**Sergii Molchanov**

**Vasyl Kotsovskiy**

**National University of "Kyiv-Mohyla Academy"**

**Indicators of development foreign trade between Ukraine and CIS**

## 1. Introduction

The purpose of this paper is to examine indicators of development international trade between Ukraine and Commonwealth of Independent States (CIS) during the last decade (years 2000-2010) and provide recommendations for foreign-economic policy with an aim of further improvement trade turnover Ukraine-CIS.

We use the name of the Commonwealth of the Independent States and its abbreviation CIS for purely analytical convenience – to define a group of eleven successor countries of the former USSR (all former Soviet republics apart from the Baltic one, which are now the EU members). Although they have, to a large extent, a common historical and institutional background (at least in most of 20th century) their development strategies as well as political and economic systems have become increasingly divergent one from other after gaining independence. We are also aware that the role CIS as the regional integration block founded at the end of 1991 in order to provide a "velvet divorcement" of the former USSR is gradually decreasing[1].

Ukraine-CIS trade relations are important and become higher interest nowadays. Ukrainian prime-minister Mykola Azarov signed an agreement on a free trade area within the Commonwealth at a meeting in St. Petersburg in October 18[th][2] with other CIS prime ministers. "The development of economic relations with the countries of the Commonwealth of Independent States is one of the priorities of Ukraine's foreign policy", - that Victor Yanukovych said on the last CIS Heads of State summit in Dushanbe, Tajikistan[3]. Also turnover between the CIS countries increased by 48% and exceeded $134 billion in the first six months of 2011[4]. So, the authority of Ukraine decided to develop a vector of cooperation with CIS countries, which will have significant impact on the trade relations among them.

## 2. Description of the issue

In the trade relations between Commonwealth of Independent States and Ukraine, essentially, the standard international principles of customs regulation are applied. Nevertheless, it is unwise to

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[1] This group of countries is also called sometimes as the New Independent States (NIS). However, as 20 years passed from the end of 1991 when they obtained independence this notion also does not sound accurate. The ambitious task of finding a more appropriate name of this regional group is outside the agenda of this paper.

[2] The article «CIS prime ministers sign agreement on setting up free trade area», Kyiv Post, November 18, 2011. http://www.kyivpost.com/news/russia/detail/115191/

[3] The article «Yanukovych sees development of economic relations with CIS as one of Ukraine's foreign policy priorities», Ukrinform, September 3, 2011 http://www.ukrinform.ua/eng/order/?id=230607

[4] The article «Путін: прем'єри СНД несподівано домовилися про зону торгівлі», www.epravda.com.ua http://www.epravda.com.ua/news/2011/10/18/302360/

deny the presence of an objective interest by Ukraine in the development of trade, industrial technology and investment cooperation with CIS.

The process of a transition from a planned economy to a market economy started in most of former Soviet republics after the end of USSR. The Soviet Union's successor republics faced a sharp decline in GDP during the early 1990s. One of the suggested causes is that under Soviet planning, price ceilings created major problems (shortages, queuing for bread, households hoarding money) which made the transition to an unplanned economy less easy. At the same time former Soviet Union states experienced a sharp decline in trade, the consequences of which have not yet been overcome. The shock, caused by the collapse of the USSR, a transition from the planned economy, breaking the old economic ties and the reduction of production, led to a sharp decrease in the volume of both exports and imports, in 1993, constituting 35 and 28% compared to 1991 is even more significant (to 83-84%) during the same period decreased trade within the CIS (Freinkman, Polyakov, and Revenco (2004)). Since 1993, indicated a consistent improvement in foreign trade. During the period 1993-1997 export of the CIS countries increased by 54%, imports - by 64%. The Russian crisis in 1998 led to another decline in the foreign trade of the CIS, expressed in a sharp reduction of interstate trade, as well as reorientation trade in 1997-2003 generally and especially the export flows outside the region.

Production structure did not always base on the principles of economic viability and takes into account the comparative advantages of local or predetermine the close economic relationship and intensive trade republics mostly with each other in former USSR. Therefore, the decline in interstate commerce was partly due to the fact that emerging market mechanisms have led to improved resource allocation and closure of inefficient production. However, the main reasons for reducing the trade were the elimination of centralized resource allocation and the trade policies of new independent states.[5]

As result, new mechanisms of cooperation were defined among CIS countries. After collapse of USSR, where any country did not have a complete production line, new mechanisms of cooperation and trade were defined. The period 1991-2000 characterized by instability of economic situation, barter relations were spread, governments implicated new policies, reforms…

We decided to examine a period 2000-2010, recognize recent indicators, which influenced on trade between Ukraine and other CIS countries, because of:

1)  the data for last decades is more relevant and acceptable for analysis;

2)  the period 1991-1999 was investigated quite good by scientists like Solovyova Y.M., Mohylevskiy R., Tochitskaya I. from different perceptions;

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[5] «Внешняя торговля стран СНГ», Роман Могилевский, Ирина Точицкая, Центр социально-экономических исследований, 2004. (p. 594)

3) understanding of last trends in trade-relations between Ukraine and CIS, what exactly influence on trade turnover, will help to build the most efficient foreign trade policy.

Also we faced with difficulties with even lack of data for indicators such as Global Competitive Index, Index of Economic Freedom and Exchange Rate (availability on the international data-research web-sites).

We build our analysis based of a gravity model of trade. The gravity model of trade in international economics, predicts bilateral trade flows based on the economic sizes of (often using GDP measurements) and distance between two units. The basic theoretical model for trade between two countries (i and j) takes the form of:

$$F_{ij} = G\frac{M_i M_j}{D_{ij}}$$

where F is the trade flow, M is the economic mass of each country, D is the distance and G is a constant. The model has also been used in international relations to evaluate the impact of treaties and alliances on trade, and it has been used to test the effectiveness of trade agreements and organizations such as the North American Free Trade Agreement (NAFTA) and the World Trade Organization (WTO)[6]. More detalis and explanation how we use this theoretical pattern for analysing data will be present in the next part of this research.

3. **Analysis**

### 3.1. Data

According to theoretical knowledge presented before, we have chosen many independent variables, which can make significant influence on trade between Ukraine and CIS. The first ones are GDP of each country, which mostly characterizes the size of Economy and potential demand on the production of Ukraine and vice versa; the other one is GDP per capita as an indicator of development of the economy and purchasing power of population. Both these variables were taken from World Bank in international dollar, which is adjusted on the inflation in the country[7]. The indicator Distance shows the length of roads between Kyiv and capitals of the Partners. Besides, in term of demand on Ukrainian export, we used the indicator of population of the partner and vice versa[8].

Also the model contains four more indicators connected to Foreign Direct Investment (FDI) - FDI outward of Ukraine, FDI outward of Partner, FDI Inward of Ukraine and FDI inward of Partner. All these data were taken from the web-site of United Nations Conference on trade and development[9]. The main idea is to estimate the influence of FDI (both outward and inward) on the trade turnover. That means to identify whether FDI is import substitution or export substitution. For

[6] The article "Gravity model of trade", Wikipedia, 2011 http://en.wikipedia.org/wiki/Gravity_model_of_trade#cite_ref-0

[7] http://databank.worldbank.org/ddp/home.do

[8] http://www.drive-alive.co.uk/route_planner.asp

[9] http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx

example, if we will get significant negative influence of inward of FDI in Partner on export from Ukraine, which means a lot of FDI was used to create the production which is competitive with the Ukrainian export. On the other hand, FDI may be used to create the production that is backward (if we are talking about import) or forward (if we talking about export) oriented to the Ukrainian one. Such analysis is very important in context of the fact – Ukraine is the major supplier of semi-manufactured goods.

The third part of data concern to the last three years (2008-2010). The variables are a little bit specific for the gravitation model – Global competitiveness (data of World Economic Forum) and Economic freedom (data of The Heritage Foundation) indexes (included their pillars). Economic freedom firstly was used by J. Anderson and E. van Vinkup[10] accomplishes indirect effect on trade turnover because it`s crate the terms further development of the country and deepening of economic relations with other countries. On the other hand, Global competitiveness index (present only for 6 CIS countries) shows the results of the moving on the way of developing. Because of the change in methodology in 2007, we can use data only for the last three years. The other variable is change in exchange rates Ukrainian Hryvnya to the currency of Partner. The analysis contains change in exchange rates for last three years too and was connected with economical situation. As we know, 2008-2010 years was the period of economic crisis, when each state were trying to do its best to keep from drop, including policy of stimulating export and reducing import. Because of the ban of WTO against rising tariffs and quotas, many countries used the method of devaluations of their currencies, which also is known as "Currency wars"[11] (but the term mostly was connected to China-USA-Europe trade deals). So we are going to estimate the influence of this factor on the amount of export-import operations. According to these data, positive change of exchange rate means revaluation of hryvnya and devaluation of the currency of partner and vice verse. Dynamics presents the situation of high devaluation of hryvnya in 2008 with gradual recovery during the next two years.

The last part of data is dummies. In the model will be estimated two dummies – Geographical size and oil/gas exporter. The first one actually represent Economic and demographic size as point 1 get only Kazakhstan and Russian Federation and the second one countries, which has the main goods of Ukrainian import – oil and gas.

**Expected coefficients**

Economic theory says (Jan Tinbergen "Shaping the World Economy") that big economic size and perspective of its growth in terms of GDP creates positive influence on the amount of export-

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[10] Anderson, J. and E. van Wincoop (2003). Gravity with Gravitas: A Solution to the Border Puzzle.–American Economic Review 93, 170-192

[11] The article "Currency war", Wikipedia, 2011
http://en.wikipedia.org/wiki/Currency_war

import operations and total turnover in general[12]. The same influence should be observed on the export from Ukraine of the population because it's actually the only consumer of our goods and services[13]. If we talking about GDP per capita, the effect can be ambiguous: high level of the indicator increase the purchasing power of each person and as a result demand on import (incl. import from Ukraine), but, on the other hand, stimulate people buy goods of higher quality, which are not usually produced in Ukraine. The same situation we observe during analysis of GDP per capita in Ukraine and import from CIS Partners. There is no doubt that Distance, which displays transportation costs, plays negative role on all three dependant variables. As it was mentioned in previous section the influence of FDI is ambiguous too. FDI can be import substitution, export substitution or complement to both export and import for Ukraine as for Partner.

Moving forward to the models which are based on three years data the sign of coefficient is even harder to predict. The influence of change in exchanges rates on Ukrainian export should have negative effect; it means that revaluation of hryvnya make our export more expensive and decrease the demand on it, but huge part of Ukrainian export consist of agricultural products and metals[14], which`s demand is inelastic. Situation does not totally change in terms of import to Ukraine, main part of which forms oil and gas. Sigh of coefficients near pillars of Index of Economic Freedom is not easy to predict, but as all CIS states was the members of USSR and have had an experience of communist regime, and in the same part as a influence of the state in these countries is still high, it will be logically to assume that growth of freedom in the CIS strengthen the trade deals between CIS, so it will get positive sign. The pillars of Global Competitiveness Index also should give positive correlation, because in most CIS countries have not been formed even normal basic requirement for doing business. The only obstacle is lack data as 30 cases and three-year dynamics will not give us enough fields for estimating its influence. In the same time, as we used panel data, perhaps, some pillars for Ukraine will be excluded from analysis because of little or no variance.

And the last variables are dummies. The dummy oil/gas exporter is expected to show positive correlation, because Ukraine is one of the biggest oil and gas[15]. The same direction should be shown by dummy Geographical Size.

**Results**

All the models used Panel Data and were estimated with OLS method. First analysis was done for export:

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[12] Tinbergen, Jan (1962). Shaping the World Economy.– New York: Twentieth Century Fund, 1962.

[13] Linnemann, Hans (1966). An Econometric Study of International Trade Flows.– Amsterdam: North–Holland Publishing Company

[14] U. S. Department of Sates – Background note – Section: Economy http://www.state.gov/r/pa/ei/bgn/3211.htm#econ

[15] Товарна структура зовнішньої торгівлі України за 8 місяців 2011 року

http://www.ukrexport.gov.ua/ukr/vnishno_t_balans/ukr/5935.html

| N=110 | Regression Summary for Dependent Variable: ln_Export R= ,94745033 R?= ,89766212 Adjusted R?= ,88845171 F(9,100)=97,462 p<0,0000 Std.Error of estimate: ,57007 | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| | Beta | Std.Err. of Beta | B | Std.Err. of B | t(100) | p-level |
| Intercept | | | -34,9490 | 81,80541 | -0,4272 | 0,670137 |
| ln_GDP of Ukraine (PPP) | 0,277150 | 0,119544 | 1,9711 | 0,85021 | 2,3184 | 0,022464 |
| ln_GDP of partner (PPP) | 0,166718 | 0,169654 | 0,1760 | 0,17909 | 0,9827 | 0,328129 |
| ln_Distance | -0,441047 | 0,038856 | -0,9450 | 0,08325 | -11,3507 | 0,000000 |
| ln_Population of UKR (mln) | 0,146819 | 0,252075 | 11,6325 | 19,97209 | 0,5824 | 0,561581 |
| ln_Population of Partner (mln) | 0,199667 | 0,109247 | 0,3145 | 0,17209 | 1,8277 | 0,070582 |
| ln_FDI Outward of UKR (US $) | 0,054543 | 0,130290 | 0,0540 | 0,12904 | 0,4186 | 0,676386 |
| ln_FDI Outward of Partner (US $) | -0,015489 | 0,063964 | -0,0066 | 0,02727 | -0,2421 | 0,809163 |
| ln_FDI Inward of UKR (US $) | 0,076730 | 0,371255 | 0,1343 | 0,64970 | 0,2067 | 0,836683 |
| ln_FDI Inward of Partner (US $) | 0,353215 | 0,114091 | 0,3236 | 0,10452 | 3,0959 | 0,002546 |

**Table 1. "Indicators of export in the basic model"**

As the table 1 showed, among presented indicators there are only 3, which accomplish significant influence on the amount of export. There economic nature approve the fact that export from Ukraine depend on the manufacturing, in other words ability to produce enough amount of goods, and macroeconomic situation. In the same time insignificance of GDP of partner confirm that demand on Ukrainian goods is inelastic and doesn`t depend on the economic situation in the CIS partner. On the other hand, FDI in Partner creates manufacturing, which consume Ukrainian goods. That means that new entrepreneurs need some Ukrainian goods as non-current assets or as raw, that also prove that huge part of Ukrainian export forms metals.

Changing the variables GDP to GDP per capita (Appendix A) we will see that level of development of the country doesn`t influence, contrary to the population of Partner, on the export. Such situation can be explained that export is rather quantity-oriented rather than quality-oriented and the fact that Ukraine also export goods with inelastic demand such as meat, prepared foodstuffs etc, which amount doesn`t depend on the level of life. Simultaneously FDI in Partner still left and important determinant of development of Ukrainian export.

| N=110 | Regression Summary for Dependent Variable: ln_Import R= ,85296603 R?= ,72755105 Adjusted R?= ,70303064 F(9,100)=29,671 p<0,0000 Std.Error of estimate: 1,4793 | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| | Beta | Std.Err. of Beta | B | Std.Err. of B | t(100) | p-level |
| Intercept | | | -209,756 | 212,2748 | -0,98814 | 0,325471 |
| ln_GDP of Ukraine (PPP) | 0,193923 | 0,195053 | 2,193 | 2,2062 | 0,99421 | 0,322522 |
| ln_GDP of partner (PPP) | 1,040297 | 0,276815 | 1,746 | 0,4647 | 3,75810 | 0,000288 |
| ln_Distance | -0,205123 | 0,063400 | -0,699 | 0,2160 | -3,23541 | 0,001647 |
| ln_Population of UKR (mln) | 0,428734 | 0,411296 | 54,022 | 51,8251 | 1,04240 | 0,299741 |
| ln_Population of Partner (mln) | -0,313567 | 0,178253 | -0,786 | 0,4466 | -1,75912 | 0,081616 |
| ln_FDI Outward of UKR (US $) | -0,068192 | 0,212586 | -0,107 | 0,3348 | -0,32077 | 0,749052 |
| ln_FDI Outward of Partner (US $) | -0,468264 | 0,104366 | -0,318 | 0,0708 | -4,48674 | 0,000019 |
| ln_FDI Inward of UKR (US $) | 0,235359 | 0,605755 | 0,655 | 1,6859 | 0,38854 | 0,698444 |
| ln_FDI Inward of Partner (US $) | 0,386952 | 0,186156 | 0,564 | 0,2712 | 2,07865 | 0,040210 |

**Table 2. "Indicators of Import in the basic model"**

In table 2 we see indicators, which influence on Import from CIS to Ukraine, such as GDP of Partner, Distance, FDI Inward and Outward of Partner are significant. It leads to the next results:

- The higher are GDP and FDI Inward, lower distance and FDI Outward of Partner the more goods and services will be imported to Ukraine from CIS. The indicator "Distance" plays less significant role in import rather than export, because of we export goods, which have higher transportation costs (like steel, coal and wheel). On the other hand, CIS countries import goods to

Ukraine, which have less transportation costs (like gas, oil, which have the biggest part in the structure of import to Ukraine).

- Correlation of FDI inward, domestic investments of CIS countries and import to Ukraine shows that development of CIS market of import goods (FDI with Domestic Investments move to import oriented goods). As result, countries start to produce more goods and increase import. Simultaneously, Ukraine also produces and exports more, because foreign demand is increased.

| N=110 | Regression Summary for Dependent Variable:ln_Trade turnover R= ,88194030 R?= ,77781869 Adjusted R?= ,75782238 F(9,100)=38,898 p<0,0000 Std.Error of estimate: ,97893 | | | | | |
|---|---|---|---|---|---|---|
| | Beta | Std.Err. of Beta | B | Std.Err. of B | t(100) | p-level |
| Intercept | | | -135,617 | 140,4765 | -0,96541 | 0,336668 |
| ln_GDP of Ukraine (PPP) | 0,285242 | 0,176142 | 2,364 | 1,4600 | 1,61938 | 0,108515 |
| ln_GDP of partner (PPP) | 0,548460 | 0,249977 | 0,675 | 0,3075 | 2,19404 | 0,030548 |
| ln_Distance | -0,314815 | 0,057253 | -0,786 | 0,1430 | -5,49867 | 0,000000 |
| ln_Population of UKR (mln) | 0,389346 | 0,371421 | 35,951 | 34,2961 | 1,04826 | 0,297045 |
| ln_Population of Partner (mln) | -0,066701 | 0,160971 | -0,122 | 0,2955 | -0,41437 | 0,679492 |
| ln_FDI Outward of UKR (US $) | -0,015060 | 0,191976 | -0,017 | 0,2216 | -0,07845 | 0,937631 |
| ln_FDI Outward of Partner (US $) | -0,317788 | 0,094248 | -0,158 | 0,0468 | -3,37184 | 0,001063 |
| ln_FDI Inward of UKR (US $) | 0,211341 | 0,547027 | 0,431 | 1,1157 | 0,38634 | 0,700063 |
| ln_FDI Inward of Partner (US $) | 0,507615 | 0,168108 | 0,542 | 0,1795 | 3,01958 | 0,003213 |

**Table 3. "Indicators, which influence on trade turnover between Ukraine and CIS"**

Results from Table 3 show, that GDP of partner (PPP) with FDI Inward of partner play major role in trade turnover between Ukraine and CIS. Also the further is partner-country the less trade turnover exists. Simultaneously, FDI Outward of partner plays negative impact on trade relations with Ukraine, because this money do not create production, which will need Ukrainian goods and could be exported from Ukraine; at the same time money outward do not lead to create goods, which can be imported to Ukraine. That is evidently, why FDI Inward of partner is important.

Next results will consider to the influence of Index of Economic Freedom on the export. The model is adjusted on multicollinearity as we observe some correlation between independent variables. Besides as previous analysis showed, there is no meaning to do separate analysis for GDP per capita because of the absence of influence of this factor. Moreover, described dummies also were included in the further analysis. So the next table presents the results:

| N=30 | Regression Summary for Dependent Variable: ln_Export R= ,99467449 R?= ,98937735 Adjusted R?= ,98459715 F(9,20)=206,97 p<,00000 Std.Error of estimate: ,18553 | | | | | |
|---|---|---|---|---|---|---|
| | Beta | Std.Err. of Beta | B | Std.Err. of B | t(20) | p-level |
| Intercept | | | 6,23010 | 6,309413 | 0,98743 | 0,335228 |
| ln_FDI Inward of Partner (US $) | 0,681933 | 0,044947 | 0,57677 | 0,038016 | 15,17185 | 0,000000 |
| ln_Distance | -0,433341 | 0,052831 | -0,80315 | 0,097916 | -8,20242 | 0,000000 |
| ln_Business Freedom UKR | 0,212925 | 0,030327 | 5,57350 | 0,793848 | 7,02087 | 0,000001 |
| ln_Monetary Freedom Partner | -0,148782 | 0,031498 | -2,61711 | 0,554050 | -4,72360 | 0,000130 |
| ln_Business Freeedom Partner | 0,030153 | 0,042879 | 0,15694 | 0,223172 | 0,70320 | 0,490035 |
| Oil/gas exporter | 0,198776 | 0,050959 | 0,58430 | 0,149793 | 3,90071 | 0,000887 |
| ln_Government Size Partner | -0,093165 | 0,044382 | -0,48604 | 0,231541 | -2,09915 | 0,048700 |
| ln_Investment Freedom Partner | 0,088587 | 0,043865 | 0,16465 | 0,081530 | 2,01952 | 0,057037 |
| ln_Fiscal Freedom Partner | 0,046750 | 0,042576 | 1,25182 | 1,140037 | 1,09805 | 0,285227 |

**Table 4. "Indicators, which influence of Index of Economic Freedom on the export"**

As we can see in Table 4, FDI in Partner leave one of the main indicators, which make positive influence on Ukrainian export. Distance, in contrast, leave important factor too, which make negative influence on the export. Very significant for Ukrainian export is total Business Freedom,

which means the easier create, lead and liquidate the business in Ukraine (that is directly connected to the overloading and bureaucracy procedures) the more enterprises are going to work the bigger export we have. The next significant variable says that CIS, which National Banks do regularly intervention in the economy (usually this appears as monetary stimulating of demand and economic growth) that also benefit export from Ukraine. Very close influence to the Monetary Freedom make the Size of Government. That also approve the fact that CIS country with high level of government regulation and distribution of GDP promotes Ukrainian export (again: usually it happens though government procurement or other budget mechanism). Also important for bilateral trade relations is whether Partner is oil/gas exporter on not.

Table presents regression between import on one hand and basic variables with Index of economic freedom on the other. Results are the next one:

| | Beta | Std.Err. of Beta | B | Std.Err. of B | t(16) | p-level |
|---|---|---|---|---|---|---|
| N=30 | | | | | | |
| Intercept | | | -678,276 | 161,8383 | -4,19107 | 0,000691 |
| ln_FDI Inward of Partner (US $) | 1,180968 | 0,499951 | 1,849 | 0,7828 | 2,36217 | 0,031176 |
| ln_Financial Freedom Partner | -0,016097 | 0,149681 | -0,063 | 0,5894 | -0,10754 | 0,915696 |
| ln_Investment Freedom Partner | 0,533208 | 0,068890 | 1,835 | 0,2370 | 7,73999 | 0,000001 |
| ln_Population of UKR (mln) | 0,291190 | 0,066192 | 193,662 | 44,0225 | 4,39916 | 0,000448 |
| ln_Monetary Freedom Partner | -0,351894 | 0,075059 | -11,458 | 2,4441 | -4,68821 | 0,000247 |
| ln_Population of Partner (mln) | -0,280345 | 0,151686 | -0,712 | 0,3854 | -1,84819 | 0,083145 |
| ln_GDP per capita of partner (PPP) | 0,193497 | 0,235675 | 0,705 | 0,8586 | 0,82103 | 0,423693 |
| Geographical Size | -0,043812 | 0,220135 | -0,298 | 1,4973 | -0,19902 | 0,844751 |
| ln_FDI Outward of Partner (US $) | -0,761272 | 0,190954 | -0,485 | 0,1216 | -3,98668 | 0,001061 |
| ln_Government Size Partner | -0,184702 | 0,085916 | -1,784 | 0,8297 | -2,14980 | 0,047210 |
| Oil/gas exporter | 0,485861 | 0,134440 | 2,644 | 0,7315 | 3,61396 | 0,002329 |
| ln_Distance | -0,355589 | 0,164974 | -1,220 | 0,5660 | -2,15542 | 0,046702 |
| ln_Property Rights Partner | -0,162655 | 0,088642 | -1,174 | 0,6396 | -1,83497 | 0,085171 |

Regression Summary for Dependent Variable: ln_Import
R= ,99200906 R?= ,98408198 Adjusted R?= ,97114858
F(13,16)=76,088 p<,00000 Std.Error of estimate: ,47003

**Table 5. "Indicators, which influence of Index of Economic Freedom on the import."**

- The summary about the FDI inward and outward from Partner – foreign as the domestic investment mostly uses for creation production capacity, which is import-oriented - we got in the previous analysis is confirmed in this one section. Also population of Ukraine has positive influence on import, because big part of demand on the amount of import goods is created by population of Ukraine. Very close to first variable is Investment freedom of partner – its improvements implement the conditions for further FDI and keeps capital from outflow, so as a result these factors has positive correlation with import. The influence of dummy Oil/gas exporter is more significant for import than for export that approve absence of positive changes with energy dependence.

- Simultaneously we got the same influence of Government Size and Monetary freedom for import as on export. Such results can be explained by active role of governments of CIS in stimulating foreign trade (especially if we the latest events).

Logical conclusion of this part of analysis is the correlation between total turnover on one hand and basic variables with Index of economic freedom on the other. Results are this one:

| | Regression Summary for Dependent Variable:ln_Trade turnover<br>R= ,99233077 R?= ,98472035 Adjusted R?= ,97667843<br>F(10,19)=122,45 p<,00000 Std.Error of estimate: ,27970 | | | | | |
|---|---|---|---|---|---|---|
| N=30 | Beta | Std.Err.<br>of Beta | B | Std.Err.<br>of B | t(19) | p-level |
| Intercept | | | 3,90615 | 4,523383 | 0,86355 | 0,398607 |
| ln_FDI Inward of Partner (US $) | 0,903779 | 0,090382 | 0,93656 | 0,093661 | 9,99953 | 0,000000 |
| ln_Government Size Partner | -0,097178 | 0,054366 | -0,62116 | 0,347507 | -1,78747 | 0,089825 |
| ln_Business Freeedom UKR | 0,322460 | 0,037767 | 10,34174 | 1,211230 | 8,53822 | 0,000000 |
| Oil/gas exporter | 0,376643 | 0,059907 | 1,35649 | 0,215756 | 6,28716 | 0,000005 |
| ln_Distance | -0,566333 | 0,072116 | -1,28604 | 0,163762 | -7,85308 | 0,000000 |
| ln_Monetary Freedom Partner | -0,259348 | 0,044664 | -5,58945 | 0,962600 | -5,80662 | 0,000014 |
| ln_Investment Freedom Partner | 0,411956 | 0,052529 | 0,93812 | 0,119622 | 7,84243 | 0,000000 |
| ln_Property Rights Partner | -0,246776 | 0,048051 | -1,17862 | 0,229495 | -5,13573 | 0,000059 |
| ln_FDI Outward of Partner (US $) | -0,436431 | 0,099151 | -0,18394 | 0,041788 | -4,40167 | 0,000307 |
| ln_Trade Freedom Partner | 0,127844 | 0,042835 | 1,50352 | 0,503770 | 2,98454 | 0,007618 |

**Table 6. "Indicators, which influence of Index of Economic Freedom on the trade turnover."**

As we can see in Table 6, significant impact on the trade turnover plays FDI Inward of Partner, which was explained previously in the basic model. Business freedom is only one significant indicator, which belongs to Ukraine. The more business freedom we have in Ukraine, the higher level of trade turnover will be between Ukraine and CIS country. Explanation was given previously as same as inversely proportional impact of monetary freedom of partner, FDI Outward, positive impact Oil/Gas exporter, Trade and Investment Freedom of partner. Property Rights of Partner has inversely proportional relation to trade turnover. It means that we trade with countries, in which security of property rights are low.

Now we move to the analysis of impact of Global competitiveness index (GCI) on the export, import and total trade turnover. Now we can speak about Ukraine – CIS deals, because GCI data was presented only for Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Russian Federation and Tajikistan. We will start from export determination. Below in the table is displayed main results (again adjusted on multicollinearity):

| | Regression Summary for Dependent Variable: ln_Export<br>R= ,99820240 R?= ,99640804 Adjusted R?= ,99236708<br>F(9,8)=246,58 p<,00000 Std.Error of estimate: ,16096 | | | | | |
|---|---|---|---|---|---|---|
| N=18 | Beta | Std.Err.<br>of Beta | B | Std.Err.<br>of B | t(8) | p-level |
| Intercept | | | 4,929863 | 3,863410 | 1,27604 | 0,237740 |
| ln_FDI Inward of Partner (US $) | -0,683413 | 0,458029 | -0,564861 | 0,378574 | -1,49207 | 0,174023 |
| Market size Partner | 0,452861 | 0,286909 | 0,689489 | 0,436824 | 1,57841 | 0,153123 |
| ln_GDP per capita of partner (PPP) | 0,765998 | 0,240062 | 1,689047 | 0,529343 | 3,19084 | 0,012787 |
| Change of exchange rate UAH to currency of Partner | -0,050275 | 0,022998 | -0,254412 | 0,116380 | -2,18605 | 0,060291 |
| Infrastructure Partner | 0,196512 | 0,076239 | 0,594006 | 0,230451 | 2,57758 | 0,032739 |
| ln_FDI Outward of Partner (US $) | -0,041570 | 0,332872 | -0,015796 | 0,126486 | -0,12488 | 0,903698 |
| ln_Population of Partner (mln) | 0,361782 | 0,196946 | 0,534391 | 0,290911 | 1,83696 | 0,103527 |
| Oil/gas exporter | -0,184297 | 0,098551 | -0,659966 | 0,352910 | -1,87007 | 0,098396 |
| Geographical Size | 0,265918 | 0,182606 | 1,010015 | 0,693578 | 1,45624 | 0,183423 |

**Table 7. "The analysis of impact of Global competitiveness index (GCI) on the export"**

Results in Table 7 is a little bit unexpected, especially if we talking about variables GDP per capita of partner. In one of the previous analysis we got insignificant influence of this factor, but here presented different result. In some way it can be displayed that higher level of life demand higher production capacities, which furnished including and Ukrainian export. Here we also see another important fact – good quality of infrastructure (usually is promoted by high level of

investment) stimulate export to these countries, because of lower transportation costs (that`s why factor Distance is absent).

The next table shows the same regression done for import in Ukraine. The results are:

| N=18 | Regression Summary for Dependent Variable: ln_Import $R=,99594580$ $R?=,99190804$ Adjusted $R?=,98471518$ $F(8,9)=137,90$ $p<,00000$ Std.Error of estimate: ,39245 | | | | | |
|---|---|---|---|---|---|---|
| | Beta | Std.Err. of Beta | B | Std.Err. of B | t(9) | p-level |
| Intercept | | | 34,19848 | 10,56403 | 3,23726 | 0,010203 |
| ln_FDI Inward of Partner (US $) | -0,369934 | 0,436602 | -0,52681 | 0,62175 | -0,84730 | 0,418788 |
| Oil/gas exporter | 0,380659 | 0,156808 | 2,34861 | 0,96749 | 2,42754 | 0,038136 |
| Goods market efficiency Partner | -0,390441 | 0,100428 | -5,84337 | 1,50302 | -3,88776 | 0,003687 |
| Business sophistication Partner | 0,620645 | 0,154270 | 7,37831 | 1,83399 | 4,02310 | 0,003004 |
| Innovation Partner | -0,281508 | 0,086346 | -2,21348 | 0,67894 | -3,26022 | 0,009835 |
| Geographical Size | 0,664879 | 0,259168 | 4,35106 | 1,69603 | 2,56544 | 0,030415 |
| ln_Distance | -0,331662 | 0,162869 | -1,94239 | 0,95384 | -2,03638 | 0,072187 |
| Technological readiness Partner | 0,189016 | 0,134837 | 1,43367 | 1,02272 | 1,40182 | 0,194503 |

**Table 8. "The analysis of impact of Global competitiveness index (GCI) on the import"**

Compare to The previous regressions we see such changes:

- Dummy Oil/gas exporter make influence on import, but is not so important for export (in the previous regression it`s even insignificant) that`s logically according to the previous facts. Considerable for import is the Geographical Size of country which refer to the Size of the Economy

- The regression shows that inefficiency of goods market stimulates import. This conclusion is argued by the huge intervention of government in the market procedures, for example, in form of Soft Budget constraints (when government supports producers because they manufacture goods for export and create demand that can be different from demand formed by market). But existence of clusters of manufactures with deep business relationship also expedites to import. That`s customary situation as a lot of business in CIS is owned by a few people (also known as oligarchs). The influence of pillar Innovation logically is negative for import, because of it on one hand creates manufacturing, that need some resources that were imported, and on the other hand redirects some investment on R&D.

Below table represents results of influence of GCI on total turnover between Ukraine and its CIS Partner:

| N=18 | Regression Summary for Dependent Variable: ln_Trade turnover $R=,99975239$ $R?=,99950483$ Adjusted $R?=,99859702$ $F(11,6)=1101,0$ $p<,00000$ Std.Error of estimate: ,08200 | | | | | |
|---|---|---|---|---|---|---|
| | Beta | Std.Err. of Beta | B | Std.Err. of B | t(6) | p-level |
| Intercept | | | -139,355 | 29,10771 | -4,78757 | 0,003039 |
| ln_FDI Inward of Partner (US $) | -0,323407 | 0,134904 | -0,318 | 0,13249 | -2,39731 | 0,053490 |
| Market size Partner | 0,678129 | 0,084828 | 1,227 | 0,15346 | 7,99415 | 0,000204 |
| Technological readiness Partner | 0,595178 | 0,081380 | 3,113 | 0,42569 | 7,31355 | 0,000334 |
| Oil/gas exporter | -0,267522 | 0,092302 | -1,138 | 0,39275 | -2,89833 | 0,027394 |
| ln_Population of UKR (mln) | 0,072925 | 0,015129 | 37,926 | 7,86813 | 4,82020 | 0,002939 |
| Labor market efficiency Partner | -0,272383 | 0,070133 | -2,371 | 0,61054 | -3,88382 | 0,008135 |
| Business sophistication Partner | 0,055947 | 0,043678 | 0,459 | 0,35809 | 1,28091 | 0,247505 |
| ln_GDP per capita of partner (PPP) | 0,518981 | 0,123582 | 1,360 | 0,32379 | 4,19950 | 0,005689 |
| Macroeconomy Partner | -0,092498 | 0,047442 | -0,205 | 0,10531 | -1,94971 | 0,099099 |
| Financial market sophistication Partner | -0,083108 | 0,035116 | -0,476 | 0,20104 | -2,36664 | 0,055776 |
| Goods market efficiency Partner | 0,118472 | 0,075946 | 1,223 | 0,78386 | 1,55994 | 0,169792 |

**Table 9. "The analysis of impact of Global competitiveness index on the trade turnover"**

In case of GCI indicators (table 9), market size of partner, his technological readiness and GDP per capita have significant impact of trade turnover between Ukraine and CIS. Indicator "market

size" is similar to GDP, that means the more market size of Partner we have the higher trade turnover exists (higher potential in production capacities and demand). At the same time, technological readiness of partner leads to increasing production capacities, because of new technologies. These technologies are created due to FDI Inward of partner, that stimulate demand on Ukrainian goods (like wheel) and supply of partner's goods.

**Conclusions**

Our analysis showed that fact Ukrainian foreign trade depends on Ukrainian and CIS countries GDP, which creates demand and supply. At the same time only higher level of life of Partner (GDP per capita) increase foreign trade between Ukraine and CIS. Distance and infrastructure is more important for the export is than for import than mean that our goods have higher transportation costs. Foreign and domestic investment creates additional trade turnover as it raise both export and import. Also significant positive influence makes investment freedom of Partner, trade freedom and freedom of business of all CIS countries. But still whole trade turnover positively depends on the Government interventions in market and strict monetary policy. That is why inefficient market goods stimulate import as an innovation spending decreases it. Any exchange rate fluctuations are not significant for export and import, so we can constant absence of "currency war" between Ukraine and CIS.

So we can constant that further improvements in trade relations between Ukraine and CIS countries consist of infrastructure improvements, decrease or liquidation of tariffs and quotas, increase investment freedom and deregulation of business. The role of governments and national banks was important in short-term period and was connected with Keynesian methods of stimulating economy during crisis.

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**Appendix**

Appendix A

| | Regression Summary for Dependent Variable: ln_Export<br>R= ,94506371 R?= ,89314541 Adjusted R?= ,88352850<br>F(9,100)=92,872 p<0,0000 Std.Error of estimate: ,58251 | | | | | |
|---|---|---|---|---|---|---|
| N=110 | Beta | Std.Err.<br>of Beta | B | Std.Err.<br>of B | t(100) | p-level |
| Intercept | | | -66,6771 | 91,49235 | -0,7288 | 0,467845 |
| ln_GDP per capita of Ukraine (PPP) | 0,168318 | 0,175387 | 1,1168 | 1,16375 | 0,9597 | 0,339524 |
| ln_GDP per capita of partner (PPP) | 0,088350 | 0,083097 | 0,1943 | 0,18279 | 1,0632 | 0,290245 |
| ln_Distance | -0,438945 | 0,039691 | -0,9405 | 0,08504 | -11,0590 | 0,000000 |
| ln_Population of UKR (mln) | 0,238063 | 0,274770 | 18,8619 | 21,77022 | 0,8664 | 0,388341 |
| ln_Population of Partner (mln) | 0,313501 | 0,053553 | 0,4938 | 0,08436 | 5,8541 | 0,000000 |
| ln_FDI Outward of UKR (US $) | -0,017097 | 0,135309 | -0,0169 | 0,13401 | -0,1264 | 0,899707 |
| ln_FDI Outward of Partner (US $) | -0,011382 | 0,065331 | -0,0049 | 0,02786 | -0,1742 | 0,862044 |
| ln_FDI Inward of UKR (US $) | 0,333963 | 0,364445 | 0,5844 | 0,63778 | 0,9164 | 0,361682 |
| ln_FDI Inward of Partner (US $) | 0,341165 | 0,116437 | 0,3126 | 0,10667 | 2,9300 | 0,004199 |

**Indicators, which influence on export in the basic model (GDP per capita)**