14. Besley, T., Case, A. Incumbent Behaviour: Vote-Seeking, Tax-Setting, and Yardstick Competition. American Economic Review, 85.1, 1995, 25 – 45.
15. Vacek V., Soustava daní rakouských, Ústřední dělnické knihkupectví, Praha, 1912.
16. Zelenka V., Vývoj hospodaření svazků územní samosprávy a počátky hospodaření národních výborů, Federální ministerstvo financí, Praha. 1986.
17. Fux, B., Wichta, E. Samosprávné finance, otázka samosprávných financí v Československu. Praha, Orbis, 1932.
18. The State Bureau of Statistics. The Sub-central Additional Taxes in 1926 and 1928. Praha, 1931.
19. The State Bureau of Statistics. The Sub-central Additional Taxes in 1930. Praha, 1932.
20. The State Bureau of Statistics. The Sub-central Additional Taxes in 1933. Praha, 1936.
21. Brett, C., Pinkse, J. The Determinants of Municipal Tax Rates in British Columbia. The Canadian Journal of Economics, 33.3, 2000, 695 – 714.
22. Fiva, J. H., Rattso, J. Local Choice of Property Taxation: Evidence from Norway. Public Choice, 132, 2007, 457 – 470.

Надійшла до редакції 14.01.14

Дж. Хаас, канд. техн. наук,
Л. Седміхрадська, д-р філол. наук,
Дж. Дітріх, канд. техн. наук
Економічний університет, Чехія

ПОДАТКОВА КОНКУРЕНЦІЯ МІСЦЕВОГО САМОВРЯДУВАННЯ У ЧЕХОСЛОВАЧЧИНІ 1918-1938

Дослідження оцінює податкову конкуренцію між місцевими органами влади в Чехословаччині в міжвоєнний період. Використовувався кореляційний і регресійний аналіз, який дозволив довести, що (1) місцеві політики враховували податкову політику сусідніх країнах, при введенні додаткових податкових ставок на верхню частину прямих центральних податків, (2) були деякі регіональні відмінності, (3) міграція зіграла свою роль при виведенні ставки податку і (4) "гонка на скочування" не відбулася.

Ключові слова. Податкова конкуренція ; місцеве самоврядування; Чехословаччина.

Дж. Хаас, канд. техн. наук,
Л. Седмихрадская, д-р филол. наук,
Дж. Дитрих, канд. техн. наук
Экономический университет, Чехия

НАЛОГОВАЯ КОНКУРЕНЦИЯ МЕСТНОГО САМОУПРАВЛЕНИЯ В ЧЕХОСЛОВАКИИ 1918-1938

Исследование оценивает налоговую конкуренцию между местными органами власти в Чехословакии в межвоенный период. Использовался корреляционный и регрессионный анализ, который позволил доказать, что (1) местные политики учитывали налоговую политику соседних странах, при введении дополнительных налоговых ставок на верхнюю часть прямых центральных налогов, (2) были некоторые региональные различия, (3) миграция сыграла свою роль в выведении ставки налога и (4) "гонка на скатывание" не состоялась.

Ключевые слова. Налоговая конкуренция; местное самоуправление; Чехословакия.

УДК 338.1
JEL C5, Q5

G. Kharlamova, PhD in Economics, Associate Professor,
V. Nesterenko, Master of Economics
Taras Shevchenko National University of Kyiv, Kyiv

ENVIRONMENTAL SAFETY AND ECONOMIC DEVELOPMENT OF UKRAINE: IMPACT ASSESSMENT

The process of overcoming scientific and technical backwardness and unsustainable use of natural resources requires the development of new methods and models of ecological-economic interaction. Paper highlights main views on the environmentalization as a concept. The main vectors of environmentalization are depicted. Most broadcasted domestic mathematical models of eco-economic modeling are reviewed. VAR model approach and impulse analyses are used to identify and assess the relationship between environmental security and level of economic development of Ukraine; at the macro and regional level.

Keywords. Environmental security, ecological safety, economic growth, VAR model.

Introduction. In many countries, the degradation of biosphere has led to large-scale natural disasters, decreasing in quality of life and health. There is a challenge for the world and the state particularly to develop methodological principles of regional and global greening of economy and, therefore, an effective mechanism for its practical implementation. Nowadays to transit the entire system of economic reproduction of humanity on the principles that correspond to the tasks of environmental conservation is the most essential for sustainable development of individual countries and the world economy as a whole.

If to consider the sense of the term "ecologization"/"greening"/ "environmentalization" we can see the diversity of notions and meanings despite general common understanding of this term's usage. If we browse Google and Google Scholar searching links using this term in title we detect different spreading of its variation: so term "ecologization" counted aprox.16800 links in Google and aprox. 3800 papers in Google Scholar (that could be mostly considered as scientific search, however having some merges and limits); term "greening economy" counted aprox. 6920 and just 100 respectively, and term "environmentalization" counted aprox. 19000 and 604, respectively. So quite clear is the broadest usage of "environmentalization" term when we talk about the ecological aspect of economy.

There is still diversity in meaning of the "environmentalization" (Tab.1).

Table 1. **"Environmentalization": meaning of the term in scientific literature**

Source	Description
Shevchuk V. [1]	process of penetration of ideas, knowledge and laws of ecology, ecological thinking in the niche areas of science, production and livelihoods society
Kyslyi V. et al. [2]	the objectively caused process of transformation of the entire social work aimed at the preservation and development of socio-economic functions of the nature.
Tunytsya T. [3]	complex, multifaceted and contradictory process of maximum possible approximation of economic activity to such forms of life that exist in the natural system without human intervention. In the life of natural systems there are no wastes, therefore, such concept should be taken into the state policy.

Table 1 (continued)

Source	Description
Smirnova K. [4]	Further economic development, that takes into account the environmental dimension as one of the key in the development and operation of any component of the economy: reduce the burden on the environment; the preservation and restoration of natural resources; upgrading of production; the introduction of low-waste and non-waste technology; environmental focus investment.
Kravtsiv V. et. al. [5]	Transformation of environmental goods and services in beneficial as to the national economy products. It is implemented by means of the institutional arrangements and innovative processes, restructuring the scope of demand, technological conversion, rationalization and transformation of nature conservation activities.
Dubovich I. [6]	The increasing of national wealth through the efficient use of natural resources, labor, scientific and technical potential.
Verbitskyi Yu. [7]	can not be narrowed to some environmental measures. Its content and purpose is to protect the environment directly in a manufacturing activity so within the economic system, not outside of it. Effective environmental policy should and must be done, especially in the context of socio-economic transformation, and the conservation measures should not replace but supplement organic environmentally beneficial management regime.

* *Source:* authorial computation.

Summing up the concept of environmentalization should be based on the following principals:

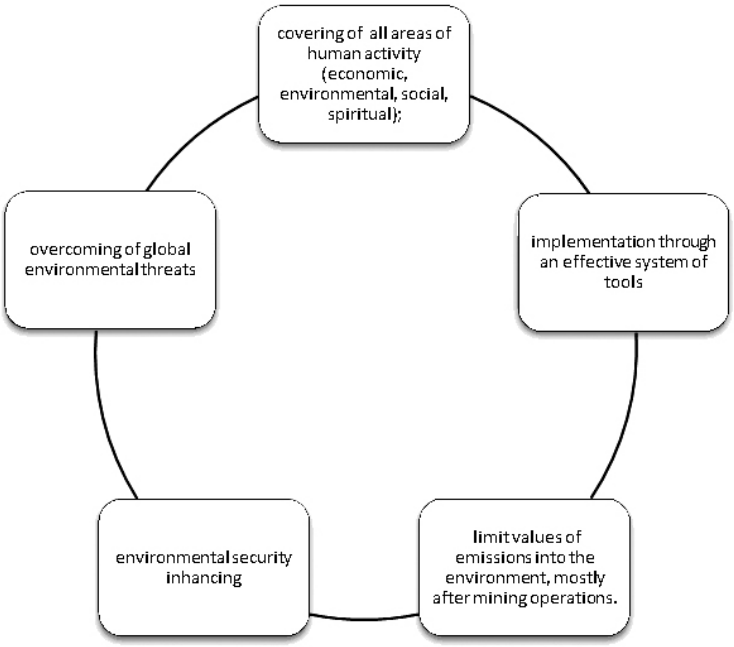

Fig.1. The concept of environmentalization

* *Source:* authorial computation.

Main directions of environmentalization implementation should be following:

Table 2. **Environmentalization vectors**

Environmentalization of law – environmental legislation	The orientation of laws and regulations on environmental issues.
Environmentalization of the tax system	the approval of taxes and tax rates should be held so that producers have profitable reasons to reorient their activities in an environmentally safe. The tax burden should be eased for manufacturers of environmentally friendly products and companies that provide environmental services and waste technologies. Opposite option – an increase in taxes and tax rates for dangerous and environmentally unfriendly industries.
Environmentalization of production	the implementation of low-waste and non-waste technologies, upgrading of production facilities to resource-safe, a separate processing production facilities and focus on the production of environmentally friendly products. For Ukraine, this vector is one of the most important and requires significant investments due to the large-scale moral and physical deterioration of the equipment at enterprises of the country.
Environmentalization of investing	As an investor, to solve environmental problems of individual businesses, regions and the country as a whole, the state itself can act as well as some domestic and foreign companies. The main problem for Ukraine in this vector is the lack of financial resources at the domestic companies that are available for this type of investments. Attraction of investors for the construction of sewage treatment plants, creation of reserves and protected areas and restoration of land is unpromising for the most investors because of a significant payback period.
Environmentalization of education	Awareness of the importance of nature in human life and the need to store and efficiently use the available natural benefits underpins the greening of economy. It is necessary to ensure the availability of environmental information to the public. Citizens need to be informed about the environmental activities of the environmental situation in the region or the country, the existing environmental organizations and their activities.

* *Source:* authorial computation.

Ukraine is moving towards the greening future, the evidence of this direction is the participation in several dozen (about 50) [8] international ecological and economic conventions and bilateral agreements. The main achievements of international cooperation of Ukraine in the environmentalization of the economy are:

- reflection of national interests in policy documents and decisions of forums of international intergovernmental organizations;
- expansion of international cooperation through the signing of new agreements, contracts and programs;
- enhancing of ecological training (legal, technological) and management methodology designed to improve the ecological situation in Ukraine;
- receiving of support in the environment safety through international cooperation.

Despite made steps in environmental policy and management, scientists [8-11] highlight that the process of environmentalization is a dynamic process that aims at a comprehensive rehabilitation of ecological, economic, social and spiritual spheres of social activity. Currently the basic approaches to the analysis of environmental security require more detailed understanding, particularly economic – mathematical methods to study the relationship between environmental security and economic growth.

The purpose of this research is to identify and analyze the relationship between environmental security and the level of economic development of Ukraine.

Results. Development of the state economy in transformation period dwells upon the growth in terms of ensuring of an environmental security. Human interaction with the environment must be considered within a single ecological-economic system. The study of economic dynamics in the construction of sustainable economic development is characterized by complexity and requires the use of mathematical modeling.

The issue of ecological and economic co-impact and its study by means of economic-mathematical methods became especially important after the signing of the Kyoto Protocol (1997). The most bright model implementation of the main objectives of the Kyoto Protocol is mathematically mentioned in a model that was developed in 2003 by scientists S. Bartz and D. Kelly [12]. This model includes the factor of labor and technological change factor, which reduces the pollution. The model considers preferences of householders to the level of environmental security.

The next generation of economic-mathematical models aimed to ensure environmental safety is the analysis of micro level of countries, i.e. industries and their separate effects on the environment. In 2004, A. Levinson and M. Taylor [13] proposed a new model of ecological and economic interactions, introducing the following assumptions:

- the country has economic sectors, each of which has a separate industry;
- consumers spend a constant share of income on goods of each sector, and these costs are distributed evenly to all industries of the sector;
- the production of each sector uses two factors: labor and factor that is specific to the particular industry;
- the production leads to pollution, but firms have access to technologies that can be used to reduce harmful emissions;
- the manufacturers may use a portion of its resources to reduce pollution;
- total revenue equals total costs, intermediate goods are not available (added value equals total revenue).

Under latter assumptions, authors came to the result: emission of pollutants is a function of the total output and reduction of emissions intensity. The main practical value of this model is that it allows to rank industries within each sector according to the degree of contamination.

In the context of environmental safety, the ecological security management of environmentally protected sites occupies an important place. This approach generated other models of ecological-economic contradiction. Thus, the most important characteristic of environmentally protected sites, that lets to determine their current status, is a sustainability of landscape complex within the object [14]. According landscape complex approaches, the greater difference of output and allowable resources, the greater human impact this landscape complex can withstand. Based on the fact that the process of changing the landscape resource is multifactorial, it is possible to use normal Gaussian distribution, and therefore the technique for determining the sustainability of landscapes is practically effective.

The separate generation of economic-ecological models are those that base on dynamic or static production functions. The most cited in domestic literature are researches of Grygorkiv V. [15], Skraschuk L. [16], Yakutova O. [17] and Kharlamova G. [9-11]. Thus, V. Grygorkiv proposed the optimization model of a structure of diversified production in environmentally sustainable economy, which is based on a dynamic model of intersectoral ecological-economic balance (dynamic model of Leontiev-Ford [18]). His eco-economic system operates both as a producer and as a greener of production, besides the dynamics of the system is actually limited only by economic resources. Skraschuk L. upgraded this approach. In her turn, Yakutova O. considered a model of environmental-economic growth in the case of a linear production function. Her model demonstrates the potential options for the processes of accumulation and consumption in the case of linear dependence of the final production from capital. However, the assumption of a linear relationship is more theoretical than applied in nature, and therefore this concept cannot be used for modeling of current ecological – economic situation. G. Kharlamova basing on dynamic model of Leontiev-Ford [18] and other classic production functions applied econometric technique to estimate the tense and existence of the interrelationship between ecological safety and economic growth and to draw its future forecasts.

Mathematical modeling of ecological – economic production function as a model of interrelationship between the result of the manufacturing process and economic and environmental factors that contribute to it, based on the optimization approach theory provides the generation of production functions of a maximum output. These economic and mathematical models demonstrate the importance of environmental safety ensuring for the sustainability of economic growth.

However, latter eco-economic development concepts include only certain indicators of the environmental situation, leaving aside the integral indicator of environmental safety. To address this issue we will use the integral index of environmental safety in our modeling.

We chose as the method for the analysis of mutual impact of environmental security and economic growth in Ukraine – **VAR-modeling econometric technique**. Vector autoregression (**VAR**) is an econometric model used to capture the linear interdependencies among multiple time series [19]. VAR models generalize the univariate *autoregression* models by allowing for more than one evolving variable. All variables in a VAR are treated symmetrically in a structural sense (although the estimated quantitative response coefficients will not in general be the same); each variable has an equation explaining its evolution based on its own lags and the lags of the other model variables. VAR modeling does not require as much knowledge about the

forces influencing a variable as do structural models with simultaneous equations: The only prior knowledge required is a list of variables which can be hypothesized to affect each other intertemporally. So such VAR approach is the most appropriate for our aims.

We choose such factors for the modeling:

- as an indicator of social and economic development – GDP in prices of 1995,
- as an indicator of environmental security – Integral index of ecological security calculated on authorial method (Fig. 2).

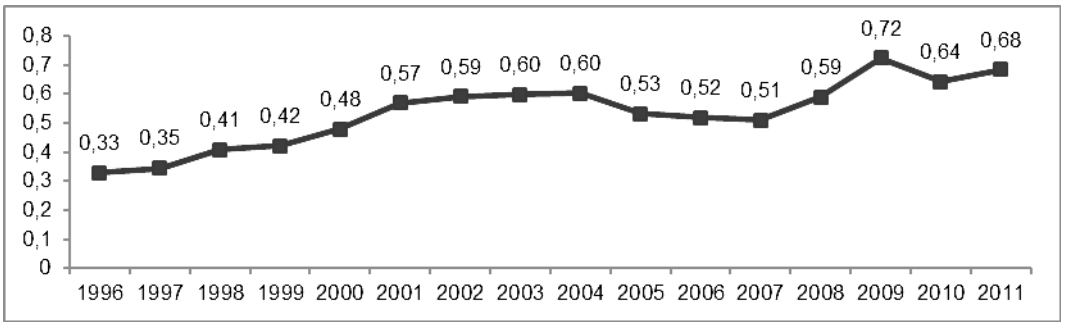

Fig.2. Integral index of ecological security of Ukraine

** Source: authorial calculations on the base of data [20-22].*

The period of observation: from 1996 to 2011 (quarterly data, n = 64). Data source: *[20-22].*

The *work hypothesis:* to detect the strong mutual impact between the economic sustainability and environmentalization of the economy.

Among several models built by us according to different length of lags, Schwarz criterion let to select the model with the number of lags equal to four as the most appropriate. Time series, which are part of the system, according to the generalized Dickey-Fuller criterion are stationary. So models (1)-(2) are suitable for analysis because they correspond to the requirements of most econometric criteria: no autocorrelation and heteroscedasticity of residuals, no Granger causality, all coefficients are significant. The estimated models are:

$$\begin{aligned}\Delta GDP_t &= 0{,}01\cdot\Delta GDP_{t-1}+0{,}19\cdot\Delta GDP_{t-2}-0{,}01\cdot\Delta GDP_{t-3}-0{,}16\cdot\Delta GDP_{t-4}- \\ &\quad 0{,}05\cdot\Delta EI_{t-1}-0{,}04\cdot\Delta EI_{t-2}-0{,}05\cdot\Delta EI_{t-3}-0{,}31\cdot\Delta EI_{t-4}+0{,}02 \end{aligned} \quad (1)$$

$$\begin{aligned}\Delta EI_t &= -0{,}11\cdot\Delta GDP_{t-1}-0{,}16\cdot\Delta GDP_{t-2}-0{,}11\cdot\Delta GDP_{t-3}+0{,}61\cdot\Delta GDP_{t-4}+ \\ &\quad 0{,}02\cdot\Delta EI_{t-1}+0{,}04\cdot\Delta EI_{t-2}+0{,}04\cdot\Delta EI_{t-3}+0{,}15\cdot\Delta EI_{t-4}+0{,}01 \end{aligned}, \quad (2)$$

where ΔGDP – an increase in the natural logarithm of GDP, in prices of 1995, ΔEI – an increase in the natural logarithm of the index of ecological safety.

The model (1) detects that the growth of ecological security index would reduce GDP and it is quite logical thing for Ukraine, because currently the production is concentrated mainly in the environmentally polluting industries. Improving of environmental safety means additional investments and costs for both, the government and for companies, that will slow down the socio-economic development in the short term. This short-term economic downturn is perfectly evident in equation model (1): if in the (t-1) period the growth of the index of ecological safety of 20 % leads to a decrease of 1% of GDP, than similar growth in the (t-4) period reduces GDP by 6%. To confirm the described effects we construct and evaluate the function of the impulse response (Fig. 3).

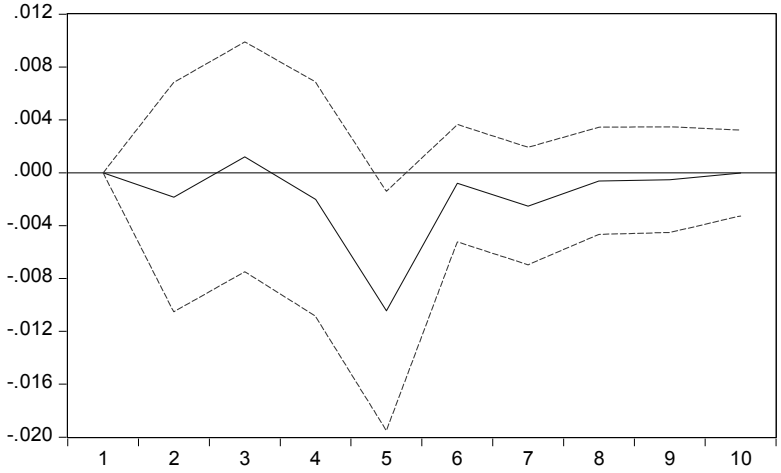

Fig.3. Reaction of GDP on impulse of environmental safety index

** Source: authorial calculations.*

Based on Fig. 3, we can argue that in the first three periods the reaction is mixed, but in the next two periods (quarters) economic development slows down, reaching its minimum in five quarters after the impulse of the environmental safety. In subsequent periods we detect the positive trend of growth, which can be explained by the efficiency of the implementation of "environmentally-friendly" technology.

We perform a similar analysis of the impact of socio-economic development on the ecological security of Ukraine – model (2). Signs of coefficients at the GDP ratios in the model (2) show that economic growth in the previous three periods would reduce the environmental safety index. While a similar growth of the (t-4) period would increase a rate of environmental safety. At the state level, this can be explained by the fact that in any case some economic players to achieve growth and meet financial interests are inefficient in their usage of natural resources, and negatively affect the environment (pollution of water and air, and the creation of waste without their disposal). But after four periods, the economic growth will begin to have a positive impact on the environment. The reason is in availability of funds for investing in environmental protection for the state and enterprises. GDP growth in the (t-4) period by 10% would result in an increase of ecological security index by 6%. Fig. 4 illustrates the reaction of environmental safety under social and economic growth.

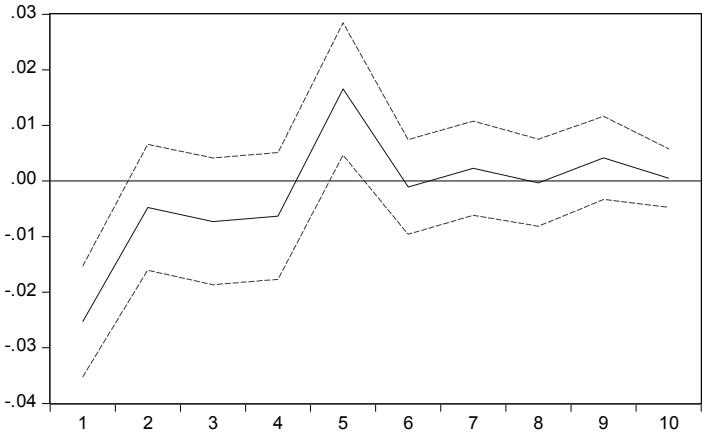

Fig.4. Impulse reaction of ecological safety index on the GDP change

** Source: authorial calculations.*

It can be noted that the response of ecological safety is in 4 stages:

• 1st period – a sharp fall in environmental safety;

• from 2nd to 4th periods – ecological security index is at the same level, but still reduced;

• 5th period – an increase of ecological security index through greening of the economy;

• after 5th period – indicator of ecological security almost stops any responding on GDP shocks.

The analysis of the model (2) focuses on the coefficients at the environmental safety index in prior periods: the growth rate of environmental safety by 20% in the previous 3 periods will increase this index by 2% in the t period, while a similar increase in (t-4) period will stimulate the growth of the index by 3%. Therefore it can be argued that the response of ecological security index on its previous values is the most significant in the medium term.

Note that the ecological security index is composed of such structural elements as safety index of air, land, water, waste, environmental protection and energy security. So our next step is to determine the impact of economic growth on groups of indicators of environmental safety. Index of land and forest resources and safety index of waste management appeared to be not significant. Estimated models of the impact of GDP on environmental safety components are as following:

$$\Delta AIR_t = -0,78 \cdot \Delta GDP_{t-1} - 1,54 \cdot \Delta GDP_{t-2} - 0,02 \cdot \Delta AIR_{t-1} - 0,03 \cdot \Delta AIR_{t-2} + 0,02 \quad (3)$$

$$\Delta WATER_t = -0,21 \cdot \Delta GDP_{t-1} - 0,21 \cdot \Delta GDP_{t-2} - 0,02 \cdot \Delta WATER_{t-1} - 0,13 \cdot \Delta WATER_{t-2} + 0,04 \quad (4)$$

$$\Delta Eco\_inv_t = 0,72 \cdot \Delta GDP_{t-1} + 0,57 \cdot \Delta GDP_{t-2} + 0,001 \cdot \Delta Eco\_inv_{t-1} - 0,02 \cdot \Delta Eco\_inv_{t-2} + 0,01 \quad (5)$$

$$\Delta En\_index_t = -0,83 \cdot \Delta GDP_{t-1} - 0,66 \cdot \Delta GDP_{t-2} + 0,31 \cdot \Delta En\_index_{t-1} - 0,03 \cdot \Delta En\_index_{t-2} + 0,09 \quad (6)$$

where ΔAIR – an increase of the natural logarithm of the air safety index; $\Delta WATER$ – an increase of the natural logarithm of the water safety index; ΔEco_inv – an increase of the natural logarithm of the index of environmental protection measures; ΔEn_index – an increase of the natural logarithm of the energy safety index.

Coefficients of equation (3) show an inverse relationship between GDP growth and the index of air safety. The increase in GDP in the (t-2) period by 10% would reduce the index by 15.4%. The manufacturing, that brings the most added value, is concentrated in industries that pollute by the air emissions, so such a sharp decrease in the index is quite adequate. Notice, that the analysis is held on retro statistics, and if there will be no qualitative changes – the forecasts will mirror regression results: the economy will stay in previous gap. Fig. 5 shows the response of air

safety index to boost in GDP, according to which, the index will decrease first three periods after the shock of GDP, reaching its minimum in the third period, but there will be the increase in the fourth period, after that the reaction will be damped. The increase of the fourth period is explained by the ability of businesses and government to invest in the protection of air, improving the production technology and reducing of emissions of harmful materials and atmospheric carbon dioxide.

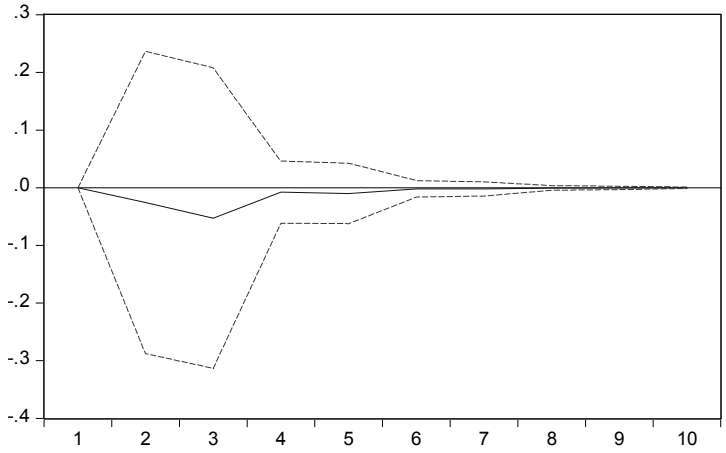

Fig.5. Impulse reaction of air safety index on GDP shocks

** Source: authorial calculations.*

Equation (4) implies that the water security index is also in the inverse dependence to economic development. The economic interpretation is the same as to the model (3), because the economic growth at the macro level leads to increased consumption of water by companies and so to water pollution by harmful substances and waste production. Model (5) shows that Ukrainian GDP growth leads to an increase in environmental activities and investments in environmental protection. Moreover, the coefficients of the model (5) show the short-term reaction in this phenomenon. If GDP growth in the (t-1) period by 10% would increase to increasing of environmental investment by 7.2 %, while a similar increase in the (t-2) period would lead to an increase of this index only by 5.7 %.

Coefficients of the model (6) show that the increase in GDP leads to a decrease in the energy security index. This is because Ukraine is dependent on imported energy. But it must be stressed that this trend is characterized by its short-term reaction. Fig. 6 shows the response of energy security index on GDP shocks: in the first three periods the energy security is deteriorating, but from the fourth period the situation is beginning to stabilize. Improvement in the long run is due to the ability to develop own electricity production and the existence of alternative forms of energy.

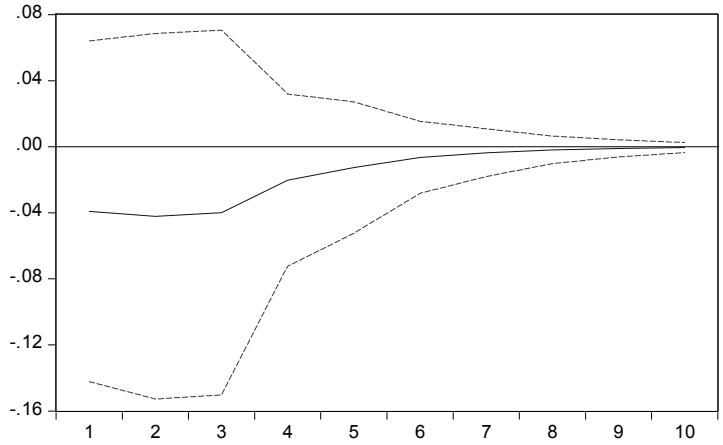

Fig.6. Impulse reaction of energy safety index on GDP shocks

** Source: authorial calculations.*

So we received the contradictory and crucial result: from one side, GDP growth stimulates environmental activities and investments in environmental protection (as model (5) proves), but statistic results of other models proves vanity of these measures as there is accompany of environment security decreasing.

To insure proved work hypothesis we held the analysis of the co-impact of environmental safety and economic – social development at the level of regions of Ukraine (fig. 7). As indicator of economic growth in the region we choose gross regional product (GRP), and as indicator of regional environmental security – integrated ecological safety index calculated for every region on the base of authorial method.

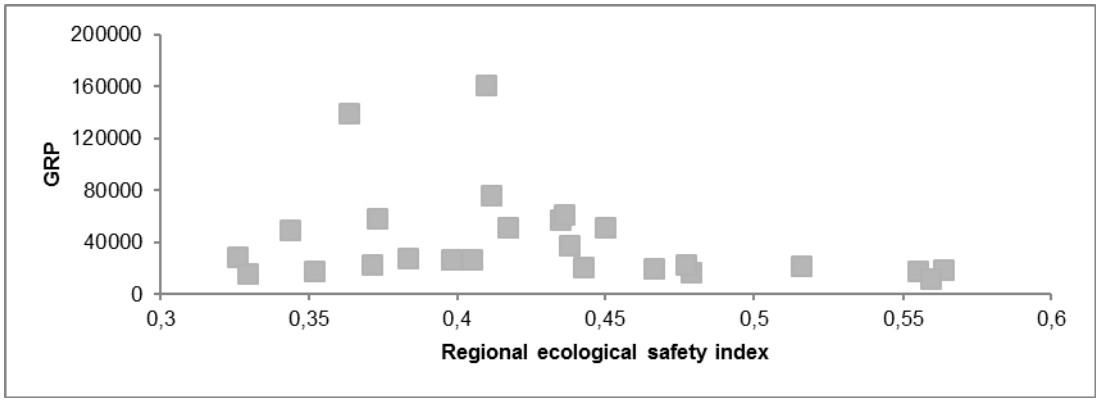

Fig.7. The relationship between regional ecological security index and GRP

** Source: authorial calculations on the base of data [21-23].*

Even slight look on the fig.7 proves the existence of quite high correlation between time series. By means of regression analysis we assessed the relationship between the regional ecological security index and GRP by the following equation:

$$\ln GRP_i = 9{,}19 - 1{,}43 \cdot \ln EI_i, \qquad (7)$$

where *GRP* – gross regional products; *EI* – an index of ecological safety of a region.

Such not sophisticated regression gives interesting results to accept the work hypothesis. Thus, an equation (7) shows inverse dependence between the ecological security of the region and its economic development. The coefficient indicates that an increase in the EI by 10% would reduce the GRP by 14%. Indeed, the index of ecological safety of Donetsk and Dnipropetrovs'k regions, with the highest GRP in Ukraine, is lower than the average for Ukraine. And the areas that have the highest degree of environmental safety (Rivne, Chernovtsy and Transcarpathian region) are characterized by one of the smallest GRP among Ukraine's regions.

Conclusion. Thus in this paper we attempted to analyze the interference between environmental security and socio-economic development of Ukraine by means of economic-mathematical methods. Constructed and estimated VAR- models reveal the intrinsic characteristics of this mutual impact. Impulse response functions show the impact of shocks in the economy on studied group of indicators of environmental safety. It was determined that the level of environmental safety is in inverse dependence to economic development according to assessed models. The work hypothesis about existing of relationships between economic impact and the ecological safety demonstrated was proved and there is estimated evidence of short-term negative effects of ecological situation impact shock on social and economic growth.

Sustainable development provides the need in mandatory coordination of economic, environmental and human development so that from generation to generation the quality of life and the environment are not deteriorating. The nature conservancy has to be one of the main priorities of Ukraine because of biological and landscape diversity is the foundation that provides the possibility of any environmental management and development of the society, which provided a balanced solution of socio-economic problems, issues related to favorable environmental and natural resource capacity to meet the vital needs of present and future generations.

References

1. Shevchuk, V., Stalkin, Iu. and Biliavskyi, H., 2004. Ekolohichne upravlinnia. Kyiv: Lybid.

2. Kyslyi, V., Lapyn, E. and Trofymenko., N., 2002. Ekolohyzatsyia upravlenyia predpryiatyem. Sumy: Unyversytetskaia knyha.

3. Tunytsya, T., 2005. Mizhnarodni aspekty problem ekolohizatsii ekonomiky. Ekolohizatsiia ekonomiky ta osvity yak chynnyk staloho rozvytku suspilstva. Naukovyi visnyk, 15(6), pp. 238-242.

4. Smirnova, K., 2005. Deiaki napriamky ekolohizatsii ekonomiky. Ekolohizatsiia ekonomiky ta osvity yak chynnyk staloho rozvytku suspilstva. Naukovyi visnyk, 15(6), pp. 165-169.

5. Kravtsiv, V., Furdychko, O., 2001. Rehionalna ekolohichna polityka v umovakh perekhidnoho periodu: dosvid Lvivskoi oblasti. In: V. Kravtsiv, ed. 2001. Rehionalna polityka: metodolohiia, metody, praktyka. Lviv: IRD NAN Ukrainy. pp.103-116.

6. Dubovich, I., 2008.Teoretyko-metodolohichni ta praktychni zasady hlobalnoi ekolohizatsii ekonomiky. Aktualni problemy sohodennia, 1, pp. 31-35.

7. Verbytskyi, Yu., 2002. Stanovlenye sovremennoi systemы orhanyzatsyonno-эkonomycheskykh mekhanyzmov y ynstytutov mezhdunarodnoi pryrodookhrannoi deiatelnosty. In: Yu. Verbytskyi, 2002. Sbornyk nauchnykh trudov. Kyiv: Ynstytut myrovoi ekonomyky y mezhdunarodnykh otnoshenyi NAN Ukrayny, 32. pp. 146-156.

8. Shaluhin, V., 2009.Ekolohizatsiia ekonomiky i perekhid do staloho rozvytku. Ekolohichna bezpeka, 4(8), pp. 77-83.

9. Kharlamova, G., 2007. Modeling the Best Use of Investments for Minimizing Risks of Multiple Stressors on the Environment. In: Multiple Stressors: A Challenge for the Future, Ch. 33, pp. 441-448.

10. Kharlamova, G., 2010. Optimizing the Management of Complex Dynamic Ecosystems: An Ecological-Economic Modeling Approach. NATO Science for Peace and Security Series, Vol. 75, pp. 229-240.

11. Kharlamova, G., 2009. Vplyv priamoho inozemnoho investuvannia na ekolohichnu bezpeku Ukrainy. Ekonomist, 11, pp. 51-53.

12. Bartz, S., Kelly, D., 2004. Economic Growth and the Environment: Theory and Facts. USA: Department of Economics, University of Miami.

13. Levinson, A., Taylor, M., 2004. Unmasking the pollution haven effect. NBER Working Paper. [online]. Available at: http://www.nber.org/papers/w10629.

14. Ihnatiev, S., 2009. Matematychne zabezpechenia upravlinnia ekolohichnoiu bezpekoiu pryrodookhoronnykh ob'iektiv. Ekolohichna bezpeka, 4(8), pp. 63-69.

15. Grygorkiv, V. Dynamichni modeli optymalnoi struktury vyrobnytstva v ekolohichno zbalansovanii ekonomitsi [online]. Available at: http://arr.chnu.edu.ua/jspui/handle/123456789/709.

16. Skraschuk, L. Modeliuvannia optymalnykh traiektorii dynamiky vyrobnychykh ekoloho-ekonomichnykh system [online]. Available at: http://arr.chnu.edu.ua/jspui/handle/123456789/710.

17. Yakutova, O., 2007.Pro odnu liniinu model ekoloho-ekonomichnoi dynamiky In: Dynamical system modelling and stability investigation, Kyiv, Ukraine, 22–25 may 2007. Kyiv: DP "Informatsiino-analitychne ahentstvo"

18. Leontev, V., Ford, D., 1972. Mezhotraslevoi analyz vlyianyia struktury ekonomyky na okruzhaiushchuiu sredu. Ekonomyka y matematycheskye metody, 3, pp. 370-400.

19. Asteriou, D., Hall, S. G., 2011. Vector Autoregressive (VAR) Models and Causality Tests. Applied Econometrics (Second ed.). London: Palgrave MacMillan.

20. World development indicators (WDI) [E-resource]. World DataBank. Access mode: http://databank.worldbank.org/ddp/home.do.

21. Ukrainian Department of statistics [E-resource]. Available at: http://www.ukrstat.gov.ua/.

22. Ministerstvo ekolohii ta pryrodnykh resursiv Ukrainy, 2012. Natsionalna dopovid pro stan navkolyshnoho pryrodnoho seredovyshcha v Ukraini u 2011 rotsi. Kyiv:, LAT & K.

23. Ecological passports of regions [E-resource]. Ministerstvo ekolohii ta pryrodnykh resursiv Ukrainy, Available at: http://www.menr.gov.ua/content/category/6575.

Надійшла до редакції 01.02.14

Г. Харламова, канд. екон. наук, доц.,
В. Нестеренко, магістр
КНУ імені Тараса Шевченка, Київ

ЕКОЛОГІЧНА БЕЗПЕКА ТА ЕКОНОМІЧНИЙ РОЗВИТОК УКРАЇНИ: ОЦІНКА ВПЛИВУ

Процес подолання науково-технічної відсталості і нестійке використання природних ресурсів вимагають розробки нових методів і моделей еколого-економічної взаємодії. У статті розглянуті основні погляди на екологізацію як поняття. Проаналізовані основні напрямки екологізації та найбільш розповсюджені вітчизняні математичні моделі еколого-економічного моделювання. Застосовано VAR модельний підхід та імпульсний аналіз для ідентифікації та оцінки взаємозв'язку між екологічною безпекою та рівнем економічного розвитку України; на макро- та регіональному рівні.

Ключові слова: Екологічна безпека, економічне зростання, VAR модель.

А. Харламова, канд. экон. наук, доц.,
В. Нестеренко, магистр
КНУ имени Тараса Шевченко, Киев

ЭКОЛОГИЧЕСКАЯ БЕЗОПАСНОСТЬ И ЭКОНОМИЧЕСКОЕ РАЗВИТИЕ УКРАИНЫ: ОЦЕНКА ВЛИЯНИЯ

Процесс преодоления научно – технической отсталости и неустойчивое использование природных ресурсов требуют разработки новых методов и моделей эколого – экономического взаимодействия. В статье рассмотрены основные взгляды на экологизацию как понятие. Проанализированы основные направления экологизации и наиболее распространенные отечественные математические модели эколого – экономического моделирования. Применен VAR модельный подход и импульсный анализ для идентификации и оценки взаимосвязи между экологической безопасностью и уровнем экономического развития Украины, на макро – и региональном уровне.

Ключевые слова: Экологическая безопасность, экономический рост, VAR модель.

УДК 330.5
JEL H 11, H 70, K 40

J. Nemec, prof. Ing., CSc., Professor,
L. Matějová, Ing., Phd. student
Masaryk University, Czech Republic

DECENTRALISATION AND QUALITY OF GOVERNANCE: SELECTED ISSUES FROM THE CZECH AND SLOVAK REPUBLIC

Public administration reforms in the Czech Republic and in Slovakia started almost immediately after the "Velvet Revolution" in 1989. More than two decades of concrete experience with decentralisation in the specific environment of two selected transitional countries, now provides enough material for an attempt to assess the main pros, cons and risks of decentralisation as a public administration reform tool in these conditions. The goal of the paper is to discuss some important issues connected with processes of creation of modern governance in transitional countries, focusing mainly on decentralisation, its general problems and its specific limits in the environment of accession countries in Central Europe. Both Slovakia and the Czech Republic use decentralisation as the dominant tool to change their current public administrations. decentralisation might well be a good thing to achieve better governance in accession countries in Central Europe, but only under certain circumstances. Decentralisation alone does not bring positive results, automatically and immediately.

Keywords. Public administration, decentralization, governance, Czech Republic, Slovakia

Introduction. Public administration reforms in the Czech Republic and in Slovakia started almost immediately after the "Velvet Revolution" in 1989. From the beginning decentralisation was used as an important reform tool to achieve better performance of the system, bringing positive but also negative results. More than a decade of concrete experience with decentralisation in the specific environment of two selected transitional countries, on their way to achieve "European public administration standards", now provides enough material for an attempt to assess the main pros, cons and risks of decentralisation as a public administration reform tool in these conditions.

The main features of modern "European administration" are defined by the important White Paper on European governance (European Commission, 2001), as openness, participation, accountability, effectiveness and coherence. The contents of the White Paper represent the current trend of moving from analysia of government to governance, or further to "public leaderships" (Bouckaert, 2002), representing the next step of reforms to public administration systems, in which all stake-holders benefit from mutual co-operation.

These values of modern governance in the 21st century will be difficult to achieve in real public administration praxis even in the developed countries of the "Western world", but much more so in the transitional countries of Central Europe, even though some of them become EU members from 2004. Both countries discussed in this chapter – the Czech Republic and Slovakia – were accepted into EU membership in 2004, having complied with all requirements of "Acquis" by the end of 2002. However, much remains to be done if 'good governance' is to be achieved, not so much in legislation, but in respect of the quality and effectiveness of functioning of institutions, including the public administration area.

The transition from the old centralised model of government and economy in most CEE countries has been really fast in many respects, but it is also apparent now that the transformation process is much more complicated than was ever predicted, especially because of its human dimension. The change from a command-based to a democratic society, with associated processes of public administration reforms, is still in a relatively early stage in all transitional countries. Most of the important new formal structures were created, but public administration systems still do not function as expected, for many reasons. Moreover, the impacts and outcomes of reforms are in many cases in line with expectations, proving that adoption of more or less effective "Western" reform tools in the transitional environment is really complicated, and their careless transfer may lead to important problems (Coombes and Verheijen, 1997), because of specific characteristics of the local environment.

In this chapter we discuss some important issues connected with processes of creation of modern governance in transitional countries, focusing mainly on decentralisation, its general problems and its specific limits in the environment of accession countries in Central