

## Impact of Integration on Economic Growth in the Case of EurAsEC

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**Abstract:** The article analyzes the efficiency of economic integration through impact on socio-economic development. To carry out social development analysis in terms of integration unionwidened the measure of welfare, aggregating different aspects of the countries' socioeconomic development into a single index. The next way to measure the efficiency of economic integration is using the S Time distance analysis.

**Key words:** Economic integration • Growth • Eurasian economic community • Trade openness • Index of socioeconomic development • S Time distance analysis

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### INTRODUCTION

Economists have generally devoted their attention to the growth effects of economic integration. There are ongoing debates about criteria for successful integration and the relationships between membership in integration blocks and subsequent sustainable development. Russian and Kazakhstani papers study integration through different criteria. Thus, effectiveness of integration is seen through the high economic growth, while reducing the cost of inputs due to optimal utilization and increase the production. The intensity of the integration of relations is based on such indicators as the share of exports relative to the total volume of exports, the commodity structure of mutual exports, indicating the extent of specialization and cooperation, the absolute and relative values of the reciprocal and direct investment.

The link between trade integration and economic growth has been emphasized by several authors as Edwards, Frenkel and Romer, Dollar and Kraay [1,2,3]. First of all, technological change would be positively correlated with country's openness. In fact, "globalized" countries can either learn more quickly how to produce new inputs or can import them at lower costs increasing total factor productivity, human capital accumulation and overall national technological capacity. However, other authors do not pay much attention to the role and direction of causality between trade and growth [4]. The

empirical evidence from the East Asian Newly Industrializing economies, revealed that the adoption by governments of high level of trade protection and interventionist industrial policies promoted growth through investment and technological learning. Trade protection could raise long-run growth according to the old infant industry argument if protection is accompanied by strong incentives and policies to enhance factor accumulation and investment in research and innovation.

We identified many articles related to the topic published by Montalbano [5,6]. The basic concept was to measure the relationship between trade liberalization and socio-economic vulnerability. The result was that shock to trade openness directly reduced the resources available for private investment and consumption. The key point was that socio-economic well-being was worsening because of trade shocks that occurred at the beginning of the transition era, when observed countries were facing huge institutional and economic liberalization. Economists outline those countries with weak institutions and imperfect and incomplete internal market risk as being worse off from international competition and globalization [7]. Federici *et al.*, noticed that the focus was to develop options and strategies to help developing countries capture benefits of trade integration minimizing the risk of negative shocks [8].

Montalbano proved that the issue of trade openness in terms of economic crises was becoming more crucial, because openness raised vulnerability to foreign shocks.

The author provided several explanations to support the statement: “the notion that a weakening in a country’s export performance can trigger a sudden stop in capital flows; the evidence that sudden stops in finance often extended to a loss in trade credit and that the resulting shrinkage in trade was more painful if trade represents a larger share of the economy; the empirical consideration that trade openness and financial openness go hand in hand in good and bad occurrences” [9].

To carry out our social development analysis in terms of integration union we widened our measure of welfare, aggregating different aspects of the countries’ socioeconomic development into a single index. The idea of single index was implemented for socioeconomic vulnerability analysis of shocks associated to trade openness [10].

We used a methodology of United Nations Development Programme (UNDP) for Human Development Index (HDI). There are three unit-free index between 0 and 1, which allows different indices to be added together. Many indices have been developed to measure the social welfare or wellbeing of a nation, roughly equivalent to standard of living. These measures are intended to compare nations across time or with each other on facets of societal health and progress [11].

There are three dimensions represented social development- living standards, labor supply, health. GDP per capita, unemployment rate and infant mortality are three components included for our index of social welfare.

The aggregation of unemployment and infant mortality rates is supposed to give us a better and wider comprehension of the actual socio-economic well-being of the country. In particular, unemployment rate gives us a measure of the number of people excluded from labour market; infant mortality rate is a proxy of the level of the basic sanitary conditions of the country and quickly reacts to their improvement. Infant mortality is the most sensitive index we possess of social welfare [12].

However, methodology of HDI includes positive correlation of all sub indices. High level of GDP per capita is positive correlates without index, unemployment and infant mortality rate have negative correlation. In order to avoid logical misunderstanding of index, we change negative correlated components to employment rate and child survival rate. It means that level of the social development index reflects the position for each component.

For the sake of simplicity, we assumed equal weights for each component. We analyze members of Eurasian Economic Community (EurAsEC) for the period 1995-2008 on which reliable and complete statistics are available.

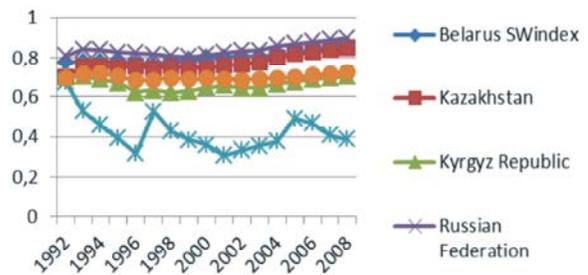


Fig. 1: EurAzEC’s SWIs

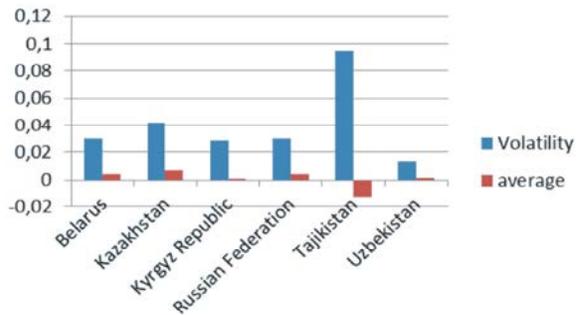


Fig. 2: A comparison between SWI volatility and average % rate of change of the EurAsEC (1992-2008)

Our index of well being has been computed for each year and each country as follows:

$$SWIti = wx1X1ti + wx2X2ti + wx3X3ti \quad (1)$$

where  $SWIti$  is the composite index of socioeconomic development in period  $t$  and country  $i$ ;  $w$  is the weight of each component;  $X$  is the component.

We assume the standard deviation of SWI gives us a measure of the volatility of well-being for each country in the time period analyzed, while the SWI percentage rate of change of the period gives us a measure of the socioeconomic performance of each country over time and on average. We suppose that the comparison shows as level of volatility and worsening levels of well-being before EurAsEC and after.

The comparison supports the view that Tajikistan and Kyrgyzstan have experienced larger degrees of volatility and worsening levels of welfare during the transition period than other countries of EurAsEC.

We estimate a cross country OLS regression model in the following way:

$$SWIti = \beta_0 + \beta_1 Tri + \beta_2 GGD_i + \beta_3 FDI_i + \beta_4 LPie_i \quad (2),$$

where  $i = 1, \dots, N$  and  $N$  is the number of countries that enter the sample;

Table 1: OLS Regression results for 6 EurAsEC for the period 1992-2008 Dependent variable: swi Robust (HAC) standard errors

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>
const	0.611844	0.022225	27.5295	<0.00001 ***
labour_producti	1.02457e-05	2.2636e-06	4.5263	0.00002 ***
trade_ration	0.0236366	0.0160336	1.4742	0.14384
ggd	-0.00029737	0.000131902	-2.2545	0.02654 **
fdi	-0.00166177	0.000919636	-1.8070	0.07403 *
Meandependentvar	0.698938		S.D. dependentvar	0.145448
Sumsquaredresid	0.139523		S.E. of regression	0.038943
R-squared	0.934700		Adjusted R-squared	0.928312
F(9, 92)	146.3212		P-value(F)	1.63e-50
Log-likelihood	191.5878		Akaikecriterion	-363.1757
Schwarzcriterion	-336.9259		Hannan-Quinn	-352.5462
rho	0.374689		Durbin-Watson	0.815283

Test for differing group intercepts -

Null hypothesis: The groups have a common intercept

Test statistic: F(5, 92) = 91.6107

with p-value = P(F(5, 92) > 91.6107) = 3.52467e-034

Independent Variables represent Integration.

- Trade terms ratio between Export and Import;
- GGD-General Government Debt;
- FDI-Foreign Direct Investment
- LP-Labor Productivity

After substantial testing using the variables, the regression results show some preferred model which are presented in table 1.

The specification of the model explains SWI as a linear combination of the export / import ratio (trade relationship), the general government debt (public policy instrument), the foreign direct investment stock as a percentage of GDP, labour productivity. This model suggests positive correlation between labour productivity and social development, negative correlation between GGD, FDI and social welfare of the country and insignificant effect of trade openness and social welfare.

These regression results are still very preliminary and need further tests to check their robustness. The next way to measure the efficiency of economic integration is using the S Time distance analysis. Time distance in general means the difference in time when two events occurred. Authors define a special category of time distance, which is related to the level of the analyzed variable. The suggested statistical measure S-time-distance measures the distance (proximity) in time between the points in time when the two series compared reach a specified level of the variable X. The observed distance in time (the number of years, quarters, months, etc.) is used as a temporal measure of disparity between the two series in the same way that the observed difference (absolute or

relative) at a given point in time is used as a static measure of disparity. This method was presented by Pavle Sicherel.

In this work the S-time-distance analysis is used as a complementary method to analyze the effectiveness of integration in the frames of Eurasian Economic Community. The indicator that is chosen to compare the member countries of EurAsEC is GDP per capita. It represents purchasing power parity and is measured in current international dollars. As a time period for comparison are taken 21 years from 1990 to 2011. First eleven years represent the indicator dynamics before the union was formed and the rest represent either increase or decrease of GDP per capita after the agreement on EurAsEC has come into force.

Eurasian Economic Community consists of six countries such as Belarus, Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan. The union was established in the early 2000s when Belarus, Kazakhstan, Kyrgyzstan, Russia and Tajikistan decided to maintain their economic relationships after the collapse of the Soviet Union. Later Uzbekistan joined the community.

On Picture 3 there is a diagram that shows the dynamics of the GDP per capita in all EurAsEC member states. As can be inferred from the graph that all states participating in the integration can be divided into two groups - the leading countries along with the leader - Russia and the lagging countries - Kyrgyzstan, Uzbekistan and Tajikistan. The EurAsEC average line distinctly separates these two groups of countries. The situation is analogical to NAFTA integration. In NAFTA the leading country and the leader are the USA and Canada, the lagging country is Mexico.

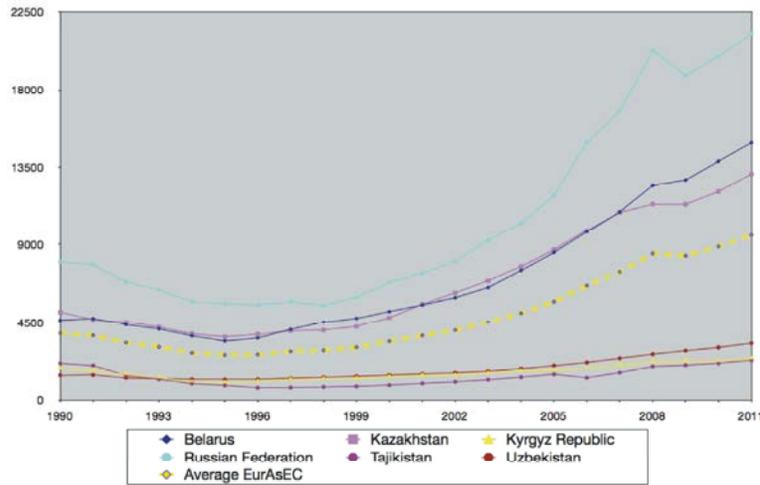


Fig. 3: EurAsEC countries' GDP per capita (PPP, current international \$) in 1990-2011

Note - Compiled by the author according to the data from The World Bank from <http://data.worldbank.org>

To make the analysis easier, it will be carried out in parts at several diagrams.

Firstly, the lagging group will be analyzed. As it is represented in the graph, in 2011 the time distance that Uzbekistan is lagging behind the average has totalled to 11 years. It is just a small difference from a 2008 result, when the time distance behind the average line was 12 years. It should be noted that Uzbekistan out of three lagging states is the one that shows the most progressive GDP per capita dynamics.

However, Tajikistan and Kyrgyzstan do not show even that level of positive results. The time gap that Tajikistan is lagging behind the EurAsEC average line is exceeding 21 year. Due to the lack of data on Tajikistan's GDP per capita before 1990, it is hard to be sure if Tajikistan has ever reached closer to the average level throughout its independent history. Moreover, recently, due to the positive dynamics in the leading countries, the average line started to increase significantly since 2003 and Tajikistan's time lag is increasing due to that fact. Kyrgyzstan is showing the GDP per capita growth that is much similar to the one in Tajikistan. From the analysis it becomes clear that there is a big time gap in country development between the EurAsEC average and the lagging countries - Uzbekistan, Tajikistan and Kyrgyzstan. For Uzbekistan this time gap is getting a little smaller, but the speed of the positive effect is not high enough. For Tajikistan and Kyrgyzstan the situation does not seem to get better over the years. In the period before and after the EurAsEC was formed the GDP per capita dynamics in these countries did not show much changes, especially not the ones for good. An analysis of GDP per

capita dynamics in Russia, Kazakhstan and Belarus shows, that while Kazakhstan's and Belarus's indicators are increasing approximately at the same level, Russia's dynamics is more lively and is increasing at a faster pace. If in 2005 Russia was 7 years ahead of EurAsEC average, in 2011 the time gap widened to 8 years.

Right after the formation of EurAsEC in 2001, the time distance that Kazakhstan had ahead of the average GDP per capita result was 5 years. Then the gap decreased to 3 years in 2006 and widened to 5 years again in 2011. The Belarus dynamics is similar to Kazakhstan's as the two countries are fluctuating at the same level. Thus, the analysis tells that the time distance that Russia is getting ahead of the average result is getting bigger because Russia's GDP per capita is growing strongly in the last decade. By rising its GDP per capita, Russia is also rising the average level for all other member countries. Kazakhstan and Belarus are managing to fluctuate and grow above the average level, the time gaps they get ahead of the average line is fluctuating around 5 years. However, the lagging countries are not able to get anywhere close to the average level. The increase in the average level is only making the time lag wider.

As a result, by using S-time-distance analysis it became possible to get a new perspective on the EurAsEC integration. The carried analysis has again underlined the importance of one of the prerequisites for integration - integrating countries should have similar level of development of their economies. In EurAsEC case it becomes obvious that this prerequisite did not exist when the union was formed. This has complicated the process of integration as it has differentiated the integration

effectiveness for the member countries. It can be confidently said that the integration within EurAsEC has shown itself effective for the leading countries - the results of the analysis show that. On the contrary, the effectiveness of EurAsEC for the lagging countries is still doubtful.

The study of general theories and guidelines for international economic integration has allowed us to identify the ambiguity of theoretical basis used to determine the regional economic integration. Generalization of the theory and practice of the world points to the following effects of regional economic integration: strengthening security through the development of relations with neighboring countries, strengthening the position in relation to external forces, coordination in addressing global problems solved on a regional level, the deterioration of relations between the neighboring countries as a result of incorrect built integration efforts and increase the market, preserving market segmentation, increased competition, changes in trade flows (trade distortion) cheaper imports, more expensive imports.

Determined that by participating in the integration associations, Kazakhstan should implement selective and gradual policy. Selectivity is to clearly define their own priorities, taking into account the interests of the partner countries to integration, implementation of economic relations in these regional organizations on specific projects, programs and initiatives in line with the legal framework between Member States. The study showed that the best chance in the effective integration of Kazakhstan will reach in the regional group, which is involved in Russia due to the large economic and political potential. This presents the need and importance of integration cooperation between Kazakhstan and Russia in the frames of EurAsEC and CU.

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