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EMPIRICAL INVESTIGATIONS OF TRADE POLICY VARIABLES ON ECONOMIC GROWTH ON CIS COUNTRIES SINCE THEIR INDEPENDENCE

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Abstract: *The problems of developing the economy of Kazakhstan are becoming a high priority in terms of governmental thinking, as Kazakhstan goes through a transition phase from a centrally- planned economy towards more of a market- led economy. Various views concerning role of trade policy variables on economic growth in the literature is matched by mixed empirical evidence. On this connection, this study examines estimation the regression equation of trade policy variables and shows how outward- oriented trade policy have been successful in promoting growth for post soviet countries (including Kazakhstan).*

Keywords and Phrases*: Economic growth, Gross Domestic Products, CIS countries, Kazakhstan's economy, correlation & regression analyses, Trade openness.*

Field: *International Economics*

1. INTRODUCTION

In the Soviet Union, all economic operations were subordinated to the central plan and were executed by the corresponding ministers setting obligatory tasks for production and delivery from each nation and associated region. The union republics played a particular role, only in administering enterprises of a few industries, which produced goods for local consumption (Asadov, 2007). Towards the end of the 1980's, the former USSR initiated reforms for the political and economic keystones of society. These reforms were described as "perestroika" which caused chaos and stagnation for the national economy, and at the same time, it caused uncertainty among people in understanding the communist party policy (Nuti, 2010). The idea of "perestroika" was that the economy started developing with commercial practice being implemented since 1988, and this was difficult to accept by the socialist republics. There was a significant economic crisis at the beginning of the 1990s and this encouraged the team of President Gorbachev, to accept the marketing way of development. It required changing the forms of ownership of most industries, in terms of production. By the end of 1980s, the inefficiency and economic distortions generated by central planning had led to a

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deep economic crisis in the republics of the Soviet Union, which brought in its wake, a political crisis in the socialist world and the subsequent appearance of new forces on the world political scene (Asadov, 2007). In 1991, Kazakhstan supplied 42% of consumer goods in its territory, with 58% being imported, and this suggested that Kazakhstan was important in terms of providing commodities to the USSR's economy. Hence, Kazakhstan remains a country with a primary economy i.e. rich in minerals with mining and agriculture at the core. Additionally, during this period of Soviet rule, Kazakhstan became a vast industrial and agrarian region with a focus on being a centre for energy, metallurgy, fuel, chemistry and machine building industries having been created. It is a large producer of 'ferrous and non-ferrous metals, uranium, coal, oil, grain and animal products' (Zardykhan, 2002; Wu and Chen, 2004).

Its enterprises, after Soviet rule which were favorable for developing the whole economy of Kazakhstan, as well as for industrial activities of its separate enterprises, it manufactures a number of commodity based products which considerably predominated the current levels of production. However, the implementation of partial measures did not support the deep and complex economic reforms, and this caused an increasing fall in production levels. Also, it caused the initiation of an inflation mechanism and destabilization at the macroeconomic level. According to opinions of Kolodko (2000), Lockshina (2005) and Nuti (2010) the economic crisis within the former USSR territory had led to the major cause of the political breakup. In December 1991, Kazakhstan declared its' independence from the USSR and the course for denationalization, privatization and constitution of the Republic of Kazakhstan was announced for the first time, which accepted the rights for private ownership. Furthermore, there was a condition which was established for the development of market relations in the economy. However, at that time, Kazakhstan did not have own currency, and this provided an opportunity to create an independent monetary policy, instead of being part of the common monetary system of the USSR. At the same time, a lack of monetary levels was restricting the possibilities of macroeconomic stabilization, and furthermore, preservation of the newly formed sovereign states in the rouble zone, caused problems which impacted on the processes involved in inflation in the economy. Inflation rates in Kazakhstan also started increasing, after Russia in its' sole discretion, created a new rouble in July, 1993. Besides, Kazakhstan was literally "pushed out" from the rouble zone which consequently caused the creation of the Kazakh national currency in November, 1993. Since then, it became the starting point on the way towards independent economic development. Similarly, a shortage of cash and occurrence of cash and cashless costs led to the creation of a national currency in Kazakhstan, where on November 15, 1993, the "Tenge" was put in place (Kenzheguzin, 2001).

An economic slowdown in the country during 1991 to 1995 showed that it was significant in terms of a comparison with the most dramatic depression in world

history, which occurred in the USA. The collapse of interstate trading and expansionary demand management policies, by the opinion of Akimov & Dollery (2008), resulted in high inflation and decreased economic intensiveness. A soft monetary policy and liberalization of prices were used as incentives to increase prices to the level of world prices. As a result, it led to hyper inflation which comprised of 3,060% and this happened in 1992. Through the activities of the National Bank of Kazakhstan, a tough monetary policy was introduced during the subsequent seventeen years, whereby the level of inflation was successfully reduced and stabilized. According to Pomfret (2007), in 1996-1997 Kazakhstan's economy began to grow, but it was hardhit by the 1998 Russian crisis (Pomfert, 2007 p. 326). The lowest value of inflation was marked in 1998 at 5.9%. In comparison with many of the other transition economies, the level of inflation in Kazakhstan has remained relatively low between 1998 until 2007. However, the inflation level started growing during the last few years and reached 9.5% in 2008. Currently, in 2010, inflation in Kazakhstan sits around 8.4% (Smailov, 2010).

The collapse was caused by the breakdown of the USSR, by divergence from a centrally planned economy, via a collapse of economic ties, and this was followed by a rapid decrease of both export and import levels. At the same time, there was a reduction in trade levels inside the CIS countries to approximately 83%-84% (Frienkman *et al.*, 2004). Then, as mentioned by Mogilevski &Tochitskaya (2005), the foreign trade conditions started improving in 1993, when during the period of 1993-1997, export of CIS countries had increased to 54%, and the import rate increased to 64%. Consequently, in examining the foreign trade turnover, it is noted that it was growing faster in Belarus and Kazakhstan - ahead of most other countries of CIS. Indeed, in Georgia, Azerbaijan and Armenia, the process of recovering export-import flows was happening rather slower than in other countries in the region (Popov, 2000). Nevertheless, the Russian crisis in 1998 caused another drop in the foreign trade of CIS countries. The rate of transnational circulation of commodities had rapidly reduced, and export flows had been reoriented outside of the region. In examining the trade flows of Kazakhstan, these show that during the analysis of the econometric model of the CIS - it is important to examine the dynamics of development by separating periods into two subgroups (1992-1998 and 1999-2006) and then, to look at this within the context of one period from 1992 to 2006. Mogilevski and Tochitskaya (2005) showed that trade with other countries became more dominant for most CIS countries except Belarus, Uzbekistan and Moldova. Such a tendency was especially noticed in exports. Additionally, in countries such as Armenia, Azerbaijan, Russia and Tajikistan, the export rate inside CIS countries comprise of 16%-17% and for Kazakhstan, Ukraine and Turkmenistan the levels of exports reached between 22%-30% in 2003.

Shishkov (2007). He notices that, in 1990 interrepublic trade amounted to about 60% of total exports. However, by 1995 this share reduced to 29.8%, in 2000 to 20%

and in 2004 this indicator comprised of 17.7%. In this connection, the author concludes that after proclaiming of independence, all post soviet countries' trade rapidly decreased as a result, the interrepublic turnover was reduced as well. The main reason of trade reducing in CIS countries was liquidation of centralized resource delivering system and new independent trade policy of the CIS states. According to Wagener and van Selm (1993), this process was intensified additionally by spontaneous erection of various types of trade barriers among the former republics of the USSR. The growth of transaction costs and trade risks; the poor acting of trade account- settlement systems and also unpredictable inflation rates in the rouble area led to the loss of potential markets.

The geographical structure of imports has also experienced changes in reducing the specific weight of CIS countries with an increasing of European Union proportion and other countries. This is mentioned during the analysis of foreign trade of Kazakhstan in the chapter seven. Moreover, the process of reorientation of import flows was occurring with slower speed in comparison with export flows. Also, the specific density of intra-regional imports into Kazakhstan and Ukraine was close to 50% while in Kyrgyzstan, Tajikistan, Turkmenistan and Belorussia, the percentage level was higher in 2003.

Besides, it is interesting to consider the vulnerability and dependence of CIS markets from the Russian market. For example in 2003, almost 90% of exports from Belarus, 72% from Moldova, Ukraine and Armenia and from 35% to 50% of export of other countries were sent to Russia (Mogilevski & Tochitskaya, 2005). Indeed, Russian Federation has been the main trade partner for all former Soviet Union states. As analysis of these investigation shows of current study, it is important to note, that Russia has taken place the same position for Kazakhstan's economy.

In summarizing the above, Mogilevski and Tochitskaya (2005) stated that the main reason which is slowing down intra-regional trade is a high concentration of exports and imports which mostly consists of mineral products, ferrous metals, and chemical industry products. For example, the export rate in Russia is 64.8 % including the above mentioned goods, in Ukraine - 63.2%, in Tajikistan-67.3%, and in Kazakhstan it reached 45% in 2005. From all of these analyses, the author concludes that Kazakhstan's focus for greater trade switched from CIS areas to the EU and other countries since gaining independence and in this case would be suitable more deeply investigate the trade policy of CIS countries and their impact on economic growth since independence.

2. LITERATURE REVIEW

Various views concerning role of exports in the literature is matched by mixed empirical evidence. Some empirical investigations on the area of exports and

growth links explained by Edwards (1993); Gilies and Williams (2000); Jin (2002). So, Jin (2002) suggests that "most studies regarding exports' role have been focused on developing economies" (Jin, 2002). Among 37 developing countries, Jung and Marshall (1985) used the Granger test to evaluate a relationship between export and growth. However, there was no strong evidence to support the "export- led growth" hypothesis. In addition, Awokuse (2007) reviewed the causal relationship between trade and economic growth for Bulgaria, Czech Republic, and Poland. He specified an extended production function which tests the effects of both exports and imports on economic growth. He also established empirical results by using a time series model, based on vector error correction models. This indicated a bi-directional causal relationship between export and growth in Bulgaria and causality from imports to economic growth in the Czech Republic and Poland. His extended production function including both exports and imports were expressed as: Y=F [(K, L); X, M].

Here, Y represents real GDP growth; K, L, X and M represent real gross capital, labor, real exports and real imports respectively. The dataset was obtained from the International Monetary Fund Database, and the time series properties of the data were studied by means of two unit-root tests with the results implying the possibility of co-integrating relationships. The result of Granger's causality test, based on the error correction model, provides the following results: case of Bulgaria and Czech Republic, the empirical result of export led growth hypothesis is supported by the data at the 5% level of significance. In comparison, only the import led growth hypothesis is supported by the Polish data. Consequently, the results of this study indicate that the exclusion of imports and the concentration of the past studies only on the role of exports as the engine of growth might turn out as misleading or incomplete.

Vohra (2001) investigated the relationship between export expansion and economic performance, and as a result, the role of exports in terms of economic growth, provides additional statistical evidence for the five Asian countries of: India, Malaysia, Pakistan, Philippines and Thailand, on the basis of time series data from 1973 to 1993. These countries were divided into two groups. India and Pakistan being low- income economies based on the GNP per capita of $695(US dollars) or less in 1993, whereas Malaysia, Philippines, and Thailand were seen as middle income economies with GNP per capita more than $695 but less than $8,696 in 1993 (World Bank, 1995). Additionally, the author used the model among the relationships of real output and labor, capital and exports. In this particular equation instead of the rate of capital of growth for countries he replaced by dK/Y, which approximates the investment-income ratio. By adding a constant and stochastic term he had rewritten the equitation which finally became, $y = \epsilon_0+\epsilon_1 n+\epsilon_2(I/Y)+\epsilon_3 x+e$,

Here, ϵ_1 and ϵ_3 denote elasticity of output with respect to labor and export and β_2 is the marginal product of capital. Even though the regression coefficient of

export varies across countries, they have the correct signs and are significant for most of the samples. The regression *F*- statistics are significant at the 5% level in the middle income group. It seems reasonable to conclude that the export- growth connection holds in the middle – income group. At the same time, he referred to the existing literature with a positive and significant coefficient of the growth rate of export, which indicated the positive influence of export expansion on economic growth. Furthermore, the empirical result of his investigations showed that exports have a positive and significant impact on economic growth especially in the middle-income group when the country has achieved a specific level of economic development.

Moreover, the empirical results signify the importance of pursuing liberal and free market policies as in Malaysia, Philippines, and Thailand, by performing assertive export expansion strategies and by attracting foreign investments. This serves as a challenge to less-developed countries such as India and Pakistan, particularly when considering that they need to avoid applying restrictive and regulatory policy measures which may negatively impact on their economic growth. In comparison with the previous studies, Onafowora and Owoye (1998) used the country-specific approach for checking the quantitative aspects of the correlation among real production growth, trade policies and investments rate in 12 SSA countries. The significance of both export and trade policies manifest the influence of export earnings and trade orientations on actual output growth rates.

There are several methods of testing the co-integrating relations in the literature where the methods of Johansen (1988), Johansen and Juselius (1990) were used. Their maximum probability testing procedure was found as the most efficient, as it determined the number of co-integrating vectors between the non-stationary level variables in the context of vector error-correction model (VECM). It is a fact that this is a vector auto regression model (VAR) in the form of error correction. Furthermore, the methods given by Johansen are being used for the evaluation of co-integrating relation among real output, trade policies, exports and investments in 12 SSA countries. Moreover, Onafowora and Owoye (1998) analyzed in great detail, the belief that the rapid growth of export increases the economic progress in developing countries. Studies by Balassa (1985), Ram (1985), Ram (1987), Bhagwati (1988), Greenaway and Nam (1988), Alam (1991) and Salvatore and Hatcher (1992) discovered a positive connection between exports and economic growth for some developing countries and regions. They studied the effects of trade policies, exports and investment rates on economic growth in 12 Sub-Saharan African countries over the period from 1963-1993. Those studies showed that trade policy, exports and investment rates significantly influence the real output growth in 10 of 12 countries. This signifies that it is possible to stimulate economic growth in SSA countries by means of strategies oriented towards foreign relations. Consequently, a positive link between export growth and real output growth is

taken as characteristics of benefits from export-oriented policies for economic growth. Onafowora and Owoye also investigated the studies of Little et al (1970), Michalopoulos and Jay (1973), Krueger (1978), Feder (1985), Kavoussi (1984), Balassa (1985), Ram (1987) and Singer and Gray (1988) which used a tool for production growth in different developing countries and regions. Hence, export growth can promote economic progress, and recently, studies of export-growth connection in developing countries used the growth rate of exports as substitutes for trade policy. However, Michaely (1977), Bhagwati (1988) and Sheehey (1993a) suggested that such approaches towards trade policy and real output growth may remain undetermined. Furthermore, Onafowora and Owoye used much more direct measures of trade policy generated by the World Bank, in order to understand the short-term dynamics and long-term relations between trade orientations, growth rates of exports, and investment and real output growth in 12 SSA countries over the periods of 1963-93. Based on Johansen's maximum likelihood tests, it was concluded that the variables were causally linked in the longer-term period. Upon using variance decomposition within the VECM, it was determined that the changes in trade policy and exports had a positive and long lasting affects on output of economy in 10 of the 12 SSA countries. The given close relationship among growth rates of real output, trade policy, exports and investments consider that there is a possibility to stimulate real economic growth in sub-Saharan countries by means of a foreign oriented strategy of export expansion. What is more important is that, the close investigations showed the importance of export expansion and foreign oriented trade policy in the improvement of economic growth. Also, these studies suggest for the SSA countries, that there is an importance of promoting trade liberalization policies in order to improve the economic growth in the current world economy.

3. METHODOLOGY AND DATA

The sample frame of this current study includes the data of twelve countries of the former Soviet Union, and during cluster analysis have been added five countries with a transition economy to these twelve SIC countries. Various analyses have been conducted in extant research, and this study has provided pooled data. According to Halcoussis (2004), pooled data includes both cross-section and time series data together. He also emphasizes that if data sets contain observations from the same countries over time, then pooled data are termed panel data. For the purposes of this current study, the sample frame will consist of appropriately selected data of twelve post-Soviet countries, namely the Commonwealth of Independent States (CIS): Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Belarus, Moldova, Russia and Ukraine for the periods of 1992-2006.

In order to avoid a problem with the existence of partial correlation between independent variables the study attempted to reduce the number of variables and

take only two independent variables such as Government consumption expenditure and Export shares in GDP and dependant variable is Gross domestic product growth rate. Also, some of these variables can have an effect not exactly in the current year. For instance, spending the government consumption expenditure in this year can affect the economic development in the future period, which shows a delayed effect to any dependent variable. On this case, the study hypothesized that the positive influence on GDP of lagged exports for the period of 1999-2006 in comparison with 1993-1998 associates with the change of trade policies as a more outward- oriented in CIS countries (including Kazakhstani case) on the second considering period. Consequently, the general regression model for current investigation is follow:

$$Y \text{ or } GDP \text{ growth} = f(GCE, EXP) \tag{1.1}$$

where, *GDP*- gross domestic product rate;

GCE- government consumption expenditure share in GDP;

EXP- export share in GDP

In addition, the study attempted to analyze the current data through running 12 separate time series regressions, one for each country as follow:

$$(1)\quad GDP\ growth\ (Armenia) = \alpha_0 + \alpha_1 GCE + \alpha_2 EXP + e; \tag{1.2}$$

$$(2)\quad GDP\ growth\ (Azerbaijan) = \alpha_3 + \alpha_4 GCE + \alpha_5 EXP + e; \tag{1.3}$$

$$(3)\quad GDP\ growth\ (Georgia) = \alpha_6 + \alpha_7 GCE + \alpha_8 EXP + e; \tag{1.4}$$

$$(4)\quad GDP\ growth\ (Kazakhstan) = \alpha_9 + \alpha_{10} GCE + \alpha_{11} EXP + e; \tag{1.5}$$

$$(5)\quad GDP\ growth\ (Kyrgyzstan) = \alpha_{12} + \alpha_{13} GCE + \alpha_{14} EXP + e; \tag{1.6}$$

$$(6)\quad GDP\ growth\ (Tajikistan) = \alpha_{15} + \alpha_{16} GCE + \alpha_{17} EXP + e; \tag{1.7}$$

$$(7)\quad GDP\ growth\ (Turkmenistan) = \alpha_{18} + \alpha_{19} GCE + \alpha_{20} EXP + e; \tag{1.8}$$

$$(8)\quad GDP\ growth\ (Uzbekistan) = \alpha_{21} + \alpha_{22} GCE + \alpha_{23} EXP + e; \tag{1.9}$$

$$(9)\quad GDP\ growth\ (Belarus) = \alpha_{24} + \alpha_{25} GCE + \alpha_{26} EXP + e; \tag{1.10}$$

$$(10)\quad GDP\ growth\ (Moldova) = \alpha_{27} + \alpha_{28} GCE + \alpha_{29} EXP + e; \tag{1.11}$$

$$(11)\quad GDP\ growth\ (Russia) = \alpha_{30} + \alpha_{31} GCE + \alpha_{32} EXP + e; \tag{1.12}$$

$$(12)\quad GDP\ growth\ (Ukraine) = \alpha_{33} + \alpha_{34} GCE + \alpha_{35} EXP + e. \tag{1.13}$$

In Equations (1.2) through (1.13), the coefficients have all been given different subscripts to show that they can have different values. For instance, in Equation (1.5) is β_9, not β_{30} as it is in Equation (1.12). Consequently, in Equations (1.3) is α_3 not α_{18} as it is in Equation (1.8). All of these manifest that the intercepts can be different in each equation. The same is true with the slope coefficient. So, its coefficient for GCE has a different subscript in each equation to show that the slope coefficient can be different for each regression. The coefficients can be varied across space (across countries) since we have set up a different regression for

each country, but the coefficient remain the same across time. Also, it should be borne in mind that each regression has its own error term *e* that has nothing to do with the error terms from the other regressions. As a result, for given regression equations for 12 considering countries, the study can write each regression a sample size of 14 (there are 14 years of lagged data for each country, and each country is considered separately). Also, by estimating the regressions separately, there is a supposition that the twelve countries have nothing to do with one another.

In terms of this current study, we suppose that if the null hypothesis is true, then the dependent variable such as GDP growth rate in relation to all considering variables for the periods of 1999-2006 seems the same with the periods of 1992-1998. So, there is a clear structural change in the economy associated with outward-orientation strategy for CIS countries (including Kazakhstan's economy).

The study also undertook an issue concerning a particular country which does not affect the others and vice versa. Additionally, according to Sarkar (2008), increasing trade openness often reflects the success of the trade liberalization policies. In that case, the study used trade (export plus import) as a percentage of GDP (TD) as a measure of trade openness.

$$Y \text{ or } GDPPP=f(TD) \tag{1.14}$$

where, GDP PP- Gross domestic product per capita;

TD- export and imports shares in GDP;

The relevant data are collected from the United Nations Indicators published by the United Nations Conference on Trade and Development online database. Based on the availability of data, a chosen sample was selected of twelve transition economies of the Commonwealth of Independent Space countries for the periods of 1992-2008. In addition, it was hypothesized that increasing trade openness is directly related to the outcome of trade policies for Kazakhstan and other CIS countries for periods of time 1992-2008.

4. EMPIRICAL RESULTS

4.1. Economic Growth and Trade Policy Variables

Current analysis was conducted to understand the positive influence on GDP of lagged exports for the period of 1999- 2006 in comparison with 1993-1998 associates with the change of trade policies as a more outward-oriented in CIS countries (including Kazakhstani case) on the second considering period. The results of three regressions for the periods (a) 1993-1998, (b) 1998-2006, and (c) 1993-2006 are summarized in table 1.

Table 1
Exports, GCE & Growth in CIS: 1993-2006

	Eq.(a):1993-2006	*Eq.(b):1993-1998*	*Eq.(c): 1999-2006*
Dependent variable	GDP growth	GDP growth	GDP growth
Constant	12.227(4.927)	-5.362(-1.372)	10.854(5.055)
EXP	-056(-2.059)	-092(-2.716)	.043(1.755)
GCE	-.831(-4.695)	-.063(-.257)	-.430(-2.597)
R^2	.141	.102	.134
RSS	17683.94	8743.03	1749.332
Df	165	69	93

(Figures in parentheses are t values)
Source: Author's Estimate of Results of Analyzed Data

Furthermore, comparing the results of Equation 2 with Equation 3, it is noticeable that the coefficients for the periods of 1993-1998, differ from the periods of 1999-2006. This change was tested using the Chow test. The observed F value for this test is 56.54[1]. This result was generated by adding the two residual sums of squared (RSS) of equation (b) and (c), it was deduced that the gaining results from RSS of equation (a) and used the formula for F value under Chow test (Agalewatte, 2004). The critical $F_{2,165}$ (at 1% level) is 4.61. Since the observed F significance is 56.54 (also this result can be tested by another way, since the F-test is equal to 13.52 higher than $F_{2,165}$ (at 1% level) is 4.61). The propositions that the influence on GDP of lagged exports for the periods of 1999- 2006 and 1992-1998 is the same in CIS countries (including Kazakhstani case) were rejected.

Thus, the given test encourages the positive influence on GDP of lagged exports for the period of 1999- 2006 in comparison with 1993- 1998 associates with the change of trade policies as a more outward- oriented in CIS countries (including Kazakhstani case) on the second considering period. Hence, foreign trade policies of transition economies were changed from centrally planned system towards to liberalizing of trade. With regards to the Tajikistan economy, Pomfret (2007b) points out that, since 1997 government policy seems to be fairly liberal. The government of Tajikistan has largely followed to the international financial institutions' policy recommendations. Particularly, according to Akimov and Dollery (2008) in this period of time Kazakhstan achieved substantial trade liberalization, following the abolition of all export quotas and the elimination of most export and import licenses. Also the other countries of former Soviet Union exhibited the reorientation of foreign trade from CIS states to other far abroad, especially to Europe Union countries. So, according to Shishkov (2007) in 2005 Kazakhstan's trade with the EU was 3.3 times greater, than Russia, Armenia's -3.8; Tajikistan's -5.4; and Azerbaijan's 6.8 times greater than with the Russian Federation. This is evidence for the altering of trade policies towards greater liberalization.

This finding also demonstrates the export coefficients for considering two periods 1993-1998 and 1999-2006 which respectively produced results of -.092 and .043. Consequently the elasticity of GDP growth regarding to exports for CIS countries in the periods of 1993-1998 and 1999-2006 are equal to -.092 and .043 respectively. These findings suggest that the period of 1993-1998 had a relatively negative elasticity of coefficients than the next period of time for Commonwealth of Independent States. Furthermore, the study analyzed the correlation coefficients and regression equations for twelve countries separately, using lagged variables for economic growth rate, and the results are presented in the table 2. On considering Kazakhstan's EXP coefficient which comprised of 0.22 it can be concluded that export shares in GDP growth of 1% leads to GDP growth with 0.22%. Consequently, the elasticity of GDP growth regarding exports is equal to 0.22.

Notably, Russian export growth coefficient is 0.03 (for the same period) which suggests that the export shares in GDP growth of 1%, leads to an increase in GDP growth to 0.03% and the elasticity of GDP growth regarding exports is equal to 0.03. Similarly, such conclusions can be suggested for other countries in the sample.

In examining the results of table 2, correlation and regression analyses have 14 observations for each country, and in order to avoid a problem with partial correlation between independent variables, the number of variables was reduced. Also, the two independent variables of export growth rate and government consumption expenditure share in GDP were considered. In the capacity of dependent variable, the gross domestic product growth rate was taken as in the previous analyses, furthermore, it was hypothesized that lagged export share in GDP had significantly explained GDP growth for the Commonwealth of Independent States (including Kazakhstani case) and trade policy was changed for the years under consideration in each country. The null and alternative hypotheses were as follows:

$$H_0: B_1 = B_2 = B_3 = \ldots. = B_k = 0$$

H_A: At least one of these B's is not zero

With this in mind, if the null hypothesis is true, then the influence on GDP of lagged exports for the periods of 1999-2006 and 1992- 1998 is the same in CIS countries (including Kazakhstani case). Also, in terms of trade policy, this has been unaffected for these periods of time for CIS countries. On another note, with regards to the current case for Kazakhstan's economy, the F-statistic for the model was calculated at 4.596 and there are 2 degrees of freedom in the numerator and 11 in the denominator.

From the table of F distribution a critical value for $F_{2, 11}$ is 3.98 at 5% significance level. Here, the F- statistic from the regression results is 4.596, which is greater than its critical value of 3.98 then the null hypothesis is rejected at the 5 %

Table 2
Regression Analysis Results, 1993-2006[2] for each Observing Country with Lagged Variables

	Country	*Regression equation*	*Model summary*
1	Armenia	56.88- 0.116EXP-5.145GCE (10.33) (-2.24) (-8.52)	R^2=.931 Adjusted R^2=.919 RSS = 2461.048
2	Azerbaijan	21.86+0.173EXP-1.913GCE (3.67) (2.12) (-4.68)	R^2 = .702 Adjusted R^2 = .648 RSS = 2085.347
3	Georgia	-60.73+0.111EXP+7.166GCE (-4.54) (.69) (4.42)	R^2 = .654 Adjusted R^2=.592 RSS=2304.310
4	Kazakhstan	35.76+0.22EXP-3.372GCE (3.09) (0.43) (-2.93)	R^2 = .455 Adjusted R^2 = .356 RSS = 399.969
5	Kyrgyzstan	51.68-0.195EXP-3.303GCE (4.24) (-1.58) (-4.22)	R^2 = .648 Adjusted R^2 = .584 RSS = 749.664
6	Tajikistan	10.84-0.69EXP-0.986GCE (.92) (-0.79) (-0.79)	R^2 = .337 Adjusted R^2 = .216 RSS = 757.406
7	Turkmenistan	-4.42-0.121EXP+0.62GCE (-.28) (-1.14) (0.40)	R^2 = .162 Adjusted R^2 = .009 RSS = 236.147
8	Uzbekistan	22.65-0.024EXP-1.23GCE (7.43) (-1.02) (-6.73)	R^2 = .821 Adjusted R^2 = .788 RSS = 288.225
9	Belarus	73.14-0.035EXP-4.178GCE (4.63) (-0.72) (-4.46)	R^2 = .660 Adjusted R^2 = .598 RSS = 593.192
10	Moldova	12.83-0.35EXP-0.925GCE (1.10) (-0.17) (-1.38)	R^2 = .152 Adjusted R^2 = .002 RSS = 309.281
11	Russia	29.61+0.03EXP-2.02GCE (3.51) (0.38) (-3.68)	R^2 = .555 Adjusted R^2 = .474 RSS = 466.400
12	Ukraine	39.98+0.003EXP-2.50GCE (-3.75) (0.03) (-4.01)	R^2 = .610 Adjusted R^2 = .539 RSS = 581.478

Source: Author's estimates by using SPSS software

significance level. Consequently, as the observed F value is 4.596, which is above the critical value, the hypothesis that the relationship between GDP growth and analyzing variables for the periods 1993-2006 is the same for Kazakhstan and it is rejected.

In addition, it is appropriate to test this null hypothesis that the influence on GDP of lagged exports for the periods of 1999- 2006 and 1992- 1998 is the same- for the Russian economy. The results of the analysis show that the F-statistic for the model is 6.852 and there are 2 degrees of freedom in the numerator and 11 in the denominator. From the results, it can be seen that the above, that a critical value for $F_{2, 11}$ at 5% significance level is 3.98, and the F-statistic exceeds the above critical value, so the hypothesis that the relationship between GDP growth and analyzing variables for the periods 1993- 2006 is the same for Russia is rejected.

Such evaluation can be undertaken for all countries in the sample of Commonwealth of Independent States. So, almost all these countries have 2 degrees of freedom in the numerator and 11 in the denominator. Consequently, the critical value for $F_{2, 11}$ at 5% significance level is comprised of 3.98. Furthermore, the F-statistic of Armenia is equal to 74.274, Azerbaijan -12.952; Georgia -10.413; Kyrgyzstan -10.107; Uzbekistan -25.221; Belarus -10.681and Ukraine -8.608. Therefore, it can be gleaned from these results that the hypothesis that the relationship between GDP growth and analyzing variables for the periods is the same for these countries and it is rejected.

According to these rejections the author states the positive influence on GDP of lagged exports for the period of 1999- 2006 in comparison with 1993- 1998 associates with the change of trade policies as a more outward- oriented in CIS countries (including Kazakhstani case) on the second considering period.

4.2. Trade Openness and Growth

The study attempted to run another overall correlation and regression analysis for the periods of 1992-2008 in order to estimate the regression equation of trade policy variables and show that outward- oriented trade policies have been successful in promoting growth for CIS countries, including Kazakhstan and for the testing of study hypothesis.

Trade was used (export plus imports) as a percentage of GDP as a measure of trade openness (see study methodology section). The link between trade openness in trade policy and economic growth remains debatable, however Rodriguez & Rodrik (2000) found little conclusive evidence that open trade policy in the sense of lower tariff and non- tariff barriers to trade is emphatically related with economic growth. Although many scholars such as Krueger (1978), Harrison (1996), Yanikkaya (2003), Wang *et al.* (2004), Chang *et al.* (2009) suggest that open economies tend to grow more rapidly than closed economies. In this connection, empirical findings of Sachs & Warner (1995) suggested that countries with open door policies grew by 4.5% a year in the 1970-1980s while relatively closed economies grew by only 0.7% a year. In this case it would be interesting to estimate the link between trade openness variables (export and import share in GDP) and economic growth

in CIS countries. Against this backdrop, there is a supposition that if the null hypothesis is true, then the dependent variable of real GDP per capita in relation to trade openness variables for the periods of 1992-1998 would be the same with the periods of 1999-2008. Also, the trade policy was not changed for these periods of time. When as an alternative hypothesis it is supposed that, increasing trade openness is directly related to the successful outcome of trade policies for Kazakhstan and other CIS countries.

In order to consider this hypothesis the sample was divided into two study periods (a) 1992-1998, (b) 1999-2008 – plus - the overall period was taken, 1992-2008. Firstly, a correlation analysis for the above mentioned periods of time for twelve CIS countries was conducted, where the dependent variable was real GDP per capita and the independent variable was trade openness (export and imports) for CIS countries. The results of this analysis are summarized in table 3.

Table 3
Correlation Analysis of CIS Countries for the Periods of 1992-2008

	Eq. (a) 1992-1998 (GDP PP)	*Eq.(b) 1999-2008 (GDP PP)*	*Eq.(c) 1992-2008 (GDP PP)*
Pearson correlation, TD (exp+imp)	.325**	.355**	.584**
Kendall's tau_b, TD (exp+imp)	.218**	.329**	.466**
Spearman's rho, TD (exp+imp)	.320**	.469**	.637**
N	84	120	204

** Correlation is significant at the 0.01 level (2-tailed)
Source: Author Generated from Data

In examining the results of the correlation analyses in table of 3, it can be concluded that correlation coefficients between trade openness indicators and real GDP per capita comparing two periods of time, increase from the weak to a moderate relationship (base on the table 4.8) and comprised of 0.320** (1992-1998) and 0.469**(1999-2008) respectively. Consequently, the overall correlation coefficient for the period of 1992-2008 is 0.637** which according to Salkind (2008) demonstrates a strong relationship between analyzing variables. Moreover, the general regression model for the variables (trade openness and GDP per capita for CIS countries) for period of 1992-2008 has been written in the following equation:

$$Y = a_0 + a_1 TD_t, \text{ where}$$

Y- real GDP per capita,

TD- real trade openness (export + import) share in GDP

and subscript *t*- denotes the current values of the variables

In terms of this equation conclusions can be drawn that trade openness growth with 1% leads to growth of GDP per capita to 0.2% and the elasticity of GDP per capita growth regarding trade openness variables is equal to 0.20. In addition, the results of three regressions for the periods (a) 1992-1998, (b) 1998-2006 and (c) 1992-2008 are summarized in the table 4 below.

Table 4
Trade Openness Indicators (exp+imp) & GDP growth in CIS: 1992-2008

	Eq. (a) 1992-2008	*Eq. (b) 1992-1998*	*Eq.(c) 1999-2008*
Dependent variable	GDP growth	GDP growth	GDP growth
Constant	-12.938	-13.560	1.190
	(-8.295)	(-5.465)	(.735)
TD (exp+imp)	.202	.136	.073
	(10.235)	(3.112)	(4.129)
R^2	.342	.106	.126
RSS	16024.037	10034.832	2426.227
Df	202(1)	82(1)	118(1)
N	203	83	119

Figures in parenthesis are t-values
Source: Author's estimates by using SPSS software

In relation to table 4, trade openness (export plus imports) coefficients for the two periods 1992-1998 and 1999-2008 comprise of 0.136 and 0.073 respectively. Consequently the elasticity of real GDP per capita growth regarding trade openness variables, are equal to 0.136 and 0.073 respectively. This can be interpreted where throughout the period 1992-1998, the coefficients were more elastic than the next period of time, although from earlier, the correlation coefficient of the periods of 1999-2008 was higher, at 0.469** (the Spearman's rho correlation coefficient) against 0.320** during the overall period (1992-1998). In addition, by Pallant (2007) the significance of coefficients of variables less than 0.05 makes a significant unique contribution to the prediction of the dependent variable. Therefore, according to the current model's equations the Significance value for the considering periods of time 1992-1998; 1999-2008 and for the overall analyzing period are .000; 003 and .000 respectively. Furthermore, comparing the results of Eq. 2 and Eq. 3, conclusions suggest that the coefficient for the period of 1992-1998 differs from the period of 1999-2008, where this change was tested using Chow test, and this analysis produced an F-value of 6.76[3].

Hence, the critical $F_{1,202}$ (at 1% level) consists of a value of 6.76 since the observed F-significance was 57.7 and consequently, the hypothesis that the relationship between GDP growth and trade openness for the two periods is the same for the Commonwealth of Independent States (including Kazakhstani case) is rejected.

Therefore, the given test supports the suggestion that an increasing of trade openness relates to the outcome of trade policies for Kazakhstan and other CIS countries.

Furthermore, it would be appropriate to examine the given results from another perspective. Here, from the F-distribution, a critical value for $F_{1,202}$= 6.76 at 1% significance level can be seen, since F-statistic from the regression results consists of 104.758 for the general regression for the periods of 1992-2008, and this was greater than its critical value of 6.76. According to these results, the null hypothesis is rejected at a 1% significance level. Consequently the observed F-value of 104.8 exists above the critical value and so the hypothesis that the relationship between GDP growth and trade openness variables (export plus imports) for the considering periods is the same - can be rejected. Moreover, according to the estimating model's equations, there are significant positive correlation between trade shares and GDP per capita for CIS countries (including Kazakhstan's case). However, this study observed that various measures of trade barriers undertaken in CIS countries since independence are positively associated with growth of GDP per capita in CIS countries (including Kazakhstan's case). In this connection, the outward oriented trade policy according to Sarkar's (2008) opinion is more successful in promoting growth than inward- oriented trade policies. Furthermore Sarkar highlights that, "the East Asian Miracle" was often shown as a success of free trade and export-oriented policies"(Sarkar, 2008 p. 766).

Therefore, the author can state that increasing trade openness is directly related to the successful outcome of trade policies for Kazakhstan and other CIS countries.

5. SUMMARY & CONCLUSIONS

This paper analyzes several models of economic growth. First, the empirical evidence suggests that that the relationship between GDP growth and analyzing variables for the periods 1993- 2006 is the same for Kazakhstan and it is rejected. Therefore, it can be gleaned from these results that the hypothesis that the relationship between GDP growth and analyzing variables for the periods is the same for these countries and it is rejected. According to these rejections the author states the positive influence on GDP of lagged exports for the period of 1999- 2006 in comparison with 1993- 1998 associates with the change of trade policies as a more outward- oriented in CIS countries (including Kazakhstani case) on the second considering period.

Next, then the dependent variable of real GDP per capita in relation to trade openness variables for the periods of 1992-1998 would be the same with the periods

of 1999-2008. Also, the trade policy was not changed for these periods of time. When as an alternative hypothesis it is supposed that, increasing trade openness is directly related to the successful outcome of trade policies for Kazakhstan and other CIS countries. Results of the study rejected this hypothesis, and according to this, increasing trade openness directly related to the successful outcome of trade policies for Kazakhstan and other CIS countries.

In order to determine that outward–oriented trade policies have been more successful in promoting growth for CIS countries, including Kazakhstan the author observed that, the results of this analysis showed that trade openness variables (export and import) have positive contribution to the growth as was discussed in above sections.

NOTES

1. Using data in the table 1 above, F value is computed as follows: S4 = (S2+S3) = 10492.36; S5 = (S1-S4) =7191.58. Also according to the formula for F value: F= (S5/2)/ (S4/165) = 56.54.
2. The figures in parentheses are t-statistics.
3. F value was computed according to Agalewatte (2004) through using the Chow test. S4 = (S2+S3) = 12461.139; S5 = (S1-S4) = 3562.998. Also according to the formula for the F value: F=(S5/1)/(S4/202)= 57.7.

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