

## MODEL OF OPTIMIZATION OF TAX BURDEN ON THE ACTIVITIES OF AGRICULTURAL ENTERPRISES IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

Oleh M. Odintsov, Cherkasy State Technological University, Cherkasy (Ukraine).

E-mail: o.odintsov@chdtu.edu.ua

Irina R. Bereziuk-Rybak, Cherkasy State Technological University, Cherkasy (Ukraine).

E-mail: iraberezyk371@gmail.com

Ruslan V. Mann, Cherkasy State Technological University, Cherkasy (Ukraine).

E-mail: mannruslan1@gmail.com

Mykola Yu. Slynko, Cherkasy State Technological University, Cherkasy (Ukraine).

E-mail: slynkokolya@ukr.net

**DOI 10.32342/2074-5354-2023-1-58-5**

**Keywords:** agriculture economics, tax burden, Cobb-Douglas function, production-institutional function, production factors, econometric model, Laffer fiscal points

**JEL:** Q00, H21, C10

The aim of the article is to develop an applied methodology for identifying promising areas of agricultural development in Ukraine, which is based on the optimization of the tax burden on the industry through the use of production and institutional function. The theoretical and methodological basis of the study is the concept of Laffer curve and methods of scientific knowledge (econometric methods of studying the impact of taxes on the economy, regression analysis). The study uses a methodological approach that allows to optimize the tax burden on agriculture, which increases the industry's output at a significantly lower level of the tax burden. With the help of econometric modeling, the optimal values of the tax burden have been calculated; the main patterns of the impact of the tax burden on the economic growth of agricultural production have been determined.

The modern development of agriculture within the framework of the concept of sustainable development should be aimed at achieving food security and slowing down global warming. In order to obtain opportunities for the real implementation of the declared sustainable development goals in practice, economic entities in the country's agricultural sector must function effectively according to the criteria of socio-economic, environmental and financial efficiency. One of the most effective levers for achieving such components of efficiency in the current conditions of the development of agriculture in Ukraine is the optimization of the tax burden.

It has been established that the indicators of the tax burden have a significant impact on the development trajectory of the industry and form opportunities for increasing the level of social protection of the population. To identify and model the impact of the tax burden on the development of agriculture and the possibility of achieving signs of sustainable development, it is proposed to use a four-factor production-institutional function.

As econometric parameters of the functioning of the economic and production system of the agrarian sector, the level of wages, the volume of capital investments, land area, and taxes are chosen. The econometric parameters demonstrated by the elasticity coefficients of the selected factors made it possible to calculate the Laffer points of the first and second order, on the basis of which the level of the tax burden is justified, which contributes to the growth of agricultural production in the context of tax optimization. pressure on the industry. Further research should be aimed at developing a strategy for the development of agriculture in Ukraine.

### References

1. Zech K.M., & Schneider U.A. (2019). Carbon leakage and limited efficiency of greenhouse gas taxes on food products. *Journal of Cleaner Production*, 213, 99-103. doi:10.1016/j.jclepro.2018.12.139.
2. Savickienė J., & Miceikienė A. (2018). Sustainable economic development assessment model for family farms. *Agricultural Economics (Czech Republic)*, 64(12), 527-535. doi:10.17221/310/2017-AGRICECON.

3. Miceikienė A., Gesevičienė K., & Rimkuvienė D. (2021). Assessment of the dependence of GHG emissions on the support and taxes in the EU countries. *Sustainability (Switzerland)*, 13(14). doi:10.3390/su13147650.
4. Schmidt A., Necpalova M., Mack G., Möhring A. & Six J. (2021). A Food Tax only Minimally Reduces the N surplus of Swiss Agriculture. *Agricultural Systems*, 194, 1-13. URL: <https://doi.org/10.1016/j.agsy.2021.103271>
5. Gruziel K., & Raczkowska M. (2018). The Taxation of Agriculture in the European Union Countries. *Problems of World Agriculture*, 18(4), 162-174. URL: <https://doi.org/10.22630/PRS.2018.18.4.107>
6. He S. (2016). Modeling China's agriculture support policy effects. *Journal of Economic Studies*, 43(5), 763-779. doi:10.1108/JES-05-2015-0071.
7. Tulush L.D., Radchenko O.D. & Lanovaya M.I. (2022). Priorities and efficiency of government support for the agricultural sector of Ukraine. *Environmental Footprints and Eco-Design of Products and Processes*, 13-23. doi:10.1007/978-981-16-8731-0\_2.
8. Kovalchuk I., Melnyk V., Novak T. & Pakhomova A. (2021). Legal regulation of agricultural taxation. *European Journal of Sustainable Development*, 10(1), 479-494. doi:10.14207/ejsd.2021.v10n1p479.
9. Koblianska I., Pasko O., Hordiyenko M. & Yarova I. (2020). Are peasant households feasible in terms of policy? The debate on the future of semi-subsistence households in Ukraine. *Eastern European Countryside*, 26(1), 127-179. doi:10.12775/eec.2020.006.
10. Bechko P., Kolotukha S., Ptashnyk S., & Nahorna J. (2020). Tax stimulation of agricultural goods manufacturers. *Scientific Horizons*, (6), 60-67. doi:10.33249/2663-2144-2020-91-6-60-67.
11. Marynchuk S.G. (2015). *Modeliuvannia mekhanizmu podatkovoi optymizatsii za zasadakh nechitkoi lohiky* [Modeling of tax optimization mechanism based on fuzzy logic], Efektyvna ekonomika 3. URL: [https://nbuv.gov.ua/UJRN/efek\\_2015\\_3\\_19](https://nbuv.gov.ua/UJRN/efek_2015_3_19)
12. Klymash N.I. (2017). *Modeliuvannia rehuliuchoho vplyvu podatkovoi komponenty na umovy hospodariuvannia v Ukraini* [Simulation of the regulating effects of tax components in terms of management in Ukraine]. *Black sea economic studies*, 19, 95-99. URL: [https://bses.in.ua/journals/2017/19\\_2017/19\\_2017.pdf](https://bses.in.ua/journals/2017/19_2017/19_2017.pdf)
13. Kibalnyk L.O. & Kuzmych N.V. (2018). *Modeling of tax revenues to the state budget by the moving average method* [Modeliuvannia podatkovykh nadkhodzhen do derzhavnoho biudzhetu metodom kovznoho serednoho], Socio-humanitarian bulletin, 23, 165-169. URL: <https://www.newroute.org.ua/arcsg>
14. Kravets O.V. (2017). *Kohnityvne modeliuvannia vplyvu podatkovoho rehuliuvannia na rozvytok maloho pidpriemnytstva v Ukraini* [The influence of tax regulation on development of small enterprise in Ukraine by cognitive modeling]. Efektyvna ekonomika, 2. URL: <https://www.economy.nayka.com.ua/?op=1&z=5835>
15. Hryhorkiv V. & Ishchenko S. (2015). *Modeliuvannia finansovykh potokiv vlasnykiv zemli silskohospodarskoho pryznachennia z urakhuvanniam vplyvu podatkiv* [Modeling of financial flows owners of farm land with the influence of tax]. *Scientific herald of Chernivtsi University*, 730-731, 175-182. URL: [http://econom.chnu.edu.ua/wp-content/uploads/2016/07/nv\\_730-731.pdf](http://econom.chnu.edu.ua/wp-content/uploads/2016/07/nv_730-731.pdf)
16. Martynovych D.Y. (2016). *Modeliuvannia vplyvu podatkovykh pilh ta vydatkiv biudzhetu na rozvytok palyvno-enerhetychnoho kompleksu ta silskoho hospodarstva v Ukraini* [Modeling of tax incentives and budget expenditures on the development of fuel and energy complex and agriculture in Ukraine], *Scientific Bulletin of Uzhhorod University*, 6(2), 82-85. URL: [http://www.visnyk-econom.uzhnu.uz.ua/archive/6\\_2\\_2016ua/20.pdf](http://www.visnyk-econom.uzhnu.uz.ua/archive/6_2_2016ua/20.pdf)

17. Sokolova O. & Diachenko S. (2021). Consolidation of public finances as a tool for minimising disparities in the sectoral structure of the national economy. *Scientific Horizons*, 24(5), 121-130. doi:10.48077/scihor.24(5).2021.121-130.
18. Trusova N.V., Hryvkivska O.V., Polishchuk N.V., Skrypnyk S.V., Kudyrko O.M. & Lobacheva I.F. (2021). De-shadowization of tax gaps in the system-compositional models of state fiscal policy: Comparative analysis of eu countries and Ukraine. *Public Policy and Administration*, 20(3), 443-453. doi:10.5755/j01.ppa.20.3.28595.
19. Khodzhaian A.A., Ignatyuk A.I., Korneev V.V. & Khodzhaian A.R. (2021). Modeling of the structural shift impact on economic dynamics of ukraine's development. *Naukovyi Visnyk Natsionalnoho Hirnychoho Universytetu*, (2), 170-177. doi:10.33271/nvngu/2021-2/170.
20. Reznik N., Palchevich G., Popov V. & Petrenko L. (2021). Strategic vectors of the state financial and credit incentives for innovation. *Lecture Notes in Networks and Systems. International Conference on Business and Technology, ICBT 2020. Istanbul 14-15 November 2020*. 194, 229-245. doi:10.1007/978-3-030-69221-6\_17.
21. Trusova N.V., Synchak V.P., Borovik L.V., Kostornoi S.V., Chkan I.O. & Forkun, I.V. (2020). Fiscal policy in a decentralized space of the financial system of ukraine. *International Journal of Criminology and Sociology*, 9, 2891-2904. doi:10.6000/1929-4409.2020.09.354.
22. Iefymenko T. (2020). fiscal regulation of national economies' sustainable growth. *Science and Innovation*, 16(5), 20-35. doi:10.15407/scine16.05.020.
23. Laffer A. & Moore S. (2010). *Return to Prosperity. How America Can Regain Its Economic Superpower Status*. (3rd ed). 336 p.
24. Welfens P. & Jasinski P. (1994). *Privatization and Foreign Direct Investment in Transforming Economies*. Dartmouth Publishing Company Limited, 234 p.
25. Odintsov M.M. & Odintsova T.M. (2018). *Rol innovatsiinoho potentsialu v ekonomichnomu rozvytku rehionu z urakhuvanniam podatkovooho navantazhennia* [The role of innovative potential in the economic development of the region with the tax learning]. Collection of scientific works of the University of the State Fiscal Service of Ukraine, 1, 119-135. URL: <https://ojs.nusta.edu.ua/ojs2/article/view/295>
26. Odintsova T.M. (2018). *Optymizatsiia podatkovooho navantazhennia yak instrument ekonomicchnoho zrostannia* [Optimization of tax loading as a tool for economic growth]. Collection of scientific works of the University of the State Fiscal Service of Ukraine, 2, 253-265. URL: <https://doi.org/10.33244/2617-5940.2.2018.253-265>
27. Maslak O. & Odintsova T. (2019). *Otsinka efektyvnosti vykorystannia resursiv rehionu na osnovi optymizatsii podatkovooho navantazhennia* [Assessment of the efficiency of the use of the regional resources on the basis of the tax optimization]. *Bulletin of Kremenchuk Mykhailo Ostrohradskyi National University*, 2 (115). URL: <https://doi.org/10.30929/1995-0519.2019.2.79-86>
28. State Statistical Service of Ukraine, *Agriculture of Ukraine (2010-2019)*. URL: <https://ukrstat.gov.ua>
29. Mertens K. & Ravn M.O. (2013). The Dynamic Effects of Personal and Corporate Income Tax Changes in the United States. *American Economic Review*, 103, 4, 1212-47. URL: <https://www.aeaweb.org/articles?id=10.1257/aer.103.4.1212>

Одержано 1.12.2022.