ALBANIA'S FOREIGN TRADE THROUGH A GRAVITY APPROACH[1]

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Introduction

The start of transition, found Albania a financially exhausted economy, with a totally obsolete production technology, with disrupted social and economic structures and institutions, contributed to a nearly total bankruptcy of the economy and the export sector. Foreign trade, especially export incarnating symptoms of "this very sick economy" by end of 1992 was at the lowest level, a modest 70 million USD. However, it should be stated that the inherited export sector was very narrow. Throughout the '80's, total annual exports averaged at 120 million USD. This was due to economic policies applied during the old economic system, of being a self sufficient economy.

Liberalization policies marking the beginning of the transition induced deep changes on the economy and subsequently on the foreign trade. The Albanian foreign trade regime can be described as fairly liberal: no quota and quantitative restrictions, special licensing requirements and with a simple customs tariff regime. Tariffs are characterized by a decreasing trend during the whole decade, with actually applied rates comparable with other countries of the region.

	Tariff rates, as 2002		
	Un-weighted	Import weighted	Bands
Albania	8.1	na	0, 2, 10, 15
BiH	6.8	na	0, 5, 10, 15*
Croatia	7	7	100+rates
Serbia	9.5	8	1, 5, 10, 15, 20, 30
Montenegro	3	na	1, 3, 5, 10, 15
Kosovo	10	10	Uniform
* Also specific duties on 250 HS lines of agriculture products			

[1] This is a discussion paper and the views expressed are those of the authors and not necessarily reflect the views of the institutions on which they are employeed. We would be grateful to any comment and suggestion for further improvements of this work.

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Source: World Bank regional report, June 2002

On that background, the export sector has expanded by almost five times during the period 1992-2002. As end of 2002 the value of exports amounted to 330 millions USD and by end 2003 we expect at about 370 millions (Table 1, Annex 1). This is a very impressive growth, although the absolute value remains the lowest of all countries of the region, almost a quarter of BiH and Macedonia's exports, two countries at comparable size. On the other hand, Albanian economy remains the closest on the region. With the ratio of merchandise trade to GDP at around 40 per cent (as end 2002), Albania stands much below the over 75 per cent average level for the economies of the region. For a small economy as Albania, to ensure the high growth rates increasing of trade openness is a must. Therefore we can expect high trade potentials in the future.

With the dissolution of the inherited trading structures, mostly through the CMEA, although Albania was not part of that, some trade redirection was expected to happen, due to inherited distortions. We didn't have any study to compare that at what degree such trade shifts had to be expected to happen. However, we can interpret the "hard facts" of the established trade reorientation taking place during the last decade. Gravity models applied in this paper will shed some light on the actual trade patterns characteristics and the expected future trade potentials.

The trade reorientation is perhaps the most important change on the trade pattern. The two neighbor countries, EU members, Italy and Greece, make up the largest trade partner (Figure 1, Annex 1), with 84 per cent of export and 62 per cent of import supply. As of 2002, EU buys 92 per cent of Albania's exports and supplies 75 per cent of Albania's total imports. This trade orientation seems to be highly correlated with the Foreign Direct Investment country of origin and sectoral allocation (mostly on labor intensive industries). Although reliable data on FDI are missing, this is a "hard fact" shared among researchers. Although EU is the most important market for all Balkan countries, such a strong trade dependence on the performance of two economies only, displayed by Albania, is uncommon for other countries of the region. EU provides for around 40-65 per cent of market for the Balkan exports and supplies 42-59 per cent of imports for the Balkan economies. The EU trade regime for the Balkan countries has also played a role on these developments. Granting of GSP status and of favors for the Outward Processing Trade for textiles and clothing, served to improve the market conditions for foreign investors and making use of the incentives offered by the region. In particular, the new Autonomous Trade Preferences accorded to the Balkan countries since 2000 and extended up to end 2005, offers the most liberal trading regime accorded to any other trade partner. Although there are not yet studies measuring the impacts of this new trade regime, trade data from the region during the last two years show some positive trends in fostering trade relations with the EU.

On the other hand, historical memories of the conflict in our region, enriched with the new conflicts of the '90-s due to the dissolution of Yugoslavia, impeded the trade and economic relations among our countries. In particular, in case of Albania the whole region counts for around 7 per cent of total trade. The situation in the region has also affected the FDI attraction, where Balkan stands as the lowest recipient region of the all the transition countries or other trading blocs.

From a structural point of view, the export base is highly narrow. Albania enjoys an uneven export structure, dominated by almost two groups of commodities, textiles and garment and unprocessed raw materials (both from agriculture and minerals). As measured by the Herfindahl index, the degree of Albania's export concentration is the highest (measured by 1996 data) 0.562. On the other hand Albania displays a very diverse import structure (Table 2: Annex 1). This displayed feature of foreign trade makes exports more sensitive to changes in market

conditions. Again, measured by standard deviations (as a measure of price volatility), export prices result three times more volatile then import prices (Xhepa and Frashëri, 2002).

What explanations may be for such a trade pattern and what might be the predictable path of further trade developments? What other arguments explains the observed hard facts and what the policy implications of future developments might be?

This paper will assess the trade potentials with the other trading areas in case of Albania and provide for some arguments on each section.

2. General overview on Gravity Model

It is becoming widely accepted that gravity approach is an important empirical tool in analyzing patterns and performances of international trade. The model originates from Newtonian gravity law in mechanics which states that the gravitational pull between two physical bodies is proportional to their body mass product divided by the square distance between the gravity centers. The applied analogy in modeling trade states that trade flows between two countries is proportional to the product of each country's 'economic mass' generally measured by Gross Domestic Product (GDP) divided by the distance between respective economic centers – usually using as a proxy the distance in Km between countries capital cities.

$$M_{ij} = k * Y_i^{\beta} * Y_j^{Y} * D_{ij}^{\delta} \qquad (2.1)$$

M_{ij} presents trade flow between country i and j, Y_i, Y_j are country i's and country j's GDP, and D_{ij} is the geographical distance between capital cities. An estimated log-linear form of the model (2.1) has proved to yield good results, however, weak linkage of the model with theories of international trade and the aggregate form of variables used has for a long time been subject to discussion and skepticism of model effectiveness.

The challenge of supporting gravity equation on theoretical grounds involved substantial research work. Linneman (1966) partial equilibrium model of export supply and import demand firstly derived theoretical support to the derivation of the gravity model. According to Linneman the trade flows are explained by three factors: (i) the potential supply of the exporting country, (ii) the potential demand of the importing country and (iii) the commercial flow resistance between the partners. The gravity equation is then obtained by replacing three factors with variables that presents and determine these factors such as national income, population, distance and existence of trade impediments.

Bergstrand (1985) and others point out that the partial equilibrium could not explain the multiplicative form of the equation as it lefts some parameters unidentified mainly because of exclusion prices as a variable. Bergstrand (1985) developed a microeconomic model, which was deduced from the general equilibrium of the demand –supply system, where for each country trade demand is derived by maximizing utility function subject to income constraint, on the other hand trade supply is derived from firm profit maximization with resource allocations determined by the constant elasticity of transformation. The gravity equation then can be obtained under market equilibrium involving price level and income as explanatory variables. This form of equation was called "Generalized" gravity equation.

Linking gravity approach with theories of international trade stretched out showing that this model could be derived from Ricardian framework (Eaton and Kortum, 1997); applying Hecker-Ohlin model with perfect and imperfect product specialization; Hammels and Levinsohn (1993) tested a model of trade with monopolistic competition; Jakab et. al (2001) supported a model of trade under monopolistic competition, pointing out that neither monopolistic competition nor increasing returns to scale were necessary conditions for gravity model use if

certain assumptions regarding the structure of both product and factor markets hold. Analyzing the theoretical foundation of gravity equations, Evenett and Keller(1998) argued that trade models will depend on the way specialization is obtained in equilibrium which can be through technology differences across countries, variation in term of country factor's endowment and of increasing returns at firm level. Trade theories have succeeded to exploit the "Why" behind trading reasons, while empirical work, and especially gravity model has resulted to be very successful in quantifying and explaining the size of the trade flows.

3. Model Specification

The General gravity approach will be used to quantify Albania's foreign trade variation in terms of economic mass (gross domestic products - GDP), distance, population, a proxy for price variable and a set of dummy variables either facilitating or impeding trade between countries. Two separate equations will be used to delineate explicitly the effects of the selected variables on exports and imports. Exports and imports display different behavioral patterns and therefore studying, separately their static and dynamic developments, as well as factors leading to such behavior is of interest.

Export and import function are defined as follows:

- *Export Function*

$$Log(X_{ijt}) = \alpha_0 + \alpha_1 \log(X_{ij,t-1}) + \alpha_2 \log(Y_{it}Y_{jt}) + \alpha_3 SIM_{ijt} + \alpha_4 \log D_{ij} + \alpha_5 \log N_{ijt} + \alpha_6 ER_{ijt} + \alpha_7 CMBR + \alpha_8 RBAL + \alpha_9 EU + u_{ijt} \quad (3.2)$$

- *Import Function*

$$Log(M_{ijt}) = \alpha_0 + \alpha_1 Log(M_{ij,t-1}) + \alpha_2 \log(Y_{it}Y_{jt}) + \alpha_3 SIM_{ijt} + \alpha_4 \log D_{ij} + \alpha_5 \log N_{ijt} \alpha_6 ER_{ijt} + \alpha_7 CMBR + \alpha_8 RBAL + \alpha_9 EU + u_{ijt} \quad (3.3)$$

j = 1, 2 …22,
i = 1(Albania)
t = 1994, 1995,……..2002

M_{ijt} denotes Albanian imports to country j in year t
X_{ijt} denotes Albanian exports to country j in year t
Y_{it} Albania GDP in year t
Y_{jt} Country j GDP in year t
SIM_{ijt} Similarity variable in term of economics masses (GDP) between Albania and county j in year t (as explained below)
D_{ij} Distance in Km between Albania and country j
N_{jt} Population of country j in year t
ER_{ijt} Nominal exchange rate between Albania and country j in year t
CMBR Common Border dummy

RBAL Balkan Region Country dummy

EU European Union Membership – dummy

u_{ijt} error term

2.1 Variables approach and data

The set of variables used in the model tries to enlarge the traditional gravity model, involving in addition to measures of economics mass and distance, other indicators such as countries economic similarities or differences, price factor, trade impeding factors, and other element of regional or European integration which may lead in potential opportunities of trading.

Lagged exports and imports are incorporated into the model to sketch features of the relation, between trading historical path and present patterns. We expect a positive relationship between exports/imports and their lagged values, suggested by the improved trade performances over years and consistent with the results of previous empirical work (Matayas, 1998). Yearly data on exports and imports, for the period 1994-2002) from (to) Albania to(from) country j in million USD at current prices are taken from ACIT database[3]. As shown in Table 2.1, data reveal high standard deviation over time and cross section – 3 times mean index, especially as a result of geographically concentration of Albania's trade.

The product of country i and j gross domestic product in time t is used as a direct measure of ***the economic mass***, and since trade is an interacting process, the product is meant to present the economic mass in an "interactive way". This variable is expected to be positively and significantly related to the independent variables (exports/imports).It embodies factors that effect potential supply of exporting countries and potential demand of importing country, as both are positive function of national income (GDP). Nominal gross domestic product is used, applying the assumption (Christie, 2001) that trade usually happens at international prices, therefore GDP in constant prices or PPP has no bearing on trade levels especially in short terms. Population is also included in the set of variables with the intention to add another dimension to the concept "country mass" Data on GDP (in US dollars) and population are taken from **International Financial Statistics – IMF** (1994 – 2003) .Data gaps especially for Balkan countries were filled using additional information from WIIW.

Table 2.1 Data Descriptive statistics

Descriptive Statistics	Imports	Exports	GDP	Distance	Population	Similarity	Nominal exchange
Mean	38.56	9.719	655,368.2	1,564	92.99	0.093	44.587
Median	9.62	1.124	189,879.2	815	10.6	0.028	17.779
Maximum	443.67	217.126	10,082,151.	7,783	1,285.	0.499	150.63
Minimum	0.00067	0.1	3,384.6	155	1.085	0.00055	0.000009
Std. Deviation	85.814	30.86	1,487,535.	1,799	260.515	0.14	52.13
Observations	173	173	173	173	173	173	173

[3] Primary source data is the General Directory of Customs.

Cross-section	23	23	23	23	23	23	23

Similarity variable (Egger, 2000) measures similarity level of countries in terms of their economic sizes (GDPs) and present a way to compare supply and demand relative sizes. This variable is calculated as follows:.

$$SIM_{ijt} = \log\left[1 - \left(\frac{GDP_{it}}{GDP_{it} + GDP_{jt}}\right)^2 - \left(\frac{GDP_{jt}}{GDP_{it} + GDP_{jt}}\right)^2\right]$$

Similarities or differences are very important factors in leading trade. Disaggregated indexes which are comparative index at sectorial or product level would be a more appropriate measure to explicitly compare supply efficiency with demand preferences. But due to data problem and because of the focus of the paper we will restrict ourselves using the variable in aggregated level. The larger this index, the more similar two countries in term of GDP, the higher the share of trade. The index is bounded between 0- absolute divergences in size to 0.5 - equal country size. The average value of the index (0.093) together with other descriptive statistics (Std, median, max, min) manifests more divergences than similarities. Because of that we would expect divergences to reduce exports and increase imports, mainly because of in-country supply weak capacities to meet an increasing demand in both volume and preferences.

Distance and common border variables are involved in the analyses as traditional proxies for one of the impeding trade factor that is ***transportation costs***. Converging distance cost to transportation, has been criticized as exclusive since it leaves out other costs caused by distance such as risk of damages or looses of the goods, time-related costs, communication costs, cultural distance, etc. Despite these critics, distance variable, as reported by Leamer and Levinsohn's (1994) survey on empirical evidence on international trade, offers one of the most clearest and robust effect on explaining bilateral trade.

Data on distance between capital cities are taken for www.indo.com/distance where distance is measured using "great circle formula", which approximates the shape of the earth to a sphere and calculates the minimum distance along the surface. Trade is inversely proportionate to distance and this is expected to be manifested by a negative correlation coefficient in the model. Common border variable is incorporated in the model through a dummy variable which identifies pairs of countries that Albania shares a common border. Sharing a common border has in many studies resulted to have a positive effect on trade volumes.

Empirical studies have shown that price variable, in addition to the conventional gravity equation, are significant in explaining trade variations among participating countries (Oguledo and Macphee 1994). Exchange rate considered as one of the factors that do cause competitive advantages based on price levels, will be involved as an explanatory variable in the model.. Hypotheses on expected effect of exchange rate variable on export/import variations would depend on the question – was there appreciation or depreciation of our currency? If appreciation was the case we would expect this variable to negatively effect exports, and increase imports preferences in term of prices.. Data on exchange rate were available in national currency per US Dollar (IFS), and these rates were converted into Albania currency in terms of country j's currency for the export function, and country j's currency in terms of Albania currency (country i's currency) for import function.

A set of dummy variables are incorporated into the model to make possible an inference of what difference in trade volumes brings about the fact of "being in the same region" or "being EU partners".

4. Estimation method

A panel framework was designed to cover trade variation between a set of 21 Albania's main trading partners during a period of 9 years. Panel estimation reveals several advantages over cross section analyses as it allows capturing relationships, between the relevant variables over time and disentangle the invariant county-specific effects (Egger, 1999). Panel estimation was done using Pooled estimation, Random and Fixed effect. Empirical work on applying gravity equations does not give a clear answer on which estimation method does give more efficient results. Therefore, to evaluate estimation results, statistical tests were run. Random effect which assumes that average individual effect is embodied in the constant term and that the error term includes the unobserved individual effect does result (F-statistic) the efficient estimation method when comparing with fixed effect (Hausman Test).

Table 4.1 Random effect – Results for Export/Import classical gravity equation

Dependent Variables	**Export Equation**	**Dependent Variables**	**Import Equation**
Constant term	-0.23 (-0.1692)	Constant term	-1.58 (-1.9561)**
$\log(X_{ij,t-1})$	0.77 (13.2676)*	$\log(M_{ij,t-1})$	0.71 (18.9111)*
$\log(Y_{it}Y_{jt})$	0.38 (1.8054)**	$\log(Y_{it}Y_{jt})$	0.5 (3.6070)*
SIM_{ijt}	-0.15 (-0.7004)	SIM_{ijt}	0.26 (1.9850)**
$\log D_{ij}$	-1.038 (-3.6874)*	$\log D_{ij}$	-0.65 (-3.6463)*
$\log N_{jt}$	-0.18 (-1.7447)*	$\log N_{jt}$	-0.004 (-0.6408)
ER_{ijt}	-0.00037 (-1.5926)	ER_{ijt}	0.0000022 (0.6420)
u_{ijt}	0.33	u_{ijt}	0.33
R^2	0.69	R^2	0.85
Adjusted – R^2	0.68	Adjusted – R^2	0.84
Darbin-Watson	2.184	Darbin-Watson	2.405
X^2-*Test*	146.8595 **(18.55)**		19.202 **(18.55)**
Panel Observations	162		170

Pooled estimation results showed to be even more significant when compared to random and fixed effect (Chow test and LM-test) nullifying the individual cross section effect on trade variation.

Table 4.2 Models specification tests

Test Description*	Statistic calculated Value EXPORTS	Statistic Critical Value	Statistic calculated Value IMPORTS	Statistic Critical Value	Model Selection
Hausman test Fixed Vs. Random** $X^2_{(6)}$	146.8595	18.55	19.202	18.55	Random
Chow Test Pooled Vs. Fixed $(F_{N+T-2,\ NT-N-T})$*	1.68	1.86	1.17	1.86	Pooled
LM-Test Pooled Vs. random** $X^2_{(1)}$	0.0026	7.88	0.056	7.88	Pooled

*Significant at 10% level of significance

** Significant at 5% level of significance

4. Export equations

Exports' equations ran through three previously mentioned estimation methods showed to be consistent, in terms of explanation power, effect direction (coefficient sign) and variables significance in explaining Albania exports variation. Five different equations were estimated, in order to test consistency of variables as well as to improve model fitness in framing Albania difficult export phenomenon. Despite the difficulties on data issues and especially on data consistency the export equation explains round 70% (Adjusted R^2) of the variation in Albania's exports. (Table 4.1 Pooled least estimation results)

There is a natural strong relation between exports level in year t and exports in the previous year, showing that export volume in year t will be traced at the proceeding year exports, at an average rate of 63%. This strong "tied up" nature of the exports with the historical trading path would be a positive phenomenon in that they would assure policy makers on the consistency of the export development. But in the context of Albania's export structure, mostly based on low value added commodities of either row materials or re-exports, this tightness would make more difficult any desirable structural change, as it narrows the area for possible interventions.

Table 4.1 Pooled least estimation results – no intercept EXPORT FUNCTION

Dependent Variables	*Equation**	*Equation2*	*Equation3*	*Equation4*	*Equation5*

$\log(X_{ij,t-1})$	0.66 (10.1187)*	0.613 (8.964)*	0.642 (9.5847)**	0.657 (10.0544)**	0.595 (8.4635)**
$\log(Y_{it}Y_{jt})$	0.47 (4.0388)*	0.347 (2.6510)*	0.424 (3.3829)**	0. 465 (3.9442)**	0.29 (2.1253)**
SIM_{ijt}	-0.26 (-2.3521)*	-0.34 (-2.9590)*	-0.43 (-2.3144)*	-0.145 (-0.8125)	-0.43 (-1.719)*
$\log D_{ij}$	-1.408 (-4.2428)*	-1.099 (-3.0524)*	-1.34 (-4.0071)*	-1.38 (-4.1411)**	-1.025 (-2.8084)**
$\text{Log}N_{jt}$	-0.26 (-1.9897)**	-0.27 (-2.0719)**	-0.31 (-2.2649)*	-0.19 (-1.286)	-0.2811 (-1.719)*
ER_{ijt}	-0.00028 (-1.1640)	-0.00019 (-0.7641)	-0.00028 (-1.1336)	-0.000293 (-1.1847)	-0.000187 (-0.7514)
CMBR		0.358 (2.0932)*			0.355 (2.0662)**
RBAL			0.184 (1.1362)		0.18 (1.0908)
EU				0.146 (0.8361)	0.098 (0.559)
u_{ijt}	0.567	0.561	0.567	0.568	0.562
R^2	0.718	0.726	0.721	0.72	0.729
Adjusted – R^2	0.7097	0.716	0.71	0.709	0.715
Darbin-Watson	2.121	2.0915	2.11	2.116	2.0862
F-statistic	79.7268	68.611	66.7796	66.4281	51.5704
LM-Test	0.00265 (7.88)				
Panel Observation	162	162	162	162	162

*Shows significance at 5% level of confidence

** Show significance at 10% level of confidence

Consistently with all other empirical work on explaining international trade variation, using gravity equation, economic mass variable results to be significantly positively related to exports volume, showing that exports volume are sensitive to changes in supply/demand conditions. A unitary increase in supply/demand will go in increasing exports volume by an average index of 0.4. The effect of economic mass on exports volume slightly weakens if supply/demand conditions are altered by inserting in the equation other trade preferential conditions such as the effects of free trade agreements.

Similarity variable shows consistency regarding effect direction (sign) on exports variation but its significance is affected by adding dummies into the model. This variable is negatively related to export's performance, showing that reducing divergence will reduce the export volumes. The variable effect on exports is more weak (coefficient magnitude) and it even

becomes not significant, when considering EU countries. There is a significant difference of this variable in explaining trading patterns. Similar economic structures with the Balkan region may have affected the low volumes of trading and was a good reason for the trade orientation towards the EU market observed during that period.

Distance does crucially affect exports volume, showing a disproportional relation between these two variables. This coefficient does comply with all other empirical results in both magnitude and significance level. Exports elasticity to distance is equal to -1.408, for the general gravity equation, and one factor that reduces distance effect on magnitude is common border, which brings down the sensitivity of exports to distance from -1.408 to – 1.099. Albania's exports manifest high geographic concentration, and among many factors that may have led toward this concentration, distance has played an important role. Regional integration process as well as EU integration would highly contribute reducing the perceived "distance cost", thus inducing structural improvement in exports.

Nominal exchange rate displays a very weak negative correlation with exports on both significance and coefficient magnitude. This result is consistent with other studies on the local currency exchange rate effects on trade (S Hollar, 2003) demonstrating independence of export's variation to currency movements.

Population variable, being another index for the demand (market) size resulted negatively related with exports variation. Increasing markets (demand) in terms of population would not increase Albania's exports volume, and this is mainly result of Albania's relative small supply capacity to serve increasing markets.

Among dummy variables the one that made a difference in trade volume is sharing a common border. Common border does improve the explanatory power of the model and it shows that exports with countries we share a border is by an average 35% higher than export volume in no border case. Exporting within Balkan region does slightly make a positive difference in trading tendencies, but the statistical insignificance does show that still being in the same region – which means close geographically, is not yet perceived an opportunity. Exports are also positively but not significantly related to EU-dummy variable. This may be due to the differences in relative size between EU countries and Albania as well as high importance of "distance cost".

5. Import Function

Explaining imports variations was a more confident process than explaining exports, as imports' demand in its aggregated form has been moving smoothly, based strongly on a continuous gap between an increasing domestic demand and a slowly moving supply. In a dynamic point of view there have been changes in import structure, with an increasing share of capital goods and a decrease of consumables. This changes in import structure shows improved position of the domestic supply, as it has been able to substitute imports and increase its capacity through investing.

Import equations showed to be robust and very consistent with other empirical evidences. They explained in a satisfactory 84% (adjusted $-R^2$) level the variations of imports and five out of eight variables involved in the model showed to be significantly related to the dependent variable.

Table 5.1 Pooled Least estimation – common intercept – IMPORT FUNCTION

Dependent Variables	*Equation 1*	*Equation2*	*Equation3*	*Equation4*	*Equation5*
Constant term	-1.61	-1.905	-2.19	-1.33	-2.34

	(-1.9696)	(-2.2938)	(-2.3854)	(-1.5467)	(-2.2789)
$\log(M_{ij,t-1})$	0.69 (17.8307)	0.69 (17.9981)	0.69 (17.3959)	0.699 (17.8323)	0.69 (17.3457)
$\log(Y_{it}Y_{jt})$	0.52 (3.6863)	0.48 (3.3580)	0.55 (3.8828)	0.466 (3.1379)	0.49 (3.2347)
SIM_{ijt}	0.26 (2.0126)	0.28 (2.1780)	0.23 (1.6886)	0.33 (2.2743)	0.27 (1.7798)
$\log D_{ij}$	-0.68 (-3.637)	-0.40 (-2.0717)	-0.62 (-3.1478)	-0.65 (-3.4195)	-0.40 (-1.7344)
$\text{Log}N_{jt}$	-0.039 (-0.5439)	-0.028 (-0.3863)	-0.00702 (-0.9257)	0.032 (0.3220)	-0.034 (-0.322)
ER_{ijt}	0.000002 (0.5684)	0.0000027 (0.7845)	0.00000072 (0.2028)	0.00000021 (0.0545)	0.00000095 (0.24)
CMBR		0.162 (1.7102)			0.15 (1.5577)
RBAL			0.15 (1.3740)		0.13 (1.251)
EU				0.125 (1.059)	0.0401 (0.3202)
u_{ijt}	0.33	0.33	0.333	0.333	0.331
R^2	0.852	0.854	0.853	0.853	0.856
Adjusted – R^2	0.846	0.848	0.847	0.846	0.848
Darbin-Watson	2.4	2.51	2.462	2.484	2.52
F-statistic	156.18	135.8648	134.8647	134.1276	105.879
LM-TEST	0.056 (7.88)				
Panel Observations	170	170	170	170	170

Imports as well as exports were strongly related to import performance of a year ahead, and this relationship was very important in both significance level and magnitude. The result of the equation shows that any following year almost 69% of expected imports volume will be led by actual import demand trends. Having this wide stable historical base of imports gives more confidence on developing import substitution incentives and promotes the development of the domestic supply.

Improvement conditions on domestic demand and foreign supply will bring about increment of imports, at an estimated average rate of 0.5. The linkage of economic mass with import level is statistically highly significant and this fact is consistent with all empirical results in this field. The magnitude is somehow lower and this difference is due to other variables added to the model like lagged imports and similarity variable which complement the effect on trade of

the economic mass. Tightness with the interactive economic mass variable is stronger for imports when compare to exports.

Similarity variable is positively related to imports, confirming that divergences in domestic and foreign relative market sizes (demand/supply divergences), becomes an important incentive factor to increase imports. Similarities between countries of the region even in imports do make a difference in the effect this variable has on imports variations. Reduced divergences between the Balkan region countries will reduce tendency to import mainly due to similarities in supply capacity and structure.

Distance cost is again a very significant factor in modeling imports; the higher the distance between Albania and country j, the lower imports are. Sharing a common border does make a difference in reducing the transportation costs by an estimated 20%. There is a slight tendency of increasing imports when trading with EU countries, but its significance and magnitude are low due to increase distance importance when considering EU set of countries.

Price competitiveness variable – nominal exchange rate - offers weak signals in explaining imports. Nominal exchange rate reveals signs of a local currency appreciation, but not significant relation to trade.

Trade Potentials

In estimating exports/imports potential we used equations 2 (Table 4.1 & 4.2) since judged the best fit in terms of explanation power and variables significance among all estimates.

Exports Estimates Function

$$Log(X_{ijt}) = 0.613 * \log(X_{ij,t-1}) + 0.347 * \log(Y_{it}Y_{jt}) - 0.34 * SIM_{ijt} - 1.099 * \log D_{ij} - 0.27 \log N_{jt} + 0.358 * CMBR \quad 3.1$$

Import Estimates Equation

$$Log(M_{ijt}) = -1.905 + 0.69 * \log(M_{ij,t-1}) + 0.48 * \log(Y_{it}Y_{jt}) - 0.28 * SIM_{ijt} - 0.4 * \log D_{ij} + 0.162 * CMBR$$

Estimations are based on 2001 data on GDP, exports, and other variables. Comparing actual exports to potentials does enforce the important influence that the fact ***"being neighbors"*** has on the pattern of export flows for Albania. Exports with neighbor countries are on "overtrade" situation, showing that cultural closeness, language, large human interaction as immigration, are very important indicators of trade patterns, beside other economic incentives.

Table 3.1 "Sharing a common border" countries – Trade Potentials

Country	Actual Exports (in thousand USD)	Potential Exports (in thousand USD)	A/P Rate (%)	Actual Imports (In Thousand USD)	Potential Imports (In Thousand USD)	A/P Rate (%)
Greece	39,940	29,350	136	383,543	365,380	105

Yugoslavia*	9,127	4,170	219	4,166	17,396	24
Macedonia	4,667	3,849	121	16,919	26,722	63
Italy	217,126	202,224	107	443,674	497,050	89

** Yugoslavia includes Serbia, Montenegro, and Kosovo*

Situation with imports looks different, except Greece and Italy where there is a slight difference between actual and potential, imports from Macedonia and Yugoslavia are a lot under potentials. Considering same conditions of the other two set of countries and the estimation results, this can be result of similarities in countries supply structure and capacities which do not seem to satisfy increasing in-country demand diversification.

Considering trade exchange within Balkan region, comparison of actual/potentials reveals opportunities for Albania. As noticed Albania experienced very intensive exports with half of the region countries (4 out of 8 countries being overtrade), and actually there is a very pale presence of Albanian exports in the other half. Is there any particular explanation for that? Albania's trade conditions among Balkan countries in terms of economic mass, distances, similarity etc, seems not to differ that much to be able to swerve natural tendencies of trade, which is the case. One possible explanation might instability in the region.

Table 6.2 Balkan region - Potential

Country	**Actual Exports** (in thousand USD)	**Potential Exports** (in thousand USD)	**A/P Rate (%)**	**Actual Imports** (In Thousand USD)	**Potential Imports** (In Thousand USD)	**A/P Rate (%)**
Greece	39,940	29,350	136%	383,543	365,380	105%
Yugoslavia*	9,127	4,170	219%	4,166	17,396	24%
Macedonia	4,667	3,849	121%	16,919	26,722	63%
Bulgaria	94.28	144.66	65%	28,642	27,691	103%
Romania	33.66	16.68	202%	13,037	10,909	120%
Bosnia& Herzegovina	7.5	546.66	1%	111	483	23%
Croatia	49.2	647.39	8%	18,305	23,296	79%
Slovenia	124	206.35	60%	27,185	20,883	24%

Table 6.2 EU and West European Countries

Country	**Actual Exports** (in thousand USD)	**Potential Exports** (in thousand USD)	**A/P Rate (%)**	**Actual Imports** (In Thousand USD)	**Potential Imports** (In Thousand USD)	**A/P Rate (%)**
Greece	39,940	29,350	136%	383,543	365,380	105%

Austria	730	1,904	38%	15,536	21,527	72%
Belgium	435	1,579	28%	8,986	12,130	74%
Denmark	772	1,089	71%	2,380	5645	42%
France	2,019	2,109	96%	10,981	25,123	44%
Germany	16,873	11,306	149%	62,683	69,711	90%
Italy	217,126	202,224	107%	443,674	497,050	89%
Netherlands	387	291	133%	8,643	12,163	71%
UK	189	435	44%			
Spain	280	227	123%	15,008	15,798	115%

Table 6.4 Other countries

Country	**Actual Exports** (in thousand USD)	**Potential Exports** (in thousand USD)	**A/P Rate (%)**	**Actual Imports** (In Thousand USD)	**Potential Imports** (In Thousand USD)	**A/P Rate (%)**
Hungary	47	84	56%	11,473	10,473	109
Russia	37	177.68	21%	16,080	16,545	97

Trading with EU, does present an interesting situation separating trade partners in two groups, a first group characterized by an overtrade situation and a second one reflecting potentials to develop trade. Some of the reasons that bring about this sorting situation are neighboring conditions with Greece and Italy; immigration flows which is one of the main financing source of Albania imports (Germany) and especially foreign direct investments which have had a very strong effect on shaping Albania trading patterns.

Some conclusions of this work

The overview of the Albanian foreign trade, gravity approach results and trade potential estimations, reveals as key features:

The tested relationships between the dependent and independent variables confirms that foreign trade is more subject to domestic supply constrains than to foreign demand. Comparing the economic size of Albania with the pool of trading partners shows that prevailing feature is the divergence in size, which has affected the trade patterns. This is an explanation of the fact that we have unexploited trade potential in the region and situation of overtrade with some EU countries. Another outcome of the model and of relevance to policymakers, is the significant influence of distance in trade. While the effects of other explanatory variables are of a more long term nature, reducing distance costs will significantly increase trade volumes at a shorter time. Projects which contribute to decreasing of these costs should be placed high priority by the governments. At this point, reducing the distance costs refers not to improvements of the physical infrastructure, only. Market access measures, border procedures, movement of people, development and

dissemination of information are important dimensions of the distance costs that needs to be improved. On the other hand, economic growth of the individual economies and of the whole region will also strongly influence both export and import potentials. Therefore stabilization policies and establishment of a conducive business environment for private development which ensure high growth rates shall be high on the agenda of policymakers. Although "money" doesn't seem to strongly affect trade in long term, we would caution that due to different monetary policy regimes on the region and the future orientation to more convergence with the EU, attention shall be paid to exchange rate management. The linkages of money and trade was not on the focus of this paper but may a subject for further research.

Stronger trade linkages with the EU point out to the critical importance of the new trading regime to be negotiated under the Stabilization and Association Agreement. Other then Italy and Greece, trade potentials exist with EU economies which are expected to contribute to trade diversification.

Trade with the Balkan countries remains very marginal and therefore the establishment of the Free Trade Area through the network of the bilateral free trade agreements will offer new incentives to fostering regional integration.

Integration process both within the region and with the EU will clearly affect the future path of trade patterns. Both processes will impact future trade flows. SAA and the FTA will potentially induce more trade creation while the presence of "overtrade" with neighboring countries may also lead to some trade diversion. Both forces may contribute to enlarging the geography of foreign trade.

Annex 1

Table 1: Albania's Foreign Trade during the years

In millions USD

Years / **Trade indicators**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Trade Export	123.1	141.8	201.4	224.4	143.6	202.7	275.7	258.0	304.9	330.2
Trade Import	418.4	554.8	648.4	904.6	645.5	792.0	1,203.0	1,070.5	1,333.0	1,490.0
Trade Deficit	-295.3	-413.0	-446.9	-680.2	-501.9	-589.3	-927.3	-812.5	-1,028.1	-1,159.8
Trade Volume	541.4	696.5	849.8	1,129	789.1	994.7	1,478.6	1,328.6	1,637.9	1,820.3
Other Indicators										
Openness of economy (in %)	42.3	35.8	34.8	41.0	34.4	30.3	39.5	36.0	40.9	41.9
Trade deficit as percentage to GDP	-23.1	-21.3	-18.3	-24.7	-21.9	-17.9	-24.8	-22.0	-25.7	-26.7
Export/Import ratio, %	29.4	25.6	31.1	24.8	22.2	25.6	22.9	24.1	22.9	22.2

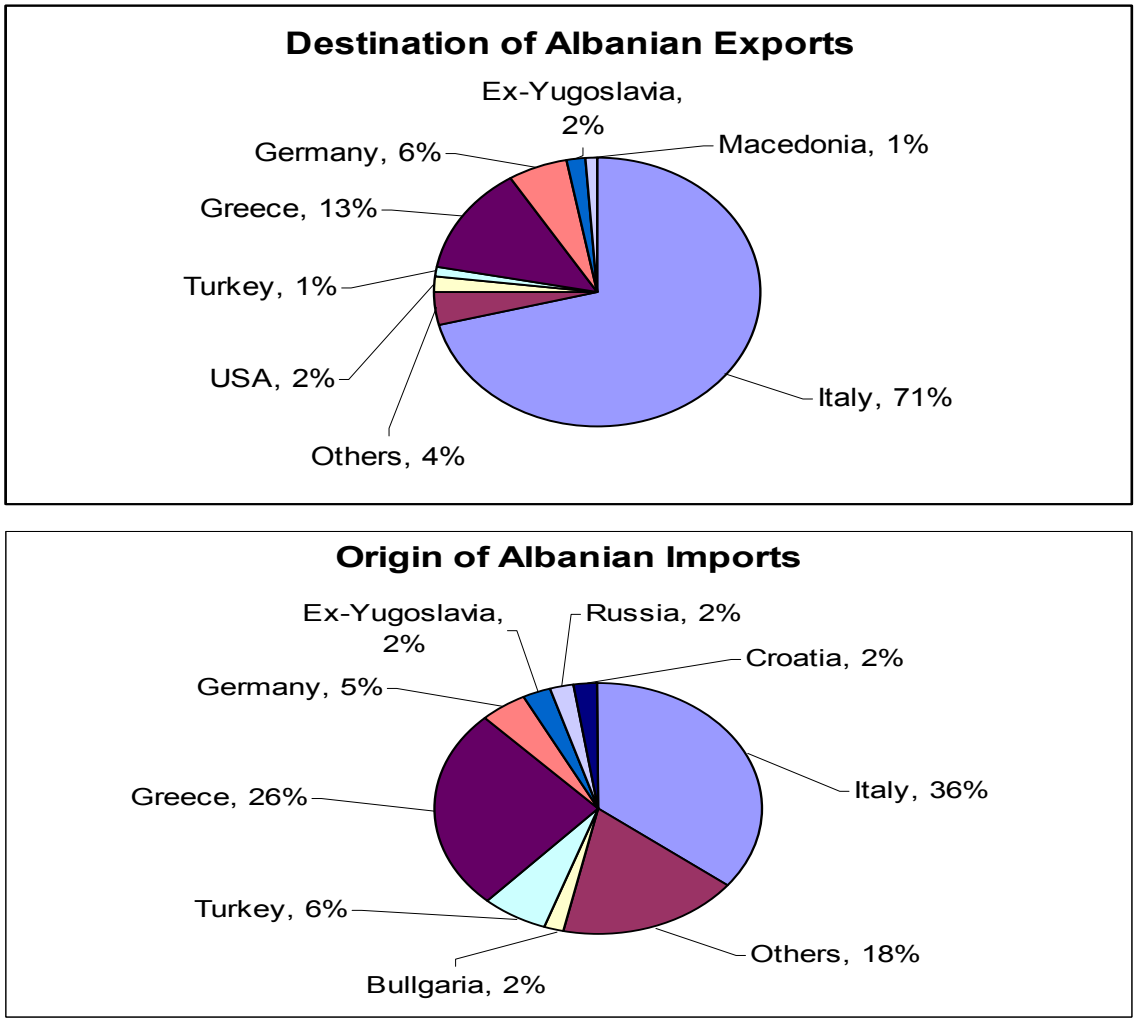
Source: Foreign Trade Annual Report, ACIT 2002

Table 2: Foreign Trade structure

No.	**Imports' structure**	***Import***		***Exports***	
		1996	**2002**	**1996**	**2002**
1	Living animals; animal origin products	5.0	3.0	3.1	0.6
2	Vegetable products	17.5	6.8	7.1	4.0
3	Animal grease and oils or vegetal	2.9	1.4	2.2	0.0
4	Prepared foods, drinks, tobacco	9.5	8.8	4.1	2.2
5	Mineral products	5.2	12.9	10.3	2.8
6	Chemical industry products or allied	4.8	5.8	1.2	0.5
7	Plastics; tire and its products	2.3	3.0	0.5	0.2
8	Leather and its products	2.1	2.5	4.5	4.5
9	Wood, cork and their products, straw products, reed-canes	0.8	1.1	2.8	2.6
10	Wood dough, papers, cart-paper and their products	1.4	2.0	1.4	0.9
11	Textiles and textile articles	9.0	10.9	**24.4**	**37.7**
12	Clothes and umbrellas	6.3	3.7	**23.4**	**28.9**
13	Stone, gypsum, cement, ceramic, glass articles	2.4	3.9	0.2	0.6
14	Pearls, jeweler, coins	0.1	0.0	0.0	0.1
15	Main metals and their products	4.8	9.0	11.3	9.3
16	Electric, mechanic machinery and equipment	16.2	16.2	1.7	2.5
17	Vehicles	6.1	5.4	0.1	0.3
18	Optic implements and instruments; watches; music instruments	1.3	1.0	0.1	0.1
19	Arms and munitions and their components	0.1	0.0	0.3	0.2
20	Manufactured articles	2.1	2.5	1.4	2.1
21	Work of art, ancient pieces	0.0	0.0	0.0	0.0
	TOTAL	**100.0**	**100.0**	**100.0**	**100.0**

Source: Foreign Trade Annual Report, ACIT 2002

Figure 1: Geography of foreign trade, 2002



Source: Foreign Trade Annual Report, ACIT 2002

Appendices

Exports potential

Austria	730.34	1904.20	1173.86	38%
Belgium	435.23	1579.47	1144.24	28%
Bulgaria	94.28	144.66	50.38	65%
Bosnia&herzegovina	7.50	546.66	539.16	1%
Croatia	49.20	647.39	598.19	8%
Denmark	772.25	1089.32	317.07	71%
Finland	0.25	25.33	25.08	1%
France	2019.85	2109.42	89.57	96%
Germany	16873.29	11306.47	(5566.82)	149%
Greece	39940.43	29349.51	(10590.92)	136%
Hungaria	47.22	84.28	37.06	56%
Italy	217126.78	202224.63	(14902.15)	107%
Macedonia	4669.95	3849.11	(820.84)	121%
Netherland	387.00	291.05	(95.95)	133%
Romania	33.66	16.68	(16.98)	202%
Rusia	37.18	177.68	140.50	21%
Sllovenia	124.43	206.35	81.92	60%
Serbia&Montenegro	9127.70	4170.36	(4957.34)	219%
Spain	280.30	227.37	(52.93)	123%
Turkey	3100.29	932.01	(2168.28)	333%
United Kingdom	189.73	435.21	245.48	44%
Switzerland	4420.60	844.39	(3576.21)	524%

Imports Potential

	Real Imports	Estimated Imports	Variances	
Austria	15,536	21,527	5,991	72%
Belgium	8,986	12,130	3,144	74%
Bulgaria	28,642	27,691	(951)	103%
Bosnia&herzegovina	111	483	372	23%
Croatia	18,305	23,296	4,991	79%
Denmark	2,380	5,645	3,265	42%
Finland	25,630	7,401	(18,229)	346%

France	10,981	25,123	14,142	44%
Germany	62,683	69,711	7,029	90%
Greece	383,543	365,380	(18,163)	105%
Hungaria	11,430	10,473	(957)	109%
Italy	443,674	497,050	53,376	89%
Macedonia	16,919	26,722	9,802	63%
Netherland	8,643	12,163	3,520	71%
Romania	13,037	10,909	(2,128)	120%
Rusia	16,080	16,545	465	97%
Sllovenia	27,185	20,883	(6,302)	130%
Serbia&Montenegro	4,166	17,396	13,230	24%
Spain	15,008	15,798	790	95%
Turkey	82,443	71,820	(10,623)	115%
United Kingdom	45,281	13,135	(32,146)	345%
Switzerland	11,319	17,447	6,128	65%

Pooled Least estimation – no intercept – IMPORT FUNCTION

Dependent Variables	*Equation 1*	*Equation2*	*Equation3*	*Equation4*	*Equation5*
$\log(M_{ij,t-1})$	0.709 (18.3877)	0.69 (17.9981)	0.69 (17.3959)	0.699 (17.8323)	0.71 (18.4381)
$\log(Y_{it}Y_{jt})$	0.27 (3.9527)	0.48 (3.3580)	0.55 (3.8828)	0.466 (3.1379)	0.21 (2.3394)
SIM_{ijt}	0.033 (0.559)	0.28 (2.1780)	0.23 (1.6886)	0.33 (2.2743)	0.15 (1.0419)
$\log D_{ij}$	-0.65 (-3.4349)	-0.40 (-2.0717)	-0.62 (-3.1478)	-0.65 (-3.4195)	-0.48 (-2.0701)
$\text{Log}N_{jt}$	-0.032 (-0.4353)	-0.028 (-0.3863)	-0.00702 (-0.9257)	0.032 (0.3220)	0.063 (-0.6383)
ER_{ijt}	0.0000007 (0.5684)	0.0000027 (0.7845)	0.00000072 (0.2028)	0.00000021 (0.0545)	0.0000007 (0.24)
CMBR		0.162 (1.7102)			0.0.092 (0.9602)
RBAL			0.15 (1.3740)		0.012 (0.129)
EU				0.125	0.16

				(1.059)	(1.4002
u_{ijt}	0.33	0.33	0.333	0.333	0.331
R^2	0.852	0.854	0.853	0.853	0.851
Adjsuted – R^2	0.846	0.848	0.847	0.846	0.844
Darbin-Watson	2.4	2.51	2.462	2.484	2.57
F-statistic	156.18	135.8648	134.8647	134.1276	115.4583
LM-TEST	0.0056 (2.71)				
Panel Observations	170	170	170	170	170

Table 1.1

List of Countries			
1	Austria	12	Italy
2	Belgium	13	Macedonia, FYR
3	Bulgaria	14	Netherlands
4	Bosnia Herzegovina	15	Romania
5	Croatia	16	Rusia
6	Denmark	17	Slovenia
7	Finland	18	Serbia-Montenegro-Kosovo
8	France	19	Spain
9	Germany	20	Turkey
10	Greece	21	United Kingdom
11	Hungary		Switzerland

Table 1.2 Pooled least estimation results – common intercept EXPORT FUNCTION

Dependent Variables	*Equation**	*Equation2*	*Equation3*	*Equation4*	*Equation5*
Constant term	0.43 (0.307)	-0.36 (-0.2504)	-0.22 (-0.1458)	0.917 (0.6165)	-1.089 (-0.613)
$\log(X_{ij,t-1})$	0.657 (9.9461)	0.614 (8.938)	0.643 (9.5495)	0.65 (9.7947)	0.592 (8.396)
$\log(Y_{it}Y_{jt})$	0.42	0.389	0.45	0.346	0.41

	(1.9535)	(1.8297)	(2.0802)	(1.5259)	(1.7671)
SIM_{ijt}	-0.324 (-1.4092)	-0.3 (-1.314)	-0.41 (-1.6903)	-0.246 (-1.014)	-0.38 (-1.4559)
$logD_{ij}$	-1.42 (-4.228)	-1.076 (-2.884)	-1.33 (-3.8567)	-1.409 (-4.1777)	-0.94 (-2.4139)
$LogN_{jt}$	-0.26 (-1.974)	-0.27 (-2.0736)	-0.322 (-2.2479)	-0.177 (-1.135)	-0.327 (-1.815)
ER_{ijt}	-0.000293 (-1.1179)	-0.000183 (-0.7262)	-0.00028 (-1.1134)	-0.000306 (-1.2286)	-0.000159 (-0.6251)
CMBR		0.3705 (2.0787)			0.39 (2.1454)
RBAL			0.19 (1.099)		0.2334 (1.249)
EU				0.18 (0.9907)	0.04259 (0.215)
u_{ijt}	0.57	0.563	0.568	0.569	0.563
R^2	0.718	0.726	0.72	0.7206	0.73
Adjusted – R^2	0.708	0.714	0.708	0.7079	0.714
Darbin-Watson	2.1261	2.0865	2.1157	2.123	2.0719
F-statistic	66.0708	58.4628	56.8813	56.7656	45.69
LM-Test	0.00265 (2.71)				
Panel Observation	162	162	162	162	162

Random effect – Import equation results

Dependent Variables	Equation 1	Equation2	Equation3	Equation4	Equation5
Constant term	-1.58 (-1.9561)		-2.19 (-2.3854)	-1.20 (-1.3335)	-1.33 (-1.5468)
$\log(M_{ij,t-1})$	0.71 (18.9111)	0.69 (17.3457)	0.69 (17.3959)	0.70 (17.8323)	0.70 (17.8323)
$\log(Y_{it}Y_{jt})$	0.5 (3.6070)	0.49 (3.2347)	0.55 (3.8828)	0.47 (3.1379)	0.47 (3.1379)
SIM_{ijt}	0.26 (1.9850)	0.27 (1.7799)	0.23 (1.6886)	0.33 (2.2743)	0.33 (2.2743)
$\log D_{ij}$	-0.65 (-3.6463)	-0.40 (-1.7344)	-0.62 (-3.1478)	-0.65 (-3.4195)	-0.65 (-3.4195)
$\text{Log}N_{jt}$	-0.004 (-0.6408)	-0.03 (-0.3222)	-0.00702 (-0.9257)	0.032 (0.3220)	0.032 (0.3220)
ER_{ijt}	0.0000022 (0.6420)	0.00000095 (0.2409)	0.00000072 (0.2028)	0.00000021 (0.0545)	0.00000021 (0.0545)
CMBR		0.15 (1.5577)			
RBAL		0.14 (1.2510)	0.15 (1.3740)		
EU		-2.30 (-2.1181)			0.13 (1.0598)
u_{ijt}	0.33	0.33	0.333	0.333	0.331
R^2	0.85	0.856	0.853	0.853	0.856
Adjsuted – R^2	0.84	0.848	0.847	0.846	0.848
Darbin-Watson	2.4	2.52	2.462	2.484	2.524
LM-test					
Panel Observations	170	170	170	170	170

Table 2.2 Variables Descriptive Statistics

Descriptive Measures	$\text{Log}X_{ijt}$	$\text{Log}M_{ijt}$	$\text{Log}(GDP_{it}*GDP_{jt})$	SIM_{ijt}	$\text{Log}D_{ij}$	$\text{Log}Pop_{ijt}$	Exchange Rate $_{ji}$
Mean	-0.033	1.086	8.628	-1.448	2.959	1.17819	128.2863
Median	0.0854	1.0559	8.75077	-1.5235	2.911	1.00945	0.057

Maximum	2.3367	2.64706	9.8892	-0.3015	3.3277	2.1706	8541.873
Minimum	-3.602	-3.1739	6.8269	-2.7227	2.19032	0.03559	0.000572
Std. Deviation	1.0713	0.7364	0.7454	0.6716	0.2929	0.5413	796.8982
Observations	162	162	162	162	162	162	162
Cross-Sections	21	21	21	21	21	21	21