

## **The implications of the COVID-19 crisis for the spatial integration of agri-food markets and the functioning of food supply chains in the world, with a particular focus on Poland**

Agri-food products are among the key goods satisfying basic human needs. Due to climate and soil restrictions, agricultural production is not evenly distributed in spatial terms (geographically), hence there is a need for exchange between self-sufficient regions and regions with food shortages. However, this equilibrium is quite sensitive to emerging political, economic or climate-environmental shocks. The latter ones, including natural disasters and epidemic outbreaks related to animal or human diseases, play an increasingly important role leading to disturbances in the processes of spatial integration of agri-food markets and affecting the functioning of local and global food supply chains.

The COVID-19 outbreak, caused by the novel coronavirus SARS-CoV-2, has occurred in 2020 and had a character of a global demand-supply shock, causing both global and local economic consequences. Restrictions on the flows of goods, services and production inputs introduced as a result of a pandemic, leading to a weakening of the spatial integration of agri-food markets, can have serious repercussions for the food security of many regions. Therefore, **the scientific goal of the project is to assess the economic effects of the COVID-19 crisis on the spatial integration of agri-food markets and the functioning of food supply chains in the world, with a particular focus on Poland.** The project will carry out **ex post analyses** aimed at examining the past processes of spatial integration on agri-food markets in the world before and under the COVID-19 pandemic, as well as their economic and social consequences for the functioning of supply chains and food security on a local, regional and global scale. In the next stage of research **ex ante analysis** of selected potential scenarios for the development of the COVID-19 crisis and its consequences for market participants, supply chains and food security in the world and in Poland will be performed. The research undertaken will fall into the field of comparative economics and will focus on countries severely affected by the COVID-19 crisis and those where the epidemic is milder. Countries with different levels of economic development and trade position (exporters vs net importers) will be examined. This way, the impact of the COVID-19 shock on the functioning of agri-food markets and food supply chains in countries facing food insecurity and countries with food surpluses will be confronted. Based on the research results and discussion in expert panels some **recommendations on policy and institutional solutions** to minimize the negative consequences of the COVID-19 crisis for the agri-food sector will be developed.

**The results obtained will enrich the state of knowledge about the mechanisms of functioning of agri-food markets and shaping the international competitive position in the face of external shock having the character of an epidemic threat.** This way, the research results will fall into the **basic research** and contribute to the development of agricultural economics, the theory of economic integration and the theory of international trade. The project will use **qualitative and quantitative analysis methods**, including time series models, partial and general equilibrium models (AGMEMOD and GTAP) and Bayesian Belief Networks (BBNs). All these tools will be specified or adapted to assess the multidimensional economic consequences of the COVID-19 crisis for the agri-food sector.

**The need and novelty of research** is due to several reasons. Firstly, due to the relatively short time since the SARS-CoV-2 outbreak, comprehensive scientific research on the potential economic effects of the COVID-19 crisis for the agri-food sector which is sensitive to such shock has not yet been undertaken. Secondly, the COVID-19 crisis has a character of a global demand-supply shock with unprecedented power of impact on the economy, which can significantly disturb the current mechanism of shaping the market equilibrium and the model of functioning of supply chains. Thirdly, the economic effects of the COVID-19 crisis will be determined by many economic and non-economic factors, which make research interesting in the theoretical and cognitive dimension. Therefore, **the research undertaken is scientifically justified, and at the same time responds to the current needs of socio-economic life.**