

## **TWO-FACTOR REGRESSION ANALYSIS OF THE IMPACT OF INFLATION AND INSURANCE ON FOOD MARKET SECURITY INDICATORS**

**Arych M., Ph.D. in Economics**

*National University of Food Technologies*

**Introduction.** The research study presents a correlation-regression analysis of the impact of inflation and insurance on food market security indicators (food exports and imports). The purpose of the paper is to determine the degree of statistical significance of the impact of inflation and insurance on food market security indicators.

**Literature review.** According to Mârzaa et al. (2015) it was argued that insurance alone cannot provide food security [1]. In addition, Isaboke et al. (2016) analyzed the impact of weather index based micro-insurance on food security status of smallholders. These study results show the positive effect of index insurance on food security [2]. Furthermore, Kim Y., Pendell D.L. and Yu J. (2018) suggest that one of the key study points of the influence of insurance on food market security were focused on the effects of crop insurance on farm disinvestment and exit decisions [3]; besides, according to Zhao Y. and Preckel P. (2016) an empirical analysis of the effect of crop insurance on farmers' income [4]; the effects of subsidized crop insurance on crop choices [5]; risk management in the ACS with special attention to insurance [6; 7]. Besides, significant research results about the analysis of relationship between import, export and inflation were obtained by Kiganda, Obange and Adhiambo (2017), Ahmed, Ghauri, Vveinhardt, Streimikiene (2018), which studied the cases of Kenya [8] and Pakistan [9].

**Materials and methods.** The study was conducted on the basis of analysis of statistical data of Ukraine for 2002-2019 and foreign countries: Australia, Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Spain, Turkey, Switzerland, Greater Britain for 1983-2018. The sources of

statistical materials on the basis of which research was conducted on foreign countries are the official data of the World Bank on inflation (consumer price index), as well as information on food safety indicators selected for the study: the share of food imports and exports in the commodity structure of imports or exports in general. Statistics of the insurance market (gross insurance premiums) of foreign countries are obtained from the official website of the Organization for Economic Cooperation and Development (OECD). Information on the Ukrainian market is taken from the official websites of the State Statistics Service of Ukraine and the National Commission for State Regulation of Financial Services Markets of Ukraine.

**Results.** The paper formed and tested null hypothesis (there is no statistically significant impact of inflation and insurance on two or at least one of the indicators of food market security) and alternative hypothesis (together the impact of inflation and insurance on two or at least one of the indicators of food market security) shares of exports and imports in the structure of all commodities, respectively, exports and imports of the country) are statistically significant). The influence of factor indicators on the results is estimated by correlation-regression analysis and calculation of correlation and determination coefficients, statistical significance of F, p-value. The results of the study showed that for both for Ukraine and for most foreign countries, the null hypothesis was adopted, because the impact of both inflation and insurance on food market security indicators is not statistically significant. At the same time, for other countries (France, Turkey, Italy, Great Britain) the influence of factor indicators on the target function is statistically significant, it means that an alternative hypothesis is accepted.

**Conclusions.** The paper has analyzes the impact of inflation (consumer price index) and insurance (gross insurance premiums) on food market security indicators, which is represented by indicators of exports (% of total merchandise exports) and imports (% of total merchandise imports) of food. The results of the research showed that for both Ukraine and most foreign countries, the effects of inflation and insurance on food market security indicators are not statistically significant.

## **References:**

1. Bogdan Mârzaa, Carmen Angelescub, Cristina Tindecheb (2015), Agricultural Insurances and Food Security. The New Climate Change Challenges, *Procedia Economics and Finance*, 27, pp. 594–599.
2. Isaboke H.N., Zhang Q., Nyarindo W.N. (2016), The effect of weather index based micro-insurance on food security status of smallholders, *Agricultural and Resource Economics: International Scientific E-Journal*, 2(3), Available at: [www.are-journal.com](http://www.are-journal.com).
3. Kim Y., Pendell D.L., Yu J. (2018), Effects of Crop Insurance on Farm Disinvestment and Exit Decisions, Available at: <https://arefiles.ucdavis.edu>.
4. Zhao Y., Preckel P. (2016), An empirical analysis of the effect of crop insurance on farmers' income, *China Agricultural Economic Review*, 8(2), pp. 299–313.
5. Jisang Yua J., Sumnerb D.A. (2017), Effects of subsidized crop insurance on crop choices, *Agricultural Economics*, 49, pp. 533–545.
6. Bachev H. (2012), Risk Management in the Agri-food Sector, *Contemporary Economics*, 7(1), pp. 45–62.
7. Lorant A., Farkas M.F. (2015), Risk management in the agricultural sector with special attention to insurance, *Polish Journal of Management Studies*, 11(2).
8. Kiganda E.O., Obange N., Adhiambo S. (2017), The Relationship between Exports and Inflation in Kenya: An Aggregated Econometric Analysis, *Asian Journal of Economics, Business and Accounting*, 3(1), pp. 1–12.
9. Ahmed R.R., Ghauri S.P., Vveinhardt J., Streimikiene D. (2018), An empirical analysis of export, import, and inflation: a case of Pakistan, *Romanian Journal of Economic Forecasting*, XXI(3), pp. 117–130.