ECONOMIC AND ECOLOGICAL CONVERGENCE OF UKRAINIAN REGIONS

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In the current global and interdependent world the stability of economic system depends on the stability of its elements. Spatial differences in levels and growth rates of economic, ecological and social indicators are becoming key point policy objectives in modern world.

Historically the development of former USSR economy under the conditions of central planning created major differences among national economies. Even within boundaries of one country the regions were not equally developed. In Ukraine, the Eastern and South regions were and still are much more economically developed than West and North. Since that time Ukrainian economy has undergone a lot of transformation reforms to strengthen the national economy, but the gap between poor and rich regions in Ukraine is still substantial.

Economic reforms in Ukraine were performed without major consideration of the regional factor. Statistic data shows significant regional economic disparities in Ukraine during 1990s. Thus, in 1998 regional per capita income was 888 UAH in Vinnytsa region, 886 UAH in Volyn region and 1691 UAH in Donetsk region or 1951 UAH in Dnipropetrovsk regions. That is on average the difference between poor and rich regions within one country was about two times. Considering the ecological indicators such as per capita emissions, rich regions were more than 20 times "dirtier" than poor ones. Major regional differences in terms of basic social living standards may cause serious economic, social and ecological problems. Therefore development and transformation of national economy should consider not only structural reforms and increase in per capita GDP, but special attention has to be paid to equilibration (leveling) of the regional development.

The idea of convergence in economics (also sometimes known as the catch-up effect) is the hypothesis that poorer economies' per capita incomes will tend to grow at faster rates than richer economies. As a result, all economies should eventually converge in terms of per capita income. Developing countries have the potential to grow at a faster rate than developed countries because diminishing returns (in particular, to capital) aren't as strong as in capital rich countries. Furthermore, poorer countries can replicate production methods, technologies and institutions currently used in developed countries.

In empirical researches there are basically four main approaches to study convergence processes: sigma convergence, absolute beta convergence, conditional beta convergence and stochastic convergence. Historically according to Sala-i-Martin (1994), first appeared sigma convergence approach, which compares standard deviations, variances for the different economic indicators across time for specific groups of countries (regions). Absolute convergence means that if the regions are fairly similar and under same conditions (e.g. within one country or Union) they should approach the same absolute level of steady state in all social standards (economic, ecological, social parameters). Conditional beta convergence means that it is impossible to achieve unique steady state by all countries (regions), due to the differences in national, natural or historic achievements. And all separate territories have its own steady state. The last one stochastic convergence relies on time-series methodology.

According to Lall and Yilmaz (1999) the economic convergence can be estimated as a modified Cobb-Douglass production function:

$$\log(y_{it}) = a_0 + b_1 \log(y_{i,t-1}) + c_k Z_{kit-1} + d_i D_i + e_i T_i + \varepsilon_i \quad (1)$$

Where, Z – is vector of k additional regional characteristics (human capital, public capital, etc.). D – is a vector of regional dummy variable. T – is vector of dummy time variables.

Mostly we are interested in the sign of the b_1 coefficient, that is estimating "difficultness" to overcome higher initial levels of income. The hypothesis of economic (ecological) convergence will be accepted if b_1 is negative. The model 1 also will be used and tested in our research. The special attention will be paid to the coefficients of b_1, which has following economic interpretation – one percent per capita income change in base year lead to b_1 percent change next year.

We have re-done the above mentioned model (1) in order to have per capita income growth rates as a dependent variable. However, the economic justification of the equation (2) has to be developed in more proper way.

$$r_{it} = \beta_0 + \beta_1 y_{i(t-1)} + \beta_2 K_{it} + \beta_3 L_{it} + \beta_4 P_{it} + \beta_5 X_{it} + u_{it} \quad (2)$$

where r_{it} – the growth rate of income per capita in region i in year t;
$y_{i(t-1)}$ – per capita income in region i in the previous year;
K_{it} – real capital stock in region i in year t;
L_{it} – employment in region i in year t;
P_{it} –pollution in region i in year t;
X_{it} – time dummies from 1999 to 2010.

It is difficult to develop the concept of sustainable development, where some regions prosper and other others are in decline. In economic theory it is believed that in the long run, regions within a country must reach a certain level of equilibrium state (steady state) in the economic, environmental and social fields. The possibility of achieving an equilibrium state means that the regions with less economic potential must develop their economies more rapidly to match the leaders. Similarly, should change and quality of life. Convergence does not mean the same structure of production, landscapes, social infrastructure, however it is expected to align the quality of life of the population and environment.

References:

1. Sala-i-Martin X. (1994). Regional Cohesion: evidence and theories of regional growth and convergence. Yale University. Economics Working paper 104

2. Lall S. Yilmaz S. (1999). Regional Economic convergence: do policy instruments make difference / International Bank for reconstruction and development, World Bank. – 18p.