

**ABSTRACT**

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**Verification of Environmental Kuznets Curve in Developing Europe: A Case of Ukraine**Associate Professor **Cherkashyna T. S.**<sup>1</sup><sup>1</sup>*Simon Kuznets Kharkiv National University of Economics, Ukraine***Background:**

It is common knowledge that strategic goal of development of any country is to accelerate economic growth and provide high level of living standards for its citizens. However, meetings of these goals often lead to environmental pollution and deterioration of the nature. Conceptually, this statement was proved and confirmed by Simon Kuznets, outstanding American economist, Nobel prizier (1971), who pointed out there is close relationship between wealth of the nation and environmental pollution that can be graphically described as inverted U-curve. In modern economic science, this relationship is called as environmental Kuznets curve (EKC). Because of many countries faces with ecological problems scientists' and policymakers' throughout the world interest in the verification of the action of EKC in different types of economic systems.

*The aim of this study* is to empirically verify the action of environmental Kuznets curve in developing European economies, namely Ukrainian economy, and, on its basis, to recommend the possible measures that could be taken to improve the strategy of economic and ecological development of Ukraine.

**Methods:**

Theoretical and methodological basis for the study is a set of scientific methods, in particular, economic analysis, graphic analysis, regression analysis, economic modeling.

**Results:**

It has been considered economic essence and graphic interpretation of environmental Kuznets curve. It has been studied scientific researches related with empirical verification of the action of environmental Kuznets curve in developed, emerging and developing European economies. It has been built regression model showing the quantitative relationship between size of environmental pollution (CO<sub>2</sub>) and size of GDP per capita in Ukraine during 1991-2019. It has been established that environmental Kuznets curve in Ukrainian economy doesn't act: increase in GDP per capita leads to the decrease in environmental pollution (CO<sub>2</sub>), but it is lagging out from increase in wealth of the nation. It has been proposed scientific and practical recommendations on how to improve the strategy of economic and ecological development of Ukraine.

**Conclusions:**

It has been examined the relationship between size of environmental pollution and size of GDP per capita in Ukraine during 1991-2019. As an instrument of the

research it has been used regression analysis that showed environmental Kuznets curve in Ukraine doesn't act in the long run: increase in GDP per capita led either to the decrease in environmental pollution (2012-2013, 2016-2017) or to increase in environmental pollution (2007-2008, 2010-2011, 2018-2019). Therefore, our research demonstrates that environmental Kuznets curve for Ukrainian economy is not described an inverse U-curve, it is described in wave form. Following this, it is suggested the following solutions.

Firstly, it is recommended to reform fiscal policy in Ukraine toward transition from increase in profit and income taxes to increase in ecological taxes. Following this line of argument, Ukrainian government must significantly increase taxes for enterprises using carbon-intensive technologies and, on that way, deteriorating the nature. From the other side, it is useful to implement system of tax privileges (preferences) and tax holidays for firms implementing ecological innovations. In particular, big businesses conducting scientific researches should receive preferences in paying taxes (it can be varied from 100 to 200% of expenditure on scientific and technical works). Meanwhile, the state should set free medium-size and small-size enterprises implementing modern ecological innovations from paying taxes and give them tax holidays during 1 or 2 years depending on the phase of innovation cycle. In our view, these options will considerably promote the transition to green economy and further modernization of Ukrainian industrial enterprises based on energy effectiveness.

Secondly, it is possible to boost economic and ecological development of Ukraine using financial innovation, namely green or climate change bonds that are emitted by transnational companies and transnational banks. Buyers of green bonds in Ukraine can be private investors (or "business angels") around the world and profit from use of this financial instrument will direct to financing of scientific programs learning nature deterioration issues or climate change problems.

Thirdly, it is important to stimulate development of electronic transport, namely electronic buses and electronic cars. It is recommended to organize special zones for traffic of net electronic transport and open, at least, six thousand charge stations until 2025. Moreover, it will be helpful to implement the law established the need to re-equip all transport with electronic engines and significantly increase the share of renewable resources (winter energy, sunny energy, biological energy) in Ukrainian energy sector.

Totally, all the above measures will help to accelerate formation of green economy in Ukraine and further modernization of industrial enterprises based on high energy effectiveness.

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