

ECONOMIC POTENTIAL FOR REGIONAL INTEGRATION OF ARMENIA AND EASTERN TURKEY

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Abstract: *In this paper we present a brief overview of Turkey's economy with a special emphasis on its eastern and north-eastern provinces which are the closest to the Armenian-Turkish border. We then use the gravity model of trade for province level data to project changes in trade volumes between Armenia and each individual province that might be experienced with border opening. An important observation is that the impact of the closed border on trade are magnified the closer the origin and/or destination is to the border and the further south the origin and/or destination is relative to the northwest corner of Armenia. This is particularly true for some Central and South-Eastern provinces where we estimate a very strong positive impact of geographic proximity on potential trade flows to/from Armenia. This is despite the fact that most of provinces under consideration are characterized by low level of economic development, which is partially impeding the trading potential of these provinces. On industry level, Armenia will benefit from low cost agricultural imports from Eastern Turkey, while at the same time there is potential for manufacturing and energy exports into bordering Turkish provinces.*

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Overview of Turkish Economy

In terms of purchasing power parity, Turkey is the 19th largest economy in the world (CIA World Factbook, 2006). It is growing rapidly. In 2004 and 2005, the Turkish economy expanded by 8.9% and 7.4%, respectively. Reflecting the modernizing of the economy, this growth has been primarily in the industrial and service sectors. Despite this, agriculture still plays a surprisingly large role. In 2005, agriculture accounted for 30% of employment.

Agricultural sector

Turkey ranks seventh worldwide in farm output. Turkey has been self-sufficient in food production since the 1980s. Many old agricultural policies and attitudes remain widespread, but these traditions are expected to change with the EU accession process. Fertilizer and pesticide subsidies, though still significant, have been curtailed and remaining price supports have been gradually converted to floor prices. The government has also initiated many projects, such as the G.A.P project (Southeastern Anatolia Project). The advent of the G.A.P promises a very prosperous future for the southeastern agriculture.

Industrial sector

Turkey ranks twenty-first worldwide in factory output. Its industrial sector has a 19% share of employment, 29% share in national production, and 94% share in total exports. The largest industry is textiles and clothing (16.3% of total industrial capacity in 2005 according to the State Institute of Statistics), followed by oil refining (14.5%), food processing (10.6%), chemicals (10.3%), iron and steel (8.9%), automotive (6.3%), and machinery (5.8%). Textiles and clothing also constitutes the largest share in total exports (19% in 2005), followed by automotive (18%), iron and steel (13%), chemicals and pharmaceuticals (9%), and machinery (7%).

Natural resources

Turkey ranks tenth in the world in terms of the diversity of minerals produced in the country. Around 60 different minerals are currently produced in Turkey. The richest mineral deposits in the country are boron salts. Turkey's reserves account for 63% of the world's total.

Turkey is an oil producer, but the level of production isn't enough to make the country self sufficient. As a result, it is a net oil and gas importer. Other natural resources include coal, iron ore, copper, chromium, uranium, antimony, mercury, gold, barite, borate, celestite (strontium), emery, feldspar, limestone, magnesite, marble, perlite, pumice, pyrites (sulfur), clay, arable land, hydropower.

Table 1 in the Appendix provides brief information on select economic statistics for Turkey.

What is in Eastern Turkey?

The provinces of Turkey are organized into 7 census-defined regions. The regions closest to Armenia are:

1. Eastern Anatolia Region: encompasses the eastern provinces of Turkey. The region has the highest average altitude, largest area and lowest population density of all regions of Turkey.
2. Southeastern Anatolia Region: encompasses the south-eastern provinces of Turkey.
3. Eastern part of the Black Sea Region: encompasses the northeastern provinces of Turkey.

Figures 1-5 in the Appendix provide maps of these regions and Table 2 lists provinces in each of these regions.

Potential Benefits of Open Borders to Armenia and Northeastern Turkey

The most obvious aspect of opening the Turkish-Armenian border is that effective distances for surface movements would be reduced with corresponding decreases in transport costs. This transport cost effect also has the charm being amenable to quantification. Not surprisingly, it tends to be the central focus of academic studies and policy discussions regarding the overall economic impact of opening the border (see, e.g., Polyakov, 2001). We believe, and have elsewhere asserted, that changes in investment climates and information flows resulting from a border opening will far exceed the impacts of the transport cost effect (see Beilock, 2003). Nevertheless, the transport cost effect will be significant. Its importance, however, will depend upon the location of the origin/destination outside Armenia and its endowment of transportation-related infrastructures.

For overland transport, Armenia's access to the south southeast, to and through Iran, is severely impeded by mountain barriers. While some transport does occur to and from Armenia's narrow border with Iran, it is costly and its potential limited, particularly in winter. Access to the southwest is blocked by Nakichievan. And to the west, is Turkey. It is natural and correct to assume that opening the borders between Armenia and Turkey would improve access to the west and to anticipate the benefits of lower transport costs between Armenia and northeastern Turkey; the great cities of central and western Turkey, such as Ankara and Istanbul; the Balkans; and the rest of Europe. Potentially important, in these regards, will be easier access to Turkey's Black Sea ports, notably Trabzon, which may be able to compete for maritime shipments to and from Armenia. These gains, however, will be modest as a percent of total transport costs.

The transport cost effect from opening the Armenian-Turkish border will be greatest for areas nearest to and south of that border. This is illustrated in Diagram 1. In the northeast corner of Diagram 1 is a representation of the Armenian-Turkish border, Nakichievan, and the mountain barrier to the south southeast. The point labeled Y represents Yerevan. Between points A and Y are a solid angled line, which goes around the Armenian-Turkish border to the north and a dotted line directly between the two. The former represents routings through Georgia with closed borders (CBR) and

the latter represents the routing if the borders were open (OBR). Corresponding routings between, on the one hand, points B, C, and D and, on the other hand, point Y should be imagined by the reader.

Point A represents a location such as Istanbul or Ankara. The OBR between points A and Y is 5 percent shorter than the CBR. For locations further west, such as Munich, the percent savings in distance from a border opening would be negligible. Point B represents a location such as Mosul, Iraq. Between points B and Y, the OBR is 30 percent shorter than the CBR. Moving closer to the border, point C represents a location such as Van, Turkey. The distance saving between this points C and Y is 45 percent if borders are opened. Finally, point D represents a location such as Igdir, Turkey. Between points D and Y the OBR is 90 percent shorter than the CBR, see the Inset for Diagram 1. In the rest of this section, employing actual CBR and OBR distances and the results of our gravity model (see Torosyan, Gagnidze, and Beilock) we will examine the transportation cost effect on trade between Armenia, on the one hand, and, on the other hand, eastern Turkey and other selected points.

To predict potential changes in trade flows between Armenia and various Turkish provinces we use the estimates of volumes of potential trade flows between countries in the region after opening Armenia's border with Turkey obtained from "A Phased Strategy for Opening Armenia's Western Border" by Torosyan, Gagnidze, and Beilock. In that study we estimate a gravity model for a very specific sample of countries which includes Transition Economies (TEs) and a range of developed countries to infer how various important factors (such as resource endowments, transportation costs and other) affect industry level bilateral trade volumes between countries of interest.

If we view Turkish provinces as "countries", we can apply the results of this gravity model to estimate trade volumes between Armenia and each given province before and after border opening. This will allow projecting changes in trade volumes for each individual province that might be experienced with border opening.

The gravity model that we refer to is:

$$\begin{aligned} \log(PX_{ij}) = & \beta_0 + \beta_1 * \log(GDP_i) + \beta_2 * \log(GDP_j) + \beta_3 * \log(gdp_i) + \beta_4 * \log(gdp_j) + \\ & + \beta_5 * \log(Skill_i / L_i) + \beta_6 * \log(Land_i / L_i) + \beta_7 * \log(Dist_{ij}) + \beta_8 * \log(Mkt_{ij}) + \\ & + \gamma_1 * Brdr_{ij} + \gamma_2 * FTA_{ij} + \gamma_3 * Reg1 + \gamma_4 * Reg2 + \gamma_5 * Reg3 + \gamma_6 * Reg5 + \gamma_7 * Reg6 + \varepsilon_{ij} \end{aligned}$$

Where $GDP_{i(j)}$ is exporter (importer) GDP, $gdp_{i(j)}$ is exporter's (importer's) GDP per capita. $Skill_i/L_i$ and $Land_i/L_i$ are exporter's skill per worker and land per worker. FTA_{ij} is a dummy variable indicating the presence of free trade agreements (FTA) between exporter and importer, and Mkt_{ij} is EBRD markets and trade restructuring indicator used to proxy for trade restrictions. $Dist_{ij}$ is distance between i's and j's capital cities, and $Border_{ij}$ is a dummy variable for a common border or shoreline. Regional dummies are included to account for country specific differences in trade patterns not captured by other variables in the model. Transition economies are grouped into regions based on geographic proximity to each other as well as their transition speed and depth. Table 3 in the Appendix lists countries by regions.

Trade data used for the estimation are from the Supplement to the World Trade Annual, UN Statistical Division and UN COMTRADE database. Exporter and importer GDP and GDP per capita data are taken from World Development Indicators database. Exporter skill per worker is proxied by the Human Development Index (HDI) annually reported by the United Nations in its annual Human Development Report. Land per worker (measured in square kilometers) is the ratio of country land territory and the total number of people in the workforce, as reported by the World Development Indicators. Distance measures bilateral flying distance between capital cities in kilometers. Data on this variable are taken from the <http://www.etn.nl/distance.htm> website. The Markets and Trade index is an average of price liberalization, trade and foreign exchange system, and competition policy indicators developed by EBRD. Information on foreign trade agreements is from on WTO's list of Regional Trade Agreements notified to the GATT/WTO and in force.

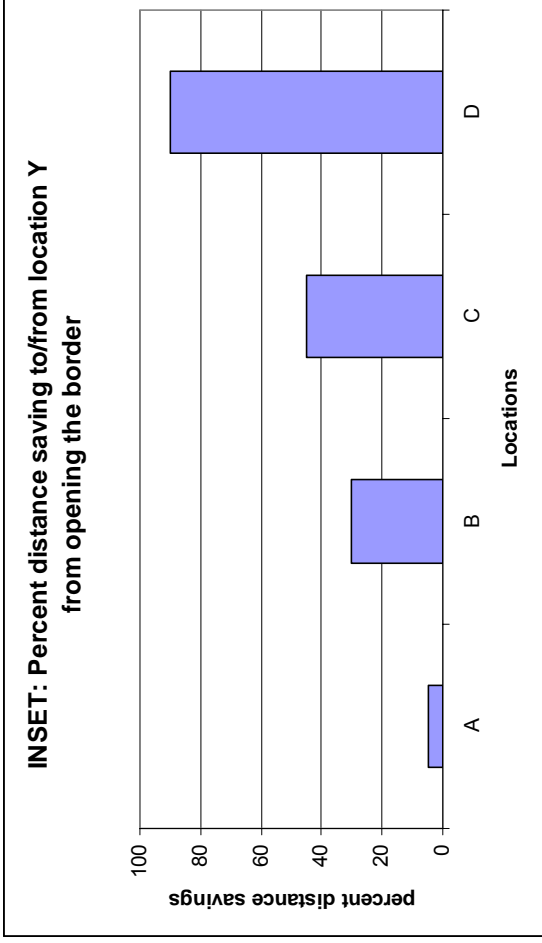
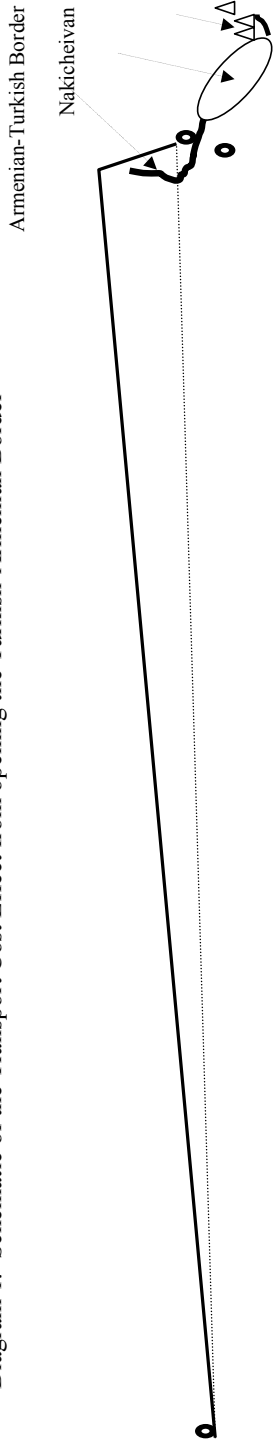
Tables 4 and 5 contain robust (heteroskedasticity corrected) OLS estimation results for aggregate exports and imports between countries in the sample. For a more detailed description of the model, data, and the estimation procedures please consult the paper mentioned above.

Figures 1-5 in the Appendix provide maps as well as the list of Turkish provinces. We concentrate our analysis on a set of provinces that are either located close to Armenian border, or represent major destinations in Turkey. The list of these provinces with some general statistics for the year 2000 is provided in Table 6 of the Appendix. Province level population, GDP per capita (PPP, current international \$) data, and land area are taken from State Institute of Statistics in Turkey. GDP, PPP for 2000 is simply taken as GDP per capita times population.

Table 8 in the Appendix estimated changes in trade volumes are presented for selected provinces in Turkey when the border with Armenia is open. As the Table demonstrates, the change in trade volumes is very dramatic for provinces that lie in Eastern Turkey. Our estimation of potential trade volumes between Armenia and Turkey was done using data for the year 2004. To estimate changes in trade volume with Eastern Turkish provinces due to border opening for the same year we need province level data for 2004. Unfortunately, province level data for that year are not available. To construct province level data on GDP and population for 2004, we use country level data from World Development Indicators which is then divided between provinces according to province/total shares calculated for the year 2000 for each of those variables. GDP per capita for 2004 is then calculated as $GDP_{2004}/Population_{2004}$. These data are displayed in Table 7 of the Appendix.

GDP and GDP per capita are estimated in current international \$US, PPP adjusted. To proceed with the estimation of trade flows between Armenia and Turkish provinces, data need to be converted into units used in the original estimation of the model.

Diagram 1: Schematic of the Transport Cost Effect from opening the Turkish-Armenian Border



To obtain GDP PPP in real 1995 \$US, we use the US Consumer Price Index from the U.S. Department of Labor, Bureau of Labor Statistics. Values of CPI for select years are reported in the table below (1995 being base year):

CPI values for selected years

Year	CPI
1996	1.03
2000	1.13
2004	1.24

Source: U.S. Department of Labor, Bureau of Labor Statistics

Trade values are also converted into constant 1995 US\$.

Labor force is calculated based on working/total population ratio for Turkey. This ratio is multiplied by each province's population to estimate province level workforce. This approach assumes that labor force participation ratio is the same throughout Turkey. We assume the same level of HDI across Turkey. Finally, we calculate differences in distances before and after border opening as distances between Yerevan and province capital cities.

Results of our estimation in Table 8 are grouped in regions: North-Eastern Turkey, Central-Eastern Turkey, and South-Eastern Turkey. We selected 6 provinces to represent each of these regions, and listed them in the order of increasing distance from Armenia.

As it becomes obvious from our estimation, there is significant unused trade potential between Armenia and Turkey due to the closed border. This is particularly true for Central and South-Eastern provinces which are located closer to Armenian border. For example, in the South-Eastern direction Armenian exports to Kars might increase 6 times, while imports from Kars might go up almost tenfold compared with closed border scenario. The effect becomes weaker as we move away from Armenian border, but it is still sizeable even for such remote provinces as Ankara, where trade volumes are expected to double due to border opening.

The same level of trade intensification is expected for South-Eastern provinces with effect being the strongest for Van, and becoming less prominent as we move away from Armenia. The furthest destination listed in this direction is Antalya, where trade flows are expected to rise by 78% for exports from Armenia and 107% for imports to Armenia. An important observation for this direction is the fact that with open border not only trade with Turkish provinces will intensify, but transit trade to third countries will rise as well. As was mentioned above, due to open border road distances to Syria, Lebanon, and other countries to the South will become shorter, which will result in intensification of trade in this direction. In addition to shortening road distances, Gyumri passage will also allow access to Turkish railroad system which link to railroad in Syria and Lebanon. Access to Mersin, a major seaport, will further facilitate Armenian transit trade via Turkish territory.

In the North-Eastern direction, gains from border opening are somewhat smaller but still sizeable. Trade with closer provinces is expected to rise 3-4 times, while trade intensity with more remote provinces, such as Samsun and Istanbul might double. In addition, better access to North-Eastern Turkey ensures more convenient passage of Armenian goods to several Black Sea ports and better conditions for transit trade to third countries.

Industry Level Trade Potential

Province level data limitations did not allow us to perform industry level estimations of anticipated trade changes with an open border between Turkey and Armenia. This analysis could be an important contribution of future research on this topic.

Below we discuss some general features of the current industrial structure of production in northeast Turkey and its potential as Armenia's trade partner in case of an open border.

The agricultural sector in Turkey is highly protected. High tariffs (above 100%) exist for imports of meat, fish, dairy products, sugar, fruits, and some other agricultural products. In addition to high protection levels, producers in this sector also enjoy generous input subsidies. These output price supports and input supply control measures might become a big impediment in competing with Turkish agricultural producers, particularly with regard to certain sensitive products.

While exports of agricultural products into Turkey might face some difficulties due to mentioned factors, their imports from Turkey have good potential. Even with low levels of productivity in agriculture in Turkey, many agricultural products from Turkey will have low cost of production and provided reasonable cost of transportation their flows to Armenia might substantially benefit Armenian consumers as well as its food processing industry.

In manufacturing Turkey has relatively low or zero import tariff rates on almost all product categories. More investigation needs to be done to determine what is the share of manufacturing output by northeastern provinces in Turkey in total manufacturing output. Also, it is important to study its structural composition and final usage within or outside Turkey. Our conjecture here is that northeastern Turkey does not have very strong industrial production, and that Armenia could potentially become a supplier of a range of manufacturing goods into this region. An additional benefit to Armenian companies from expanding the market to include northeastern Turkey could be cost savings due to increasing returns to scale in production. This statement is speculative and it needs further research of the issue.

Finally, the energy sector provides some potential for trade between the two sides. Currently, northeastern Turkey experiences shortfalls in the supply of electric energy. Provided Armenia continues to have excess supply of electricity, there can be cross border trade in this product. However, import of electricity from Armenia might be short-term because Turkey is currently implementing a very large scale project that, among other things, includes construction of numerous hydro stations in the region of interest. This might eliminate currently existing demand for imports of electro energy.

Below we discuss the details of the mentioned project and its potential affect on development in the eastern regions of Turkey.

The Southeastern Anatolia Project (Turkish: Güneydoğu Anadolu Projesi, GAP) is a multi-sector integrated regional development project based on the concept of sustainable development for people living in the region.

Current activities under GAP covers such sectors as (1)irrigation, (2) hydraulic energy production, (3) agriculture, (4) urban and rural infrastructure, (5) forestry, (6) education and (7) health.

The water resources development component of the program envisages the construction of 22 dams and 19 hydraulic power plants and irrigation of 17,000 square kilometers of land. The water resources part of the project is expected to be completed by 2010 and the total cost of the project is estimated at \$32 billion USD. The total installed capacity of power plants is 7,476 MW and projected annual energy production reaches 27 billion kWh. The GAP also consists of 17 hydroelectric power plants. These will supply the energy equivalent of 22% of the anticipated total nationwide energy consumption in 2010. Providing 8,900 gigawatt hours (32 PJ), it is one of the largest series of hydroelectric power plants in the world.

GAP's basic aim is to eliminate regional development disparities by raising people's income level and living standards; and to contribute to such national development targets as social stability and economic growth by enhancing the productive and employment generating capacity of the rural sector. It is important to take into consideration the scope of these changes and their potential effects on regional trade when discussing trade potential between Armenia and eastern Turkey.

Conclusion

This paper is devoted to studying trade between Armenia and northeastern Turkey. Using province level data for select provinces in Turkey we apply gravity model estimates obtained earlier to assess the volume of trade with each particular province before and after border opening. We observe that the impacts of the closed border on trade are magnified the closer the origin and/or destination is to the border and the further south the origin and/or destination is relative to the northwest corner of Armenia.

APPENDIX 1.

Figure 1. Regions of Turkey

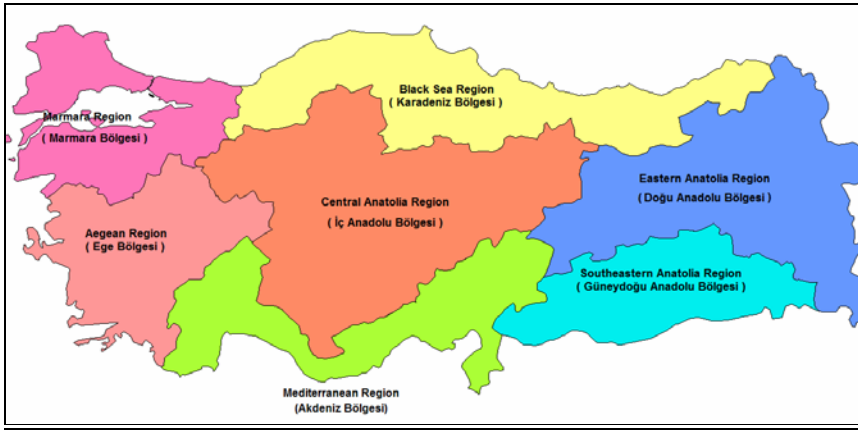


Figure 2. Provinces of Turkey

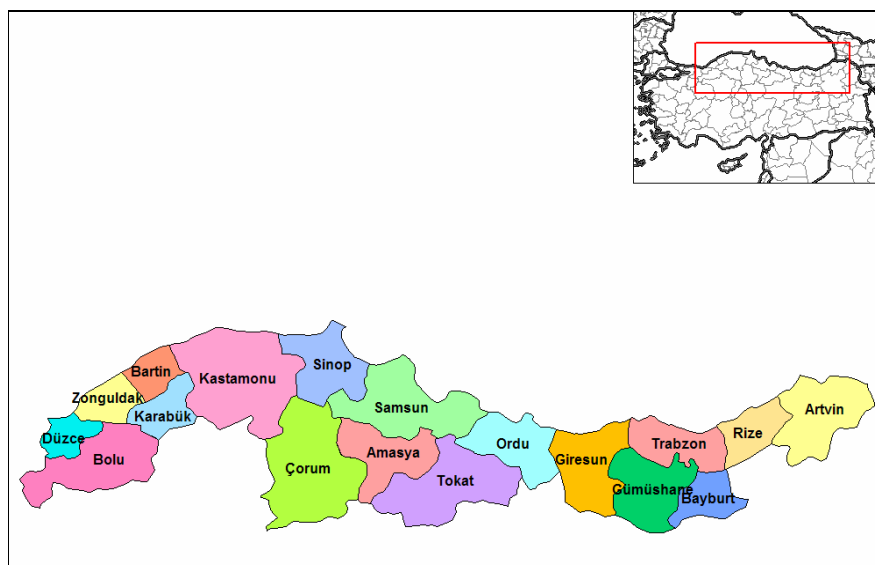


Figure 3. Eastern Anatolia Region



Figure 4. Southeastern Anatolia Region



Figure 5. Black Sea Region**Table 1. Brief Statistics on Turkish Economy**

GDP (PPP)	\$612.3 billion
GDP growth	5.6% (2005 est.)
GDP per capita	\$8,200 (2005 est.)
GDP by sector	agriculture: 11.7%, industry: 29.8%, services: 58.5% (2005 est.)
Inflation (CPI)	8.2% (2005 est.)
Pop below poverty line	20% (2002)
Labour force	24.7 million (2005)
Labour force by occupation	agriculture: 35.9%, industry: 22.8%, services: 41.2% (3rd qtr. 2004)
Unemployment	10.2% plus underemployment of 4% (2005 est.)
Main industries	textiles, food processing, autos, electronics, mining (coal, chromite, copper, boron), steel, petroleum, construction, lumber, paper
Exports	\$84 billion f.o.b. (2006 Nov.)
Export goods	apparel, foodstuffs, textiles, metal manufactures, transport equipment
Main partners	Germany 13%, UK 8.2%, Italy 7%, US 6.9%, France 5.1%, Spain 4.2% (2005)
Imports	\$133.7 billion f.o.b. (2006 Oct.)
Imports goods	machinery, chemicals, semi-finished goods, fuels, transport equipment
Main Partners	Germany 13.9%, Russia 10.5%, Italy 7%, France 5.6%, China 4.4%, US 4.1% (2005)

Source: Wikipedia at <http://en.wikipedia.org/>

Table 2. Provinces in Northern and Eastern Turkey:

Eastern Anatolia Region
Agri Province, Ardahan Province, Bingöl Province, Bitlis Province, Elazığ Province, Erzincan Province, Erzurum Province, Hakkari Province, Iğdir Province, Kars Province, Malatya Province, Mus Province, Tunceli Province, Van Province
Southeastern Anatolia Region
Adiyaman Province, Batman Province, Diyarbakir Province, Gaziantep Province, Kilis Province, Mardin Province, Sanliurfa Province, Siirt Province, Sırnak Province
Black Sea Region
Amasya Province, Artvin Province, Bartın Province, Bayburt Province, Bolu Province, Çorum Province, Düzce Province, Giresun Province, Gümüşhane Province, Karabük Province, Kastamonu Province, Ordu Province, Rize Province, Samsun Province, Sinop Province, Tokat Province, Trabzon Province, Zonguldak Province

Table 3. List of Sample Countries

Transition Economies	Partner Countries
<i>Region 1: Caucasus</i>	Austria
Armenia	Belgium (and Luxembourg)
Azerbaijan	Denmark
Georgia	Finland
<i>Region 2: Asian republics of the FSU</i>	France
Kazakhstan	Germany
Kyrgyzstan	Greece
Tajikistan	Iceland
Turkmenistan	Ireland
Uzbekistan	Israel
<i>Region 3: Baltic States</i>	Italy
Estonia	Netherlands
Latvia	Norway
Lithuania	Portugal
<i>Region 4: BRUM</i>	Spain
Belarus	Sweden
Russian Federation	Switzerland
Ukraine	Turkey
Moldova	UK
<i>Region 5: Central-Eastern Europe</i>	

Czech Republic	
Hungary	
Poland	
Romania	
Slovakia	
Macedonia	
Region 6: South-Eastern Europe	
Albania	
Bulgaria	
Croatia	
Slovenia	
Bosnia and Herzegovina	

Table 4. Generalized Gravity Equation Estimates, TE Imports from Europe and Turkey

Variable	Coefficient Estimate	Standard Error
Log GDP Exporter	1.15	0.06
Log GDP Importer	1.03	0.07
Log GDP per capita Exporter	0.19	0.68
Log GDP per Capita Importer	-0.07	0.19
Log HDI Exporter	1.09	4.82
Log Land/labor Exporter	-0.31	0.08
Log distance	-1.56	0.15
Log markers and trade Index	0.10	0.46
Common Border	0.41	0.21
Free Trade Agreement	0.67	0.22
Caucasus	0.72	0.25
Asian Republics of the FSU	-0.19	0.28
Baltic States	1.09	0.30
South-Eastern Europe	0.76	0.27
Central-Eastern Europe	0.21	0.29
Constant	-36.57	8.32
R-squared	0.8150	

Table 5. Generalized Gravity Equation Estimates, TE Exports to Europe and Turkey

Variable	Coefficient Estimate	Standard Error
Log GDP Exporter	1.21	0.12
Log GDP Importer	1.25	0.07
Log GDP per capita Exporter	-2.08	1.18
Log GDP per Capita Importer	-0.41	0.27
Log HDI Exporter	21.29	10.53
Log Land/labor Exporter	0.36	0.22
Log distance	-1.26	0.17

Log markers and trade Index	-0.17	0.60
Common Border	0.32	0.27
Free Trade Agreement	1.51	0.23
Caucasus	-1.72	0.65
Asian Republics of the FSU	-1.15	0.47
Baltic States	0.31	0.50
South-Eastern Europe	0.06	0.43
Central-Eastern Europe	-0.23	0.43
Constant	-14.78	15.26
R-squared	0.7512	

Table 6. Data on select Turkish provinces, 2000

	Total population	GDP per capita, PPP	Area (in 1000 km2)	GDP PPP (mln. \$US)
Artvin	191,934	6,524	7.493	1,252
Rize	365,938	5,657	3.792	2,070
Trabzon	975,137	4,467	4.495	4,356
Amasya	365,231	4,750	5.731	1,735
Samsun	1,209,137	5,389	9.474	6,516
Istanbul	10,018,735	10,235	5.17	102,542
Kars	325,016	2,628	9.594	854
Erzrum	937,389	3,366	24.741	3,155
Erzincan	316,841	3,547	11.974	1,124
Mus	453,654	1,681	8.023	763
Malatya	853,658	4,319	12.235	3,687
Ankara	4,007,860	9,615	25.615	38,536
Van	877,524	2,591	20.927	2,274
Siirt	263,676	3,242	5.465	855
Mardin	705,098	2,668	9.097	1,881
Adana	1,849,478	7,616	14.256	14,086
Mersin	1,651,400	7,641	15.737	12,618
Antalya	1,719,751	6,747	20.599	11,603

Table 7. Data on select Turkish provinces, 2004 (authors' calculations)

	Total population	GDP per capita, PPP	GDP PPP
Artvin	203,039	7,417	1,506
Rize	387,111	6,431	2,490
Trabzon	1,031,558	5,078	5,238
Amasya	386,363	5,400	2,086
Samsun	1,279,097	6,126	7,836
Istanbul	10,598,417	11,635	123,316
Kars	343,821	2,988	1,027
Erzrum	991,626	3,827	3,794
Erzincan	335,173	4,032	1,352
Mus	479,902	1,911	917

Malatya	903,050	4,910	4,434
Ankara	4,239,754	10,931	46,343
Van	928,297	2,945	2,734
Siirt	278,932	3,686	1,028
Mardin	745,895	3,033	2,262
Adana	1,956,488	8,658	16,939
Mersin	1,746,950	8,686	15,175
Antalya	1,819,255	7,670	13,954

Table 8. Estimated Trade Flows between Armenia and Select Provinces in Turkey before and after Border Opening

	Imports from Armenia (1000 US\$, 2004 equivalent)			Exports to Armenia (1000 US\$, 2004 equivalent)		
	Closed Border	Open Border	Change, %	Closed Border	Open Border	Change, %
North-Eastern Provinces						
Artvin	3,773	11,880	215	31,325	130,543	317
Rize	6,592	15,324	132	69,989	200,631	187
Trabzon	16,343	35,993	120	174,870	468,946	168
Amasya	3,224	7,640	137	26,277	77,118	193
Samsun	18,007	37,000	105	177,499	436,960	146
Istanbul	244,184	454,525	86	5,518,628	12,027,529	118
Central-Eastern Provinces						
Kars	4,559	30,086	560	26,446	274,355	937
Erzurum	14,201	49,617	249	79,548	376,798	374
Erzincan	2,895	7,897	173	15,524	54,194	249
Mus	2,593	5,642	118	11,809	31,194	164
Malatya	8,979	20,618	130	61,250	172,39	182
Ankara	95,683	187,732	96	1,115,304	2,593,745	133
South-Eastern Provinces						
Van	7,419	45,551	514	34,852	330,779	849
Siirt	1,822	5,610	208	11,036	44,725	305
Mardin	4,735	11,458	142	26,632	80,212	201
Adana	31,169	61,534	97	331,488	776,809	134
Mersin	25,708	49,886	94	256,055	587,430	129
Antalya	17,846	31,853	78	143,987	297,977	107
Total Turkey	3,918,173	5,404,574	38	33,887,689	51,041,171	51

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