

ASSESSING THE IMPACT OF RESOURCE INNOVATION POTENTIAL ON THE FINANCIAL EFFICIENCY OF THE UKRAINIAN AGRICULTURAL SECTOR

Taras Sus, Vasyl Stefanyk Precarpathian National University (Ukraine).

E-mail: taraslvik@gmail.com

Iryna Stoianenko, State University of Trade and Economics (Ukraine).

E-mail: i.stoyanenko@knu.edu.ua

Oksana Penkova, Uman National University of Horticulture (Ukraine).

E-mail: oxana_penkova@meta.ua

Olga Makushok, Uman National University of Horticulture (Ukraine).

E-mail: olgamakusok@gmail.com

DOI 10.32342/2074-5354-2023-2-59-8

Keywords: *financial efficiency, innovation development, production function, resource potential, maximization*

JEL classification: *C38, D24, O33, Q14*

The purpose of the study is to improve the methodological support for the assessment of the financial efficiency of the agricultural sector of Ukraine under the influence of the innovative potential management of its resource provision. The main scientific methods used in the study are fundamental provisions of the theory of innovation and finance, correlation and multifactor regression analysis, mathematical programming, etc.

According to the results of the conducted research the parameter of technological progress as an indicator of the level of innovation development of the agrarian sector of the Ukrainian economy was obtained after modelling of autoregressive multiplicative Tinbergen-Solow production function. The numerical value of the technological progress parameter indicates a potential for additional growth in agricultural output of +0.142%, while other conditions remain unchanged.

23 indicators of the state of the resource provision of the agricultural sector were systematized in 4 groups: the results of the production activity of the agricultural sector (6 indicators), the resource supply of the agricultural sector (8 indicators), the efficiency of the use of resources by agricultural enterprises (4 indicators), and sustainability of the financial condition of agricultural enterprises (5 indicators).

A power-law four-factor regression model of the impact of the output volume of the agricultural sector, the value of current assets, return on capital and the current liquidity ratio on the volume of net profit of agricultural enterprises of Ukraine was obtained. It is proved that the elasticity of net profit for agricultural output is 0.01%, for the value of current assets - 1.46%, for capital accumulation - 0.72%, for current liquidity - 3.2%.

We constructed the target functions of maximization of the agricultural production output on the basis of the Tinbergen-Solow production function, net profit on the basis of the four-factor power model of net profit, return on equity on the basis of the two-factor DuPont model for the short term. The solving of target functions allowed for maximization of the return on equity of agrarian enterprises of Ukraine only at the expense of the existing innovation potential of production resources and will be used in further research by the authors.

References

1. Kopltn, H.T. (1963). The profit maximization assumption. *Oxford Economic Papers*, vol. 15, no. 2, pp. 130–139. <https://doi.org/10.1093/oxfordjournals.oep.a040916>
2. Primeaux, P., Stieber, J. (1994). Profit maximization: The ethical mandate of business. *Journal of Business Ethics*, no. 13, pp. 287–294. <https://doi.org/10.1007/BF00871675>
3. Chakraborty, S.K., Kurien, V., Singh, J., Athreya, M., Maira, A., Aga, A., Gupta, A.K., Khandwalla, P.N. (2004). Management paradigms beyond profit maximization. *Vikalpa: The Journal for Decision Makers*, vol. 29, no. 3, pp. 97–118. <https://doi.org/10.1177/0256090920040308>
4. Auerbach, A.J. (1979). Wealth maximization and the cost of capital. *The Quarterly Journal of Economics*, vol. 93, no. 3, pp. 433–446. <https://doi.org/10.2307/1883167>

5. Edwards, J.S.S., Keen, M.J. (1984). Wealth maximization and the cost of capital: A comment. *The Quarterly Journal of Economics*, vol. 99, no. 1, pp. 211–214. <https://doi.org/10.2307/1885730>.
6. Dempsey, M. (1996). Corporate financial management: Time to change the “cost of capital” paradigm? *Critical Perspectives on Accounting*, vol. 7, no. 6, pp. 617–638. <https://doi.org/10.1006/cpac.1996.0067>.
7. Nain, M.S., Singh Rashmi, Mishra, J.R., Sharma, J.P., Singh, A.K., Kumar, A., Gills, R., Suman, R.S. (2019). Maximising farm profitability through entrepreneurship development and farmers’ innovations: feasibility analysis and action interventions. *Indian Journal of Agricultural Sciences*, vol. 89, no. 6, pp. 1044–1049.
8. Mir, M.S., Naikoo, N.B., Amin, Z., Bhat, T.A., Nazir, A., Kanth, R.H., Singh, P., Raja, W., Singh, L., Fayaz, S., Ahngar, T.A., Palmo, T., Rehman, U. (2022). Integrated farming system: A tool for Doubling farmer’s income. *Journal of Experimental Agriculture International*, vol. 44, no. 3, pp. 47–56. <https://doi.org/10.9734/jeai/2022/v44i330808>
9. Nguyen-Anh, T., Hoang-Duc, C., Nguyen-Thi-Thuy, L., Vu-Tien, V., Nguyen-Dinh, U., Nguyen To-The (2022). Do intangible assets stimulate firm performance? Empirical evidence from Vietnamese agriculture, forestry and fishery small- and medium-sized enterprises. *Journal of Innovation & Knowledge*, vol. 7, no. 3, 100194. <https://doi.org/10.1016/j.jik.2022.100194>
10. Mazzarol, T., Reboud, S. (2020). Social entrepreneurship and co-operative and mutual enterprise. In: *Entrepreneurship and innovation*. Springer Texts in Business and Economics. Springer, Singapore, pp. 471–509. https://doi.org/10.1007/978-981-13-9412-6_14
11. Xaba, S.T., Marwa, N., Mathur-Helm, B. (2020). Efficiency evaluation of agricultural cooperatives in Mpumalanga: An empirical study using the DEA approach. *African Journal of Economic and Management Studies*, vol 11, no. 1, pp. 51–62. <https://doi.org/10.1108/AJEMS-10-2018-0291>
12. O’Sullivan, C.A., Bonnett, G.D., McIntyre, C.L., Hochman, Z., Wasson, A.P. (2019). Strategies to improve the productivity, product diversity and profitability of urban agriculture. *Agricultural Systems*, no. 174, pp. 133–144. <https://doi.org/10.1016/j.agsy.2019.05.007>
13. Hosseinzadeh, M., Samadi Foroushani, M., Sadraei, R. (2022). Dynamic performance development of entrepreneurial ecosystem in the agricultural sector. *British Food Journal*, vol. 124, no. 7, pp. 2361–2395. <https://doi.org/10.1108/BFJ-08-2021-0909>
14. Mwaura, F., Ngigi, M., Obare, G. (2022). Agricultural productivity and labour allocation trade-off crises for agriculture, cooking energy sourcing and off-farm employment in developing countries: Evidence from Western Kenya. *African Journal of Education, Science and Technology*, vol. 7, no. 1, pp. 277–293. <https://doi.org/https://doi.org/10.2022/ajest.v7i1.785>
15. Sutter, C., Bhatt, B., Qureshi, I. (2023). What makes resource provision an effective means of poverty alleviation? A resourcing perspective. *Organization Science*, vol. 34 no. 1, pp. 223–245. <https://doi.org/10.1287/orsc.2021.1570>
16. Cobb, C.W., Douglas, P.H. (1928). A theory of production. *The American Economic Review*, vol. 18, no. 1, pp. 139–165.
17. Tinbergen, J., Haag, D. (1973). Exhaustion and technological development: A macro-dynamic policy model. *Zeitschrift für Nationalökonomie*, vol. 33, no. 3/4, pp. 213–234.
18. Sus, T., Yemets, O., Tsiupa, O. (2020). Finansova polityka stymulivannia innovatsiinoho rozvytku ahrarnoho sektoru i mekhanizm yii realizatsii: zarubizhnyi dosvid [Financial policy of stimulating innovative development of the agricultural sector and mechanism of its implementation: Foreign experience]. *Financial and Credit Activity – Problems of Theory and Practice*, vol. 4 no. 35, pp. 347–355. <https://doi.org/10.18371/fcactp.v4i35.222151> (in Ukrainian)
19. Sus, T.Y. (2021). *Finansove zabezpechennia innovatsiinoho rozvytku ahrarnoho sektoru rehionu: kontseptsii, instrumenty, stratehii* [Financial support for innovative develop-

ment of the region's agrarian sector: concepts, tools, strategies]. Ivano-Frankivsk: PNU, 404 p. (in Ukrainian).

20. Solow, R.M. (1974). Intergenerational equity and exhaustible resources. *The Review of Economic Studies*, vol. 41, no. 5, pp. 29–45. <https://doi.org/10.2307/2296370>

21. State Statistics Service of Ukraine (2023). *Activities of enterprises*, available at: https://www.ukrstat.gov.ua/operativ/menu/menu_u/sze_20.htm (Accessed 1 February 2011) (in Ukrainian)

22. Baneva, I. (2021). Konkurentospromozhnist ahrarnykh pidpryemstv na osnovi mobilizatsii vnutrishnikh resursiv [Competitiveness of agricultural enterprises on the basis of mobilization of internal resources]. *Ukrainskyi zhurnal prykladnoi ekonomiky – Ukrainian Journal of Applied Economics*, vol. 6, no. 1, pp. 132–141. <https://doi.org/10.36887/2415-8453-2021-1-16>

23. Biloshkurska, N.V. (2010). Modeli adaptivnoi povedinky ta yikh rol u formuvanni ekonomichnoi bezpeky pidpryemstva [Adaptive behavior models and their role in formation of enterprise economic security]. *Actual Problems of Economics*, no. 114, pp. 101–105.

24. Biloshkurska, N.V., Biloshkurskyi, M.V., Chvertko, L.A. (2017). Influence of the security market condition on the collective investment development. *Scientific Bulletin of Polissia*, vol. 3, no. 2, pp. 138–142. [https://doi.org/10.25140/2410-9576-2017-2-3\(11\)-138-142](https://doi.org/10.25140/2410-9576-2017-2-3(11)-138-142)

25. Dragan, O., Berher, A., Plets, I., Biloshkurska, N., Lysenko, N., Bovkun, O. (2021). Modelling and factor analysis of pricing determinants in the state-regulated competitive market: The case of Ukrainian flour market. *International Journal of Computer Science and Network Security*, vol. 21, no. 7, pp. 211–220. <https://doi.org/10.22937/IJCSNS.2021.21.7.25>

26. Soliman, M.T. (2008). The use of DuPont analysis by market participants. *The Accounting Review*, vol. 83, no. 3, pp. 823–853. <https://doi.org/10.2308/accr.2008.83.3.823>

27. Prokopenko, O., Bezliudnyi, O., Omelyanenko, V., Slatvinskyi, M., Biloshkurska, N., Biloshkurskyi, M. (2021). Patterns identification in the dynamics of countries' technological development in the context of military conflict. *Eastern-European Journal of Enterprise Technologies*, vol 2, no. 13(110), pp. 6–15. <https://doi.org/10.15587/1729-4061.2021.230236>

28. Braslavskaya, O.V., Penkova, O.H., Plets, I.I., Sus, T.Y., Biloshkurska, N.V., Biloshkurskyi, M.V. (2020). Management of the higher education institutions innovative potential: Formalization and evaluation. *Revista Inclusiones*, vol. 7, no. 4, pp. 624–645. available at: <https://revistainclusiones.org/index.php/inclu/article/view/1575> (Accessed 1 February 2011).

Одержано 16.06.2023.