the border without preconditions, whereas 30 SMEs favored carrying out administrative reforms before opening the border, including simplification of taxation, reform of export-related paperwork, and strengthening of quality control measures.[9] She concludes with several policy recommendations, including fostering of regional and local cross-border networks, donor commitment and patience, and a specialized agency for the promotion of cross-border engagement and regional economic development.

Gultekin (2006) also emphasizes the importance of the European experience of cross-border engagement. EU-sponsored cross-border cooperation programs, which are already in effect on Turkey's western border, should be extended to the Turkish-Caucasian border. The need for national and international support for cross-border engagement efforts is emphasized. Several existing and proposed institutional measures to support cross-border engagement are described, including technical commissions for customs, preparing to open the border, development of border trade, cross-border tourism, border management, and joint monitoring of the Medzamor nuclear power plant. The risk of "deep freezing" of conflicts in the region through such initiatives as the Kars-Tbilisi-Baku railroad project is also discussed.

Public Attitudes to Opening the Border

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[9] Seven SMEs opposed border opening under any circumstances.

Kotchikian (2006) reviews results from existing polls and surveys to evaluate Armenian public attitudes to opening of the border.[10] Survey results indicate that experts have a significantly more favorable view on developing relations with Turkey than the broad public. A 2004 survey indicated that a plurality of the broad public favored opening the border, but a 2006 survey indicated the opposite. A 2005 survey indicated broad public support for the establishment of diplomatic and economic relations with Turkey.[11] Kotchikian points out that the way that questions are phrased plays a key role in shaping the answers received, and respondents often use the survey to form their opinion as opposed to providing answers based on pre-existing attitudes. He also questions whether surveys and polls are relevant to the shaping of policy in Armenia today.

Mkrtchyan (2006) summarizes the results of a public debate that AIPRG convened in Gyumri in 2006. The audience that attended the debate was not representative of the Gyumri population as a whole, and is best taken to represent the "expert" or "elite" sector of the city.[12] There was broad support among the group for opening the border. Large majorities perceived that both exports and imports would rise after border opening. Interestingly, a large majority perceived that Armenian agricultural products would be competitive on the Turkish market. A majority did not perceive that border opening would be followed by significant migration.[13] There was broad support for Turkish ownership of property in Armenia and vice versa. 42% viewed Armenian-Turkish relations becoming more positive in the future, whereas 37% viewed them as staying the same, 5% viewed them as becoming worse, and 16% could not answer the question. 60% felt that the government should control the process of reconciliation as opposed to stakeholders-businessmen and traders (25%.)

Taken together, the evidence suggests that Armenian elites strongly favor normalizing relations with Turkey and opening the border. For the broad public, attitudes are more mixed, with roughly half of those providing answers favoring opening of the border (although there does appear to be broader support for establishing relations with Turkey as long as the "past is remembered.")

Impact of Border Opening on the Armenian Economy: A Summary Quantitative Result

Studies prepared for the conference have quantified several potential impacts of opening the border, including impact on trade flows and foreign direct investment. We develop here an estimate of the overall impact on Armenian national income (GDP) in the medium to long run resulting from these changes. It is important to note that we

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[10] Including the World Values Survey (1997), Armenian Sociological Association surveys (sponsored by USAID) (1999-2003), Armenian Center for National and International Studies (ACNIS) surveys (2004-2005), "Armenia National Voter Study" survey (2006), and "Rivals or Neighbors? The Future of the Armenian-Turkish Relations," survey organized by AIRPG (2006).

[11] 15% responded that no relations with Turkey should be established (ACNIS (2005)).

[12] It overrepresented men, those with higher education, and those from the NGO and public sectors.

[13] The question did not specify temporary or permanent migration, however.

cannot take into account impacts on the labor market (migration) and the service sector, because we lack any quantification of these impacts.[14]

Various studies have developed estimates of border opening on Armenian imports and exports, and some of these studies have converted this into an impact on GDP. These estimates are summarized in Table 1 below.

Table 1. Trade Impacts of Border Opening

Study	Transport cost decline	Change in imports of goods:		Change in exports of goods:		Change in GDP or per-capita GDP	
		Total	From Turkey	Total	To Turkey	Estimated in the study	Using Hufbauer elasticity[A]
Polyakov (2001)	NA	NA	NA	142%-206%	657%-1300%	30-38%[B]	25%-53%[B]
AEPLAC (2005)	4.1% (172 extra km eliminated)	4.7% (SR) 13% (MR)	19.8% (SR) 230% (MR)	5.9% (SR) 17.7% (MR)	29.2% (SR) 1740% (MR)	0.7% (SR) 2.7% (MR)	2.6% (SR) 7.3% (MR)
TGB (2006a)	NA[C]	NA[C]	50%	NA[C]	38%	NA	NA
Baghramyan (2006)	NA	4%[D]	260%	4%-12%[D]	1400%-4400%	NA	2.0%-3.3%[D]
Sargsyan (2006)	10% (2 days of travel eliminated)	15.6%[E]	NA	12.6%[E]	NA	NA	7.3%

Data on value of import and export flows in USD are for 2004 and are taken from the Armenian Statistical Yearbook. Data on value of Armenian GDP in commercial exchange rate USD is for 2004 and is taken from World Bank Development Indicators on-line database.

SR denotes short-run impact, and MR denotes medium-run (5 year) impact.

A: Estimated using Hufbauer's elasticity of per-capita GDP with respect to the trade-to-GDP ratio of 0.5. Change in per-capita GDP given, not change in GDP.

B: These estimates are based only on a change in exports, but imports will also change significantly.

C: TGB estimate a regression that contains both distance and a common-border dummy variable. In their simulation of border opening, they calculate only the impact on Armenia-Turkey trade flows of changing the value of the common-border dummy variable for Armenia-Turkey from 0 to 1. They do not calculate the additional impact of effectively reducing distance between Armenia and its trading partners, a change that will impact trade flows between Armenia and most of its partners. Their empirical results could presumably be used to calculate impacts on total imports and exports.

D: Takes into account impact *only* on trade with Turkey – does not consider impact of border opening on Armenian trade flows with other countries.

E: Estimated using TGB's elasticities of imports and exports with respect to distance (-1.56 and –1.26 respectively).

Determining the impact of opening the border on GDP through the trade channel poses special challenges. The direct impact of border opening and resulting lower transport costs is to boost import and export flows, and this will increase overall economic welfare (although, as Khanjian (2006) stresses, some sectors will gain and others will lose.) The GDP impact estimated in these studies take into account only this direct impact. However, increased openness of the economy will also stimulate competition

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[14] Also note that the possible re-opening of the Armenia-Turkey railroad line is not taken into account.

and productivity growth, and this will also increase GDP. Hufbauer (2006) cites an empirical estimate that per-capita GDP rises by 5% for a 10% increase in the merchandise trade to GDP ratio. This estimate takes into account the openness-competition-productivity channel.[15] We therefore present GDP impacts originally calculated in the cited studies, and GDP impacts resulting from the use of the elasticity cited by Hufbauer. Not surprisingly, the GDP impact calculated in the AEPLAC study is less than that implied by applying the Hufbauer elasticity to AEPLAC's estimate of change in trade flows. This is because the AEPLAC model does not take into account all channels through which trade impacts GDP.[16]

The two studies which produce comparable GDP impact estimates are AEPLAC and Sargsyan, and the impacts are exactly equal to a 7.3% GDP increase in the medium to long run (using Hufbauer's elasticity.) We therefore take the trade (in goods) impacts of a border opening to be 7.3% of GDP. Table 2 below summarizes identified impacts that are not related to trade in goods. Investment will be impacted if a broader normalization of relations between Armenia and its neighbors that reduces external conflict risk takes place. Banaian and Roberts (2006) estimate that if Armenia's perceived external conflict risk fell by roughly 25%, the stock of foreign direct investment in Armenia would increase by 50%. Using a traditional production function approach, the authors estimate that this would increase GDP by 3-4%. However, as in the case of trade, this approach neglects channels through which FDI improves productivity of domestic firms. Hufbauer (2006) cites evidence that an increase in the FDI-to-GDP ratio of 10% produces an increase in per-capita GDP of 10%.[17] Using this elasticity, a 50% increase in the stock of FDI would increase GDP by 10%.

Table 2. Non-Trade (In Goods) Economic Impacts

	Change	Variable impacted	Change in variable	Change in GDP
Banaian-Roberts (2006)	External conflict risk reduction	Stock of foreign direct investment in Armenia	50%	3-4%[A] to 10%[B]
Banaian-Roberts (2006)	External conflict risk reduction	Armenian domestic investment	NA	NA
Derderian (2006)	Increased opportunities for Armenians to work temporarily in Turkey	Remittances	NA	NA

[15] Empirical evidence on the long-run relationship between GDP and the trade ratio is reviewed in chapter 5 of William R. Cline, Trade Policy & Global Poverty, Institute for International Economics, Washington DC, 2004. It should be noted that this evidence essentially summarize the impacts of trade on GDP taking place through *all* channels.

[16] One channel that is not quantitatively evaluated in conference studies is the impact of increasing the extent of the market for Armenian producers and permitting them to enjoy economies of scale. This channel might be captured in the Hufbauer elasticity, although that elasticity is based on estimates that include countries of all sizes, including quite large ones.

[17] See chapters 1 and 2 of Theodore H. Moran, Edward M. Graham, and Magnus Blomstrom (eds), Does Foreign Direct Investment Promote Development?, Institute for International Economics, Washington DC, 2005. Also see Wendy Dobson and Gary Clyde Hufbauer, "World Capital Markets: Challenge to the G-10", Institute for International Economics, Washington DC.

A: Using Cobb-Douglas production function.
B: Using Hufbauer elasticity of per-capita GDP with respect to FDI/GDP ratio of 1.0.

Table 3 summarizes all impacts. The trade (in goods) and FDI impacts taken together suggest a 10-17% increase in Armenian GDP in the medium to long run. This represents 1-2 years worth of economic growth at current rates. Because this estimate does not take into account some likely additional positive impacts (opening of railway, labor migration, domestic investment), it should be regarded as a lower bound. This overall "macroeconomic" result also does not reflect the fact that some sectors will benefit from border opening but others will lose. Finally, it does not reflect changes such as a "peace dividend" that could lead to lower military spending and increased social spending.

Table 3. Overall Summary

	Change in GDP
Border opening *per se*: trade in goods impact	7%
-impact of having rail transport option	NA
External conflict risk reduction:	
Foreign direct investment	3%-10%
Domestic investment	NA
Labor market impact	NA
Service sector impact	NA
Total Impact of a Full Normalization:	
Lower bound	10%-17%

REFERENCES

Conference Papers and Presentations

AEPLAC (2005). *"Study of the Economic Impact on the Armenian Economy From Re-Opening of the Armenian-Turkish Borders. Implications for External Trade."*

Baghramyan, Mher (2006). *"Estimating the Change in Trade Flows Between Armenia and Turkey if the Border is Open: Case Study Based on Georgia-Turkey and Armenia-Iran Trade."*

Banaian, King and Bryan Roberts (2006). *"The Impacts of Conflict Risk Reduction on the Armenian Economy."*

Bosbtinis, James and Irina Ghaplanyan (2006). *"The Economic and Social Consequences of Reopening the Armenian-Turkish Border: The Implications for the South Caucasus, Turkey, and Europe."*

Derderian, Dzovinar (2006). *"Alternative Destinations of Migration."*

Gokcekus, Omer (2006). *"Green Line Regulation and its Economic Implications in Cyprus."*

Gultekin, Bürcu (2006). *"Evaluating the Impact of the Opening of the Border on the Normalization of Turkish-Armenian Relations."*

Hufbauer, Gary (2006). *"Economic Sanctions in a Global Economy."*

Kalaycıoğlu, Sema (2006). *"Exploring Complementarities Between Turkey and Armenia for Regional Cooperation: Potentials and Challenges."*

Khanjian, Ara (2006). *"Opening Armenia's Border: Sectoral and Distributional Consequences."*

Kotchikian, Asbed (2006). *"The Impo(r)tence of Public Opinion: An Analysis of Public Surveys in Armenia."*

Mkrtchyan, Tigran (2006). *"Results From a Public Debate/Survey in Gyumri."*

Ohanyan, Anna (2006). *"The Political Economy Approach to the Study of Armenia-Turkey Cross-Border Engagement."*

Sargsyan, Sergey (2006). *"Transportation and Administrative Costs: Unearned Surplus."*

Toroysan, Karine, Avantil Gangidze, and Richard Beilock (2006a). *"A Phased Strategy for Opening Armenia's Western Border."*

Toroysan, Karine, Avantil Gangidze, and Richard Beilock (2006b). *"Economic Potential for Regional Integration of Armenia and Northeast Turkey."*

OTHER STUDIES

Beilock, R. (2005). *"Raining on the Parade: A Critique of 'Armenia's Trade Performance in 1995-2002 and the Effect of Closed Borders: A Cross-Country Perspective'"*, Armenian Journal of Public Policy 2(1) (Sep 2005), pp.113-120. (Available on AIPRG website: http://www.aiprg.net).

Freinkman, L., E. Polyakov, and C. Revenco (2004). *"Armenia's Trade Performance in 1995-2002 and the Effect of Closed Borders: A Cross-Country Perspective,"* Armenian Journal of Public Policy, **1**(2) (Mar 2004), pp.185-212. (Available on AIPRG website: http://www.aiprg.net).

Polyakov, E. (2000). "Changing Trade Patterns After Conflict Resolution in South Caucasus", World Bank paper

Schiantarelli, Fabio (2005). "Product Market Regulation and Macroeconomic Performance: A Review of the Literature," World Bank Policy Research Paper 3770.