

Economies of the Black Sea Economic Cooperation (BSEC) Countries and their Bilateral Trade

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Abstract. This paper concentrates on the economies of the BSEC countries in order to evaluate current and cumulative efforts to improve trade among the BSEC members. Some basic economic indicators of these countries are considered first as well as some basic characteristics of these economies. One purpose of this article is to analytically investigate bilateral trades of the BSEC countries. A brief history of the BSEC is also given to trace some attitudes of the countries back to the BSEC's establishment. Some sectors and resources of the BSEC countries are elaborated as well as main commodity groups traded by main BSEC members. We also constructed the appropriate gravity model to estimate the bilateral trade equation.

JEL Classification Codes: F14, F15.

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1. Introduction

This paper is devoted to the analysis of trade among the Black Sea Economic Cooperation (BSEC) countries. We go through the country

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profiles first in terms of their current economic activities and their natural resources as well as their plans for the near future. The main characteristic of these countries that bind them together is their physical proximity. We intend to make an extensive elaboration of sectors that are dominating within each BSEC country and investigate higher trade volumes. So far, there has not been a trade of considerable volume among the BSEC countries, which had already incurred the opportunity cost of the possible trade.

Section 1 of the paper is the introduction. Section 2 gives a short historic background about BSEC's importance and a brief overview of country profiles including their economies. Section 3 deepens the issue by making more detailed analyses of sectors and resources of these countries as well as some other prominent factors that may lead to further trade. Section 4 establishes a model to make an analytic discussion of trade among the BSEC countries. Section 5 concludes.

2. BSEC Area and the Potentials of Member Countries

2.1. Overview of the BSEC

The Black Sea Region has long been a very critical and important economic area; that is why some regional arrangements are brought to the agenda right after the end of Cold War. The Black Sea Economic Cooperation is an extension of these efforts that arose among Eastern Bloc countries and the Soviet-Union. Although the ex-Soviet Union had invested in heavy industries like defense, and aviation, many basic areas of the industries were neglected.

The purpose of the BSEC initiation was to gradually obtain a "free trade zone", but later meetings and summits led to negotiations on an "economic cooperation". The founders of the organization were Turkey, Romania, and Bulgaria who have borderlines to the Black Sea. The Russian Federation, Ukraine, Azerbaijan, Moldova, Georgia, and Armenia joined after the dissolution of the Soviet Union. Greece and Albania participated as well later, even though they have no coasts to the Black Sea. The first meeting was held in Ankara on December 19, 1990 as a result of Turkey's efforts.

Official representatives from Turkey, Russian Federation, Romania, and Bulgaria participated in this meeting. The Soviet delegation included vice ministers of Azerbaijan, Georgia, Moldova, and Armenia who were responsible for foreign affairs. In this summit the parties worked on the blueprint suggested by Turkey and declared the foundation of the BSEC. Meetings by authorities were held on 12-13 March 1991 in Bucharest and 23-24 April 1991 in Sofia. Negotiations concluded the purposes and principles of the BSEC. Meetings on 11-12 July 1991 resulted in the text of articles ready to be signed. The next meeting was arranged in Moscow where participants decided to sign the ultimate declaration in Ankara. On February 3, 1992, Turkey, Russian Federation, Romania, Azerbaijan, Armenia, Georgia, Moldova, Ukraine and Bulgaria approved the first treaty in Turkey. The BSEC Treaty was signed by 9 members as well as Greece and Albania on 25 June 1992 in Istanbul Summit¹. The BSEC has gradually become more recognized after its foundation. In the preparation period the main purpose was to advance commercial, economic, scientific, and technical cooperation by making use of proximity of these countries and their complementary economic resources. The ultimate goal is to promote the Black Sea region as an area of peace, cooperation and wealth. To serve this purpose, the member countries are supposed to prepare a ground for cooperation and trade of goods and services. In the long run, commodities, services and factors of production would be transferred freely among the BSEC countries. To develop cooperation in terms of business environments, the Black Sea Economic Council was established as an extension of the early released declaration. The Council is currently active to improve industrial and commercial cooperation.

The financial issues are to be handled by the Black Sea Trade and Development Bank (BSTDB), which was established in Thessalonica, Greece. This bank is responsible for financing common regional projects and providing financial resources to the countries engaged in such projects. The members of the bank are the representatives of the BSEC countries and some international banks. The BSEC is a fruitful milieu to generate dialogue between member countries and produce projects towards a sustainable growth for the region. The BSEC is a huge market with a population of 326 million, an area of 20 million km² and rich natural resources. Six of the member countries had been part of the former Soviet Union and recently

¹ All details can be found at the official website of the BSEC, <http://www.bsec-organization.org>.

their political and economic structures have undergone transitional adjustments.

Some of the inter-relations are sensitive due to historical factors among the BSEC countries. For instance, Azerbaijan and Armenia have frozen their diplomatic relations as a result of clashes in the Karabakh region. Since the Russian Federation has supported Armenia in this debate, there is tension between Azerbaijan and the Russian Federation as well. Similar tension is present between Georgia and the Russian Federation because of the Abkhazia problem, and between Moldova and the Russian Federation due to the Dinyester debate. Another fundamental debate is between Turkey and Greece that can be traced back to the collapse of the Ottoman Empire. However, recent developments between the two countries have reduced the tension.

Despite such impediments, one may suggest some prospects about the future of the organization. First of all, the cooperation between members would increase the credibility of the cooperation agreement. Furthermore, if such cooperation should lead to concrete results, this would shift the emphasis from the debates to specific projects that are more beneficial to all sides. Although the European Union has expressed her will to support regional cooperation, in case of the BSEC integration process she has been rather hesitant. This is surprising especially when we consider Greece's position as a member of the BSEC on one side and the EU on the other, and Austria and Italy which are two member states of the EU that hold the observer status at the BSEC. The lack of support from the EU can be explained by the fact that the EU has not yet established a coherent overall strategy towards regional cooperation in Central and Eastern Europe including the BSEC. On the other hand, three BSEC states, Bulgaria, Romania, and Turkey, are in the process of joining the EU. Especially, the member countries' stance towards the BSEC process has crucial importance on how the EU defines its position towards such regional cooperation. This position can accelerate or slow the cooperation in the region².

BSEC's uniqueness lies in the fact that it expresses a new concept of multilateralism in the Black Sea region based upon market economies and the dynamism of the private sector with the aim of developing a common economic language and multiple, diverse economic relations between countries in this respect. BSEC membership does not prevent a state from

² See Hartwig (2003a), "The Black Sea Economic Cooperation Process".

the EU membership and moreover, may facilitate European integration by offering states a training ground and assisting their passage into larger integrative structures³. As a result, the incentive of the EU and NATO membership has strengthened multilateral cooperation among Black Sea countries. In this case, the EU or NATO's admission of any new members would also alter regional dynamics⁴.

2.2. Basic Economic Characteristics of the BSEC Members

Although the BSEC maybe enlarging in the coming decades, there are currently 11 countries officially registered to the BSEC organization, namely Albania, Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Moldova, Romania, Russian Federation, Turkey, and Ukraine. There are significant differences between the economies of these countries. The main motivation behind the establishment of such an organization is regional proximity, which would in turn lead to gains from trade. The participating countries are divergent enough in terms of their production capabilities both in manufacturing and service sectors, and factors of production to enjoy such gains as well as the natural resources that are unevenly distributed among them. There are cases where the basic need of a member country can be met by the factors owned by another member country.

Table 1 is designed to display basic economic indicators of the BSEC countries. Column A lists the populations that add up to a total of 326 million in 2003 which is much greater than that of the EU and USA. The leading population is from the Russian Federation, 143.4 million, followed by Turkey (70.7 million) and Ukraine (48.4 million). Other members have relatively small populations ranging from 3.1 million (Armenia) to 21.7 million (Romania). But the population in the Russian Federation is aging and diminishing, as there are not enough births to compensate for deaths⁵.

A similar assessment is valid for the surface areas: Although the Russian Federation has the largest land mass, most parts of it are useless for agriculture. Siberia, for instance, is extremely cold for habitation. Again the Russian Federation is followed by Turkey, and Ukraine that have somewhat more fertile and arable land.

³ See Hartwig (2003b), "Sub Regional Cooperation and the European Union".

⁴ See Ram (2003).

⁵ See Weidenbaum (2004).

One of the main economic indicators is the set of GDP figures, Column E. Three countries, namely Russian Federation, Turkey, and Greece constitute almost 87% of the BSEC GDP. On the other hand, the BSEC total is too small compared to the global GDP, 2.67%. This shows that we focus on a very small portion of the world. Four BSEC members have negligible GDP's that add up to 1.3% of the total. One should consider the unrecorded hidden economies while making deeper analyses. Unfortunately, we do not have some reliable indicators for hidden and underground economies. Nevertheless, the per capita income level is very small compared to developed economies. Even if we assume that half of these economies are unrecorded, the gap between developed countries persists. The most revealing figures to prove the instability of the economies are the annual inflation rates expressed in terms of the GDP deflators. Some countries have suffered so much from the inflation problem recently and the inflation rates are decreasing in recent years.

Columns H, I, and J display a superficial decomposition of output to agricultural, industrial and service sectors in terms of GDP percentages. The majority belongs to the service sector. These ratios are diversified and change drastically from country to country. The trend is from the agricultural sector to the service sector. Better techniques and machinery of production manipulate the majority of GDP from industry to the service sector.

The greatest percentages of the service sector belong to Greece, Turkey and the Russian Federation. Another basic characteristic of these economies is that their percentage of agriculture over GDP is small. This is not a coincidence since the countries allocate their resources from agriculture to the service sector.

Export and import percentages displayed in Columns K and L state that Bulgaria and Moldova export around 50% of their GDPs. The smallest percentage is around one fifth (belonging to Albania and Greece). One can conclude that the BSEC members have enough motivation for exporting their outputs. A more remarkable figure is the value of these exports. More than one third of the exports are by the Russian Federation (138.24 billion \$) followed by Turkey (67.2 billion \$) and Greece (34.4 billion \$). The others are almost negligible. BSEC total of exports is 284 billion \$. This number is less than BSEC total of imports, 303 billion \$s, suggesting a trade deficit of the member countries.

Table 1. Basic Economic Indicators of the BSEC Countries (2003)

	A	B	C ⁶	D	E	F	G	H	I	J	K	L	M
ALB	3,2	29	617	1,740	6,124	6	4	25	19	56	19	42	178
AR	3,1	30	632	950	2,805	14	5	24	39	37	32	50	121
AZE	8,2	87	1,435	820	7,138	11	4	14	55	31	43	67	3,285
BUL	7,8	111	2,417	2,130	19,860	4	2	12	31	58	53	63	1,419
GE	5,1	70	494	770	3,988	11	4	20	25	54	32	46	338
GR	11,0	132	2,637	13,230	172,203	4	4	7	24	69	20	28	717
MO	4,2	337	703	590	1,963	6	14	23	25	53	54	88	58
RM	21,7	238	1,696	2,260	56,951	5	23	12	36	52	33	39	1,844
RU	143,4	17,100	4,288	2,610	432,855	7	14	5	34	61	32	21	7,958
TR	70,7	775	1,083	2,800	240,375	6	21	13	22	65	28	31	1,562
UK	48,4	604	2,684	970	49,536	9	7	14	40	46	53	48	1,424
<i>BSEC</i>	<i>326,0</i>	<i>19,513</i>	<i>-</i>	<i>-</i>	<i>975,924</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>18,904</i>
World	6,273,584	133,941,600	1,699	5,520	36,527,820	3	-	4	28	68	24	24	572,774

A: Population (million)

B: Surface Area (thousand sq. km.)

C: Energy Use (kg. of oil equivalent per capita)

D: GNI per Capita, Atlas Method (current US\$)

E: GDP (current, billion \$)

F: GDP Growth (annual %)

G: Inflation, GDP Deflator (annual %)

H: Agriculture, Value Added (% of GDP)

I: Industry, Value Added (% of GDP)

J: Services, Value Added (% of GDP)

K: Exports of Goods and Services (% of GDP)

L: Imports of Goods and Services (% of GDP)

M: Foreign Direct Investment, Net Flows in Reporting Country (WDI, current, million US\$)

⁶ Source for 2002 is the World Bank, <http://devdata.worldbank.org/data-query/>.

3. Sectors and Resources under Focus

Trade among countries theoretically is a function of the comparative advantages belonging to these countries and the differences of their resources. This section analyzes the dominating sectors of each BSEC member country as well as the resources owned by each particular BSEC member. Some side notes are given to capture more trade opportunities. Average export and import figures of relatively large economies of the BSEC for some commodities are mentioned to evaluate the trade potential within the cooperation.

The aim is to compare and contrast the commodities that are traded among the BSEC countries. There are striking relations between commodities both on export and import sides. Some commodities and services imported by some BSEC countries are being provided by some others. This leaves a large room for intra-trading.

The main exports of the Russian Federation are the natural sources of energy such as petroleum, natural gas and oil⁷. These energy items are followed by metals and their derivatives, i.e. aluminum, iron, steel, nickel, copper, silver, and platinum.

The transition period was very tough for the society in the Russian Federation such that still there are many advocates of the communist system. The economy now is disorganized and the resources, including human capital, are underemployed⁸. The Russian Federation owns tremendous amount of energy resources that are still not marketed properly. The fuel and energy sectors account for around one third of the Russian Federation industrial output, where metallurgy accounts for 15%. On the other side, machine building and metal processing fulfills one fifth. 32% of Russian Federation land is allocated to farming. 45% of land is made up of woods, hence timber appears as a major source of income from this land. A comprehensive land reform is inevitable and has to be focused on urgently

⁷ See the official website of the International Trade Center of UNCTAD and WTO for a complete list of commodities exported and imported by the Russian Federation.

⁸ See the country economic reports belonging to the Russian Federation at the official website of the World Bank at <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/ECAEXT/RUSSIA/NFEDERATIONEXTN/0,,contentMDK:20452311~menuPK:989684~pagePK:141137~piPK:217854~theSitePK:305600,00.html>.

because some other reforms in the agenda involve the property rights of the landowners.

The agricultural sector enjoys the privileges provided by the government in terms of tax breaks, subsidies or low rate loans. But such populist policies are really very harmful to the Russian Federation economy. The Russian Federation had great advantages on especially fishing and timber production, both of which have worsened deeply especially in recent years due to the failure of organization again.

The country has a significant advantage in the endowments of natural resources. She has about 10% of world's oil, 30% of natural gas, 10% of coal, and 14% of iron ore. The transition period of the Russian Federation economy made the demand for these natural resources lessened which in turn led to the efforts in exporting.

The service sectors advance gradually and account for more than 60% of the GDP in 2003. The public sector has serious problems both on tax collection and expenditure, since budget-financed organizations do not assume any means of discipline and there are no sanctions for this kind of a failure. The Russian Federation mainly imports manufactured metals, some foodstuff, and medicaments.

On the other hand, Turkey's imports include more than 4 billion \$'s of energy sources, i.e. crude oil and natural gas. Similarly, Greece imports large volumes of energy in terms of crude oil as well as Romania that imports petroleum and natural gas. Azerbaijan and Bulgaria appear on the energy exporting countries' side.

Turkey's highest share of exports belongs to the textile industry products, both work-in-progress and finished, like garments, apparels, clothing. The export is mainly to the OECD countries and USA as long as the US quotas are allowing⁹.

The Turkish economy is not running healthy especially in the last two decades. The annual growth rates are oscillating around zero sometimes being significantly negative. In addition, the economy was shocked by two recent big earthquakes. The obstacles in the way of sustainable growth do

⁹ See the official website of the International Trade Center for Turkey for a long list of commodities exported by Turkey.

not look likely to resist against the dynamics of the economy. Some sources of the dynamism are the young population, vast and pervasive natural resources, and the market structure experience gained especially in the last decades. There are two prominent opinions about the projected performance of the Turkish economy: one group says that the economy cannot be worse and Turkey had turned from the trough after the break of the economic program backed by the International Monetary Fund (IMF) as opposed to the other opinion stating that the structure of the economy is still not well established for a sustainable growth and the economy may still suffer from the unstable political environment, lack of sufficient regulations, and corruption.

Currently, so many firms governed by the state are to be privatized but the bureaucracy and legal concerns are frustrating such privatization attempts as well as the nationalist foci of policy makers. The revenue accrued out of privatization is realized much less than planned and expected. The changes in the structure of the economy are promising; Turkey had gone through many attempts to stabilize its economy to get rid of persistent inflation so far by many economic programs. The most striking difference of the current program, again in cooperation with the IMF, is the structural reforms that have made the treasury and central bank free from the political concerns. Current control over inflation is promising¹⁰.

The private sector is the most powerful engine of the economy, which includes the unrecorded hidden economy. The country has started to use its advantages offered by its very location. On one side, she has signed for the Customs Union with the EU and has increased its export to the EU, and on the other side she is very close to the Middle East, Central Asia, and the Balkans. Therefore, multinationals willing to be close to these regions may prefer Turkey for FDI in order to enjoy the low wage levels compared to the USA, EU, and Far East. One of Turkey's shortcomings has been political instability due to the same political actors and tendencies so far. Even under these conditions the country's economy relies on market forces, export-led improvement and integration to the EU, as well as privatization. The main disinflationary program consists of necessary and sufficient reforms to manipulate Turkey to the golden route of growth. Many aspects of the program can be summarized into a few categories: fiscal discipline and fiscal restructuring of the government activities, inflation targeting

¹⁰ See the decline in annual inflation rates from the official website of the Central Bank, www.tcmb.gov.tr.

monetary policy and floating exchange rates and finally the structural reforms to save the economy from populist policies of the governments¹¹. The fuel of persistent inflation was unbalanced budget, which was offset by seignorage. Therefore, the Central Bank and the treasury hegemony were two important steps in inflation targeting.

Coming to prominent sectors of the economy, energy is short in meeting domestic demand and has to be fed by imports. More than half of energy consumption is met by imports, which is expected to increase in coming years¹². Turkey has been investing in the telecommunication sector for quite long. Especially after 1980s there has been a substantial increase in the number of phone lines. Recent years have witnessed huge investments in cellular phone infrastructure. Competition in this sector leads to increase in quality, decrease in prices and experience of Turkish firms in this sector.

65% of the GDP is made up of the service sector, one component of which is transportation. The construction of highways, ports, stations and etc. has been increasing drastically after 1980s. However, recently the speed of infrastructure construction is decelerating due to government deficits. Textile is the largest manufacturing industry in Turkey. The country's considerable amount of exports includes textile products. However, this sector depends on most recent technology imported from abroad.

Similar to Turkey, Greece's main imported item is also crude oil (more than 3 billion \$ in 2000). Other imported goods are cars, ships, medicaments, and different kinds of equipments among others. The country mainly exports petroleum products and textiles. Some metals and foodstuffs are also exported by Greece¹³.

Although Greece is the only EU member among the BSEC countries she still has to complete the economic program objectives that had started in 1980s. By the 1990s, Greece managed to have full control of inflation and has decreased the budget deficit to a reasonable level. Greece is the richest of all BSEC countries in terms of per capita GDP.

¹¹ World Bank report number 26301-TU, 2003.

¹² See the official website of the International Trade Center for a complete list of such import figures over 1999-2003.

¹³ See the official website of the International Trade Center for Greece over 1999-2003.

The Greek economy has been growing continuously in the last few years supported by a strong and stable Drachma. The EU supports have contributed to this growth substantially as well as the Greek Stock Exchange. The foreign direct investment entering the Greek economy was stimulated in recent years due to interest rate differentials. The service sector accounts for more than 60% of the economy, including banking and trade (a bit more than 20%), communication and transportation (about 10%), health, education, and tourism¹⁴.

The transportation sector has progressed especially after the increase in foreign trade by the end of the millennium. Greece has long been very active in shipping but its ships were registered in different countries to escape from tax burdens. Privatization in airways has been very useful to the Greek economy, and aviation has also been improved. The telecommunication sector has turned out to be a competitive market due to the entries of some new firms. Another progressive sector of the Greek economy in recent years is tourism. Greece has very valuable areas convenient for tourism. The country has a stable political milieu and security that make tourists prefer Greece.

Another prominent economy of the BSEC is Ukraine. The country is just like Turkey in its position as a bridge among Central Europe, Central Asia, Russian Federation, and the Middle East with a population of about 50 million¹⁵. The country has vast technical and natural resources. The Ukrainian economy's future will be shaped by the success of the country in privatization and transformation from the communist system to the market economy. There are multinational firms and some small businesses acting all over the country that are supposed to help much in this transformation. The state has some serious problems of foreign debt payments as well as regulations for energy production and export. Other serious problems are the sluggishness of privatization, hurdles in the way of industrial restructuring, a very narrow tax base, inappropriate regulation and corruption at all levels of bureaucracy. Most activities of the economy are not recorded. Firms willing to operate honestly suffer so much from tax payments. Ukraine has a tremendous amount of natural resources on one side and on the other side, the country cannot make use of these resources because of governmental mistakes and incapacities. Necessary arrangements are urgent for the

¹⁴ See the CIA World Factbook for Greece.

¹⁵ See the CIA World Factbook for Ukraine.

country to attract FDI that seems to be the only way to let Ukraine operate in the global market.

Ukrainian authorities are acting unwillingly in the transitory period, although Ukraine has vast agricultural resources, port and shipbuilding facilities, network for transportation, and skillful and capable workforce. The economy has gone a long distance compared to its initial years after the end of integration to the Soviet Union. In 1993, hyperinflation rate was about 10,000%, real wages were almost zero and very unstable. Thanks to the Kuchma government that achieved to reduce inflation to 10% in 1997 under the cooperation of the World Bank and IMF. But the state does not voluntarily withdraw from the economy and does not do its best to establish the market economy within the country. These maybe the reasons why a population of around 50 million earn a bit less than 1000\$/year per capita. The toughest obstacle to the realization of the market economy is corruption.

A salient characteristic of the Ukrainian economy is its national infrastructure that dates back to the post-World War II period. This infrastructure is deteriorating due to economic decline, investment cutbacks, and insufficient service charges.

Telecommunications, computers, and computer software are prominent growing sectors in the high-tech fields. Deregulation and its implementation may lead to the attraction of foreign investment in oil, gas, and coal production. There may be considerable growth in the energy sector. Privatization and land reforms may lead to significant growths in agricultural and foodstuff sectors.

Privatization appears as the key to economic development in Ukraine. But there are some tough frustrations some of which are insufficient legislative base without clear, easily understood procedures for selling state property; lack of political intention to overcome strong resistance from local authorities and enterprise directors, parliamentary resistance, and unsatisfactory level of incentives in the complicated privatization program.

The Romanian economy is also in transition and reforms are to be completed as soon as possible for a well functioning market economy. The reform activities are accelerated especially after the second half of the 1990s. Almost 7,000 state firms are sold to the private sector in this period. Still the public sector is wasting money and the state suffers from inflation.

Tight monetary and fiscal policies are activated to help overcome inflation and get a way to stable macroeconomic steady state by cooperation with the IMF. Still the economy is being shocked by crises year after year. In 1997, for instance, there was a crisis that had cost a 6.3% negative growth and another in 1998 had led to a 7.3% decline in economic activities¹⁶.

The transition to the free market economy led to many layoffs, decline in national production both in service and production sectors, and instability. Romanian economy had a high degree of centralization, a high degree of bureaucracy, and no experience of partial reforms as legacies from the communist system. Many citizens could not adapt to the new situation and complained about being unfed and unsheltered as a result of the transition.

There is so much to be done for the governments in the way of transition towards the free market economy like privatization, elimination of price control, floating exchange rate, removal of subsidies, and promoting an efficient and revenue producing tax system. Each of these steps is very difficult to be realized and that is why the economy is very unstable. The private sector could not appear as a strong source of output generation. Many of the private firms are under bankruptcy.

The private sector had accounted for about 60% of the GDP, having a 90% share in agricultural production and retail trade, 70% in imports, 65% in exports and services, and 30% in industrial production. Romania's economy relies heavily on imports more than 50% of which is raw materials, especially oil and gas. Romania imports cotton, minerals, machinery and electrical devices, as well.

Romania's macroeconomic targets necessitate the integration to the Western markets. Romania is an associate member of the European Union and the Central European Free Trade Association (CEFTA). The country started the EU accession negotiations in December 1999.

Romania's fastest growing sector is information technology (IT) due to the strength of its education system. Romania has generated opportunities for highly skilled labor in engineering and electronics manufacturing, as well as software development. The percentage of Romanian software graduates per thousand citizens is significantly greater than that of the USA,

¹⁶ World Bank country brief for Romania.

five times that of the Russian Federation, and nearly seven times that of India.

Romania was the center of some heavy energy, and chemical industries in the 1990s but has lost this advantage after these years. The country has to do much to gain its former advantages. More growth is expected to be seen in less-heavy sectors like textiles and food processing. Although there has been striking progress in the service sector, the country is still well below the EU standards. There is much to be done in banking, leasing, insurance, legal and financial consulting, advertising, and media development service sectors. The Romanian economy needs energy to operate, which is why they have to, and currently do import crude oil and natural gas.

Bulgaria, on the other hand, has done so much to provide a stable atmosphere and has somehow succeeded. Bulgaria is still to attract foreign direct investment. About half of Bulgarian exports are to Western Europe and USA. Bulgaria has been decisive to reach a market economy especially after the governance of Ivan Kostov in 1997. This led to the control of inflation and stabilization of macroeconomic balances¹⁷. Additionally, the government had provided leverage to struggle against corruption and crime. Yet, Bulgaria was the first non-OECD nation to sign the Anti-Bribery Convention.

The main cornerstone to convert the economy to the market system is privatization. For the Bulgarian economy, privatization may speed the entrance of FDI, and decrease unemployment, and consequently increase production. The share of the private sector is advancing gradually, from 48% in 1995 to 65% in 1999. Although there has been a sharp increase in layoffs in 2000, the economy is very promising. Bulgaria still suffers from its main routes to Europe being cut because of the Kosovo conflict.

The service sector is growing very rapidly in Bulgaria. It constitutes more than half of the Bulgarian economy. A small percentage of private companies are involved in manufacturing. Construction, foodstuff (meat, dairy, bread, etc.), maintenance of household appliances and automobiles; financial services such as insurance, leasing and lending, health services and tourism are the major growing sectors.

¹⁷ See the World Factbook of CIA for Bulgaria.

4. Trade Analyses via the Gravity Model

This section is devoted to the analysis of bilateral trade of the BSEC countries. We establish a recent version of the gravity model, which has proved to be working well in many empirical studies.

4.1. Model Used

Gravity models for bilateral trade can be traced back to 1960s. There are many empirical applications of these models. For instance, Frankel (1997) used the gravity model to analyze intra-bloc and extra-bloc trade of the EC, EU, EFTA, CUFTA, MERCOSUR, and ASEAN. Soloaga and Winters (1999) have conducted a similar research for the EU, EFTA, NAFTA, MERCOSUR and ASEAN. Krueger (1999) made use of the gravity model for the NAFTA. Numerous other applications follow. There are general equilibrium models as well, like Hinosjosa-Ojeda, and Robinson (1997) and Lewis, Robinson and Thierfelder (1999), however, we prefer the gravity model, which seems more convenient for the purpose and scope of this paper. For our range of concern, Sayan (1997), Sayan and Zaim (1998), and Togan (1994) have employed the gravity model to analyze the BSEC case. We use an updated version of the gravity model compared to the last three references. Another contribution of our study is the coverage of our data set.

The initial gravity models are very simple and practical to implement. These models are inspired from the basic gravity finding of Newton. Trade is a function of the trading countries' GDPs and the distance between these countries. Trade volume, regardless of whether it is export or import, is a direct function of GDP and an inverse function of distance. In Newtonian terminology, the gravitational force exerted to two bodies is a direct function of these bodies' masses and inverse function of the squared distance between the bodies. There is an analogy between masses and GDPs on one side and the distances between bodies and the trading countries on the other.

We start from a product differentiation framework with one sector economy and assume that the consumers have constant elasticity of

substitution (CES) preferences with a common elasticity, η : $Y_{ij} = \frac{O_i O_j}{O_w} \Omega_{ij}$

where $\Omega_{ij} = \left(\frac{C_{ij}}{P_i P_j}\right)^{1-\eta}$.

Here Y_{ij} is the volume of exports from country i to country j , O_i is the output level of country i and O_w is the world output. C_{ij} refers to the trade cost from country i to country j and P stands for the price levels. Since only a portion of income is spent over the tradable commodities we take some certain percentage of the output levels, that is, instead of taking O_i , O_j , and O_w , we take $O_i^{\alpha_1}$, $O_j^{\alpha_2}$, and $O_w^{\alpha_3}$, where $\alpha_i, i = 1, 2, 3$ is between 0 and 1.

This model is different from the traditional models with several additional features. First of all, different components of trade cost are embedded in C , and we use the price levels' cross product as another term to account for the influence of prices over bilateral trade. Original gravity models use the distance among the trading countries as the only determinant of trade cost but the improved model we are using includes many possible factors that frustrate trade. In this study the cost consists of geographical distance, d_{ij} , barriers like tariffs and quotas, t_{ij} , and significant differences in languages, l_{ij} .

There is so much discussion about the determination of distance, d . Some claim that this distance would preferably be the one between two main cities of the country or the main city of the country and the border to the neighbors, see Wei (1996), and Wolf (1997) for instance. But this idea does not care about the consistency of the geography. The distance we adopt in this paper is given by:

$$d_{ij} = \frac{2}{3\Pi^{0.5}} S_i^{0.5} + D_{ij}$$

where S is the size of the country and D is the distance between countries' capitals. This formula assumes that the country can be evaluated as some sort of a disc. As a result, cost is given by: $C_{ij} = d_{ij}^p t_{ij}^q l_{ij}^r$.

Substituting these as well as tradable ratios and taking logarithms of both sides yield:

$$\ln Y_{ij} = (1+\alpha_1)\ln O_i + (1+\alpha_2)\ln O_j - (1+\alpha_3)\ln O_w + p(1-\eta)\ln d_{ij} + q(1-\eta)\ln t_{ij} + r(1-\eta)\ln l_{ij} - (1-\eta)\ln P_i - (1-\eta)\ln P_j$$

and finally renaming the coefficients and adding the constant and disturbance terms:

$$\ln Y_{ij} = \beta_0 + \beta_1 \ln O_i + \beta_2 \ln O_j + \beta_3 \ln O_w + \beta_4 \ln d_{ij} + \beta_5 t_{ij} + \beta_6 \ln l_{ij} + \beta_7 \ln P_i + \beta_8 \ln P_j + \varepsilon_{ij}$$

4.2. Data and Estimation

We take the regression equation derived in the last section as our basis. We make some changes over the equation due to several reasons explained below. First of all, we drop t_{ij} since this dummy assumes the same value in almost all cases (8 cases in a total of 825 observations are 0) and may therefore lead to the problem of almost perfect multicollinearity. Furthermore, we drop the price levels in both countries, P_{it} and P_{jt} . Indeed, these two variables turned out to be insignificant in all regression trial runs with different sets of other regressors. We set the language dummy to 1 if the countries have similar languages. These variables will be handled by the country specific effects. The final regression equation to be estimated turns out to be:

$$\ln Y_{ijt} = \beta_0 + \beta_1 \ln O_{it} + \beta_2 \ln O_{jt} + \beta_3 \ln O_{wt} + \beta_4 \ln d_{ij} + \beta_5 \ln l_{ij} + \varepsilon_{ijt}$$

We have added the time subscripts to mention that there arises several types of variables in this equation. In ordinary regressions of panel data one puts two subscripts, one for time and the other for cross section. However, in our case, since we have data of bilateral trade, we have even more complication to denote the cross section for both home country and her partner. Some variables in the regression equation do not change over time (time-invariant), just like the distance between the countries. The data set belongs to all BSEC members as exporting countries. The partner countries are the BSEC members again and non-members that have the highest

volume of trade. The set contains 15 observations per BSEC member per year over 1999-2003, inclusive.

Panel data models have three basic approaches: They are pooled and estimated by OLS, or they are assumed to be motivated by fixed effects where a dummy is assigned for each individual. The third approach is the random effects. Each approach has its own advantages and disadvantages. Our data set is balanced and includes 15 exports per each year to partners for 11 BSEC members to include 825 observations. Since the model includes some time-invariant variables we discard the fixed effects model of within-groups estimation via Least Squares Dummy Variables (LSDV) in that the time-invariant variables' contribution to the regression will be conveyed to others and will be lost (Egger (2001)). We select from the remaining two. The standard test for such occasions is developed by Breusch and Pagan (1980) and is an LM test based on OLS residuals of the pooled model.

The model for random effects is: $y_{ijt} = x_{ijt}'\beta + (\alpha + u_i) + \varepsilon_{ijt}$ where $Var(u_i) = \sigma_u^2$, and $Var(\varepsilon_{ijt}) = \sigma_\varepsilon^2$. The null hypothesis for the LM test claims $H_o : \sigma_u^2 = 0$ against the alternative of $H_A : \sigma_u^2 \neq 0$. If the null hypothesis is adopted then the model moves back to the simple pooled regression making α the constant term of the equation.

The test statistic is:

$$LM = \frac{nT}{2(T-1)} \left[\frac{\sum_{i=1}^n (T\bar{e}_i)^2}{\sum_{i=1}^n \sum_{t=1}^T e_{it}^2} - 1 \right]^2 = 88.58 \quad \text{which rejects the null}$$

hypothesis significantly (the critical value is 7.88 for 0.5% right tail area).

We use the GLS method to estimate the random effects model here which is feasible. The coefficients' estimate is: $\hat{\beta}_{GLS} = (X'\Omega^{-1}X)^{-1}X'\Omega^{-1}y$ where $\Omega^{-1/2} = (I_n \otimes \Sigma)^{-1/2}$. Here \otimes is used to express the Kronecker products. The problem boils down to the estimation of Σ . We follow the notation and procedure from Greene (2003).

Here $\Sigma^{-1/2} = \frac{1}{\sigma_\varepsilon} \left[I - \frac{\theta}{T} i_T i_T' \right]$ where i_T is a $T \times 1$ vector of 1's and $\theta = 1 - \frac{\sigma_\varepsilon}{\sqrt{\sigma_\varepsilon^2 + T\sigma_u^2}}$. The unbiased estimator for σ_ε can directly be estimated from the LSDV regression residuals, but the estimation of σ_u is problematic. We make use of the fact that $p \lim s_{Pool}^2 = \sigma_\varepsilon^2 + \sigma_u^2$ to estimate σ_u consistently, and estimate θ as 0.364.

We then used the weights matrix to estimate the parameters of the random effects model. The regression results are tabled below the pooled model's regression results. One has to keep in mind that all variables in the original data set are multiplied by some matrices so that the regression results of the pooled model and the random effects model are not comparable but still one can have an idea about the signs and the significances of the coefficients.

Table 2. Pooled Model regression results, dependent variable $\ln Y_{ijt}$.

Variable	Estimate	St. Error	t-stat.	p-val.
<i>Const.</i>	90.64	71.07	1.27	0.203
$\ln O_{it}$	1.90	0.080	23.862	0.000
$\ln O_{jt}$	1.60	0.068	23.533	0.000
$\ln O_{wt}$	-4.55	2.290	-1.989	0.047
$\ln d_{ij}$	-2.41	0.245	-9.812	0.000
l_{ij}	3.021	0.360	8.387	0.000
<i>F - stat.</i>	203.7			0.000
R^2	0.554			
\bar{R}^2	0.552			

All independent variables in the pooled regression model are highly significant. The only exception is the world output level which is significant at 5% level. The output levels of both home country and her partner are having positive signs as we expected since as countries produce more,

exports and imports tend to be larger. World output also receives the same comment but its sign is negative, since it appears in the denominator of the fraction. Similarly, the distance between countries is negative, which is natural. Finally, the dummy that we assigned to the similarity of the languages for the countries of bilateral trade is also positive and this dummy appears highly significant.

The random effects regression results are reported in Table 3 below. Comments on the favorable regression results of the pooled model are almost valid for these results as well. The result is even more favorable for the world output since its coefficient is more significant. But the coefficient of determination diminished slightly.

Table 3. Random Effects Model regression results, dependent variable $\ln Y_{ijt}$.

Variable	Estimate	St. Error	t-stat.	p-val.
<i>Const.</i>	15.56	11.34	1.37	0.170
$\ln O_{it}$	1.89	0.114	16.544	0.000
$\ln O_{jt}$	1.59	0.064	24.930	0.000
$\ln O_{wt}$	-4.46	2.118	-2.110	0.035
$\ln d_{ij}$	-2.56	0.240	-10.666	0.000
l_{ij}	2.541	0.350	7.269	0.000
<i>F – stat.</i>	169.5			0.000
R^2	0.509			
\bar{R}^2	0.506			

5. Concluding Remarks

Many BSEC countries are in transition to the market economy from the central planning. These economies in transition may enjoy gains from trade since there are many sectors and resources that are distributed unevenly in these countries. Some of these are mentioned in the text. There is still need

for more comprehensive and detailed studies on these sectors that leave room for further research.

The possible gains from trade are not exploited enough by the BSEC countries. There are many reasons for this. The most influencing of which is that the BSEC countries have not adopted the BSEC organization well enough, many BSEC countries are after some other international organizations, the most popular of which is the EU.

The most remarkable sector for trade is energy since some BSEC countries have ample resources while some others are in deep need of them. There is much more to be done within this sector. Another such sector belongs to food and textiles. Again some BSEC countries may well meet the need of others in providing these foods and wearing. There is a superficial asymmetry in even these two sectors; the countries rich in energy resources are not producing food and wearing and vice versa. This case leaves some opportunities for inter trading among BSEC countries.

One of the most urgent stimulus is a spark to start trading. Although there are many sub-organizations established, they are not activated sufficiently. The current and cumulative volumes of trade are far too below of what they would be.

Finally, the gravity model equation estimated gave favorable results to support the theoretical framework.

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