INSTRUMENTS MITIGATING THE NEGATIVE EFFECTS OF THE COVID-19 PANDEMIC IN AGRICULTURE

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ABSTRACT

Aim: The aim of the study is to identify and characterize agricultural policy instruments employed to mitigate the adverse effects of the COVID-19 pandemic in Poland. It also aims to propose new and modified state policy instruments to counter the pandemic’s negative consequences in agriculture. Methods: We employed a qualitative approach using expert reviews to refine agricultural policy instruments aimed at mitigating the adverse effects of the COVID-19 pandemic. Fifteen independent experts critically evaluated our internally formulated instrument proposals, providing in-depth feedback and assessments. These expert assessments were conducted in June-July 2023. Results: The primary entities that provide public financial support for agriculture in Poland are the Agency for Restructuring and Modernisation of Agriculture (ARiMR), the Agricultural Social Insurance Fund (KRUS), and the National Support Centre for Agriculture (KOWR). The study developed and refined a range of instruments to counteract the detrimental effects of pandemics on agriculture. These tools, refined through expert insights, address key challenges such as market access, labor availability, logistical issues, and health risks in farming activities. The Integrated Agricultural Platform (IAP), Anti-Crisis Agricultural Fund (ACAF), and other state-supported initiatives constitute a comprehensive strategy designed not only to alleviate immediate impacts, but also to strengthen long-term resilience. Conclusions: This proactive and multifaceted approach is essential to ensure the stability and sustainability of the agricultural sector in the face of potential future health crises, including pandemics.

Keywords: COVID-19 pandemic, agriculture, agricultural policy, public support, support instrument

JEL codes: H20, Q10, Q14

INTRODUCTION

The COVID-19 pandemic has posed a worldwide challenge, requiring attention from researchers, policymakers, and governments across various dimensions that extend well beyond the health and well-being implications of the pandemic [Lambert et al. 2020]. The outbreak of the coronavirus disease 2019 (COVID-19) in early 2020 significantly impacted the global economy [Baldwin and Tomiura 2020, Czech et al. 2020]. The COVID-19 pandemic precipitated an unprecedented global crisis, with profound implications across all sectors of the economy. Agriculture, a cornerstone of global food security and a major economic driver in many countries, was not immune to these disruptions. COVID-19 has had a significant impact on agriculture and food systems, affecting aspects ranging...
The immediate effects included labor shortages due to mobility restrictions, the closure of food markets, and changes in consumer demand patterns, resulting in both food wastage and increased food insecurity [Torero 2020]. The pandemic also highlighted the fragility of the global food system, emphasizing the need for greater resilience and sustainability in agricultural practices [Béné 2020]. In response to these challenges, governments worldwide deployed various public support instruments aimed at mitigating the negative impacts of the pandemic on agriculture. These measures ranged from providing financial assistance to making policy adjustments, aiming to stabilize markets, ensuring the continuity of food supply, and safeguarding the income of farmers. The reason for such interventions was based on the strategic importance of agriculture for national and global food systems, as well as its role in rural development and environmental stewardship.

The aim of the study is to identify and characterize agricultural policy instruments used to mitigate the adverse effects of the COVID-19 pandemic in Poland and formulate proposals for new and modified state policy instruments to counter the negative consequences of the pandemic in agriculture. The paper is structured as follows: following this introduction, the next section provides the literature review. The subsequent section presents the materials and research methods used. The results section reports the empirical findings. Finally, the paper offers our conclusions.

LITERATURE REVIEW

The COVID-19 pandemic has required the use of various public support measures to mitigate its negative impact on agriculture. These measures have played a crucial role in meeting the immediate needs of the agricultural sector and laying the foundation for recovery and resilience. Governments worldwide have been urged to enhance public awareness and implement region-specific mitigation strategies to safeguard food security and support smallholder farmers [Gostic et al. 2020; Kent et al. 2022]. Studies have emphasized the importance of coordinated public-private sector approaches in managing the pandemic’s effects on sustainable development and the global economy [El Keshky et al. 2020]. Evidence indicates that less strict interventions can lead to increased fatalities, while more severe responses may reduce them, providing guidance for policymakers [Chisadza et al. 2021]. The effectiveness of government policy responses is crucial in controlling the spread of the virus and ensuring the sustainability of agricultural systems [Padhan and Prabheesh 2021].

One of the primary forms of support has been financial assistance and subsidies. Many governments have provided direct payments to farmers to compensate for lost income and help them maintain their operations. These payments have been crucial in enabling farmers to continue producing food despite the disruptions caused by the pandemic [OECD 2021]. Studies evaluating these measures have found that while they provided immediate relief and supported agricultural production, their effectiveness varied depending on the targeting and distribution mechanisms [Barrett 2020]. In some cases, there have been criticisms concerning the equitable distribution of funds and the adequacy of support provided [Glauber et al. 2020].

Policy adjustments have also been significant forms of support. Measures such as loan deferrals, tax reliefs, and amendments to existing agricultural policies have been implemented to provide relief to farmers and agribusinesses. Market stabilization efforts, including the purchase of surplus produce and the facilitation of distribution to areas in need, have helped address the imbalances caused by sudden changes in demand. However, the effectiveness of these interventions has relied on timely implementation and the ability to reach the most impacted segments of the sector [OECD 2021].

Interventions to maintain the functionality of supply chains have been another critical area of support. These have included measures to ensure the movement of agricultural goods across borders and to protect the health of workers in the food supply chain. Investments in logistics and infrastructure to adapt to changing conditions have also been part of the re-

The facilitation of cross-border movement of agricultural goods and the protection of supply-chain workers have helped prevent severe food shortages. However, the long-term effectiveness of these measures will likely depend on continued investment in supply-chain infrastructure and the adoption of more flexible and resilient supply-chain models [Laborde et al. 2021].

The pandemic has accelerated the adoption of technology and innovation in agriculture. Public support has been provided for digital solutions that connect producers with consumers, for the adoption of precision agriculture technologies, and for research into more resilient agricultural practices. The promotion of technological solutions has yielded mixed effectiveness. While technology has the potential to transform agriculture, the adoption rates and impact of such innovations have varied significantly across regions and types of farming operations. The digital divide continues to be a significant barrier to the widespread adoption of technology in agriculture [Badiane et al. 2021, Dayioglu and Turker 2021].

The effectiveness of these public support instruments is the subject of ongoing evaluation. While they have provided essential relief to the agricultural sector, there is a need to assess their long-term impact on sustainability and resilience. Studies are starting to emerge that analyze the results of these interventions and offer recommendations for future crises [Schmidhuber et al. 2020]. The long-term impact of support measures on the sustainability and resilience of the agricultural sector is still being evaluated. Some scholars argue that although the support measures were necessary, they must be aligned with sustainable development goals to ensure that the agricultural sector can withstand future shocks [Vos et al. 2022].

The COVID-19 pandemic has highlighted the vulnerability of agricultural workers and the need for protective resources [Chicas et al. 2021], as well as the importance of a farming systems approach to understanding the impacts on livelihoods and social well-being [Middendorf et al. 2021]. The lessons learned from the crisis could inform the development of sustainable agro-policies and decision-making to enhance the resilience of agricultural systems to future pandemics [Kumar et al. 2020].

The literature on public support instruments for agriculture during the COVID-19 pandemic has identified several research gaps. While the socioeconomic and finance-related impacts of the pandemic have been recognized as areas needing immediate research with strong policy importance [Narayan 2021], a need for a conceptual framework to discuss the impact of COVID-19 on agriculture and rural livelihoods [Morton 2020] has also been emphasized. In addition, the biodiversity crisis caused by agriculture, which is a leading factor in the emergence of COVID-19, suggests that a global effort similar to the Paris Agreement is necessary to prevent future pandemics [Baudron and Liégeois 2020].

**MATERIAL AND METHODS**

In this study, we used a qualitative approach called expert review to refine agricultural policy instruments intended to mitigate the adverse effects of the COVID-19 pandemic. This method involves gathering opinions, comments, and ratings from individuals with specialized knowledge in a specific field. It is a form of qualitative research where experts evaluate the proposal based on their knowledge and experience. The process began with a comprehensive literature review and a survey-based study that used standardized interview questionnaires. This initial phase involved a group of 50 experts from agricultural organizations and economic agricultural advisors, with the goal of developing preliminary proposals for the instruments. These self-developed proposals were then evaluated by 15 independent experts, each providing detailed assessments and feedback. The experts, chosen through purposive sampling, included 9 from various agricultural organizations and 6 academic experts specializing in issues related to the agri-food sector. This enabled us to gather opinions from a wide range of experts, both practitioners and theorists. In the document containing proposals for new instruments addressing the main problems in Polish agriculture related to the pandemic, experts provided either positive or negative assessments and...
were also able to submit comments and suggestions. Throughout the study, experts were encouraged to freely express their opinions and comments, which allowed us to gather detailed and specialized information. This information was then used to further develop and refine the proposed support instruments. We distributed the proposed instruments to 15 experts via email for evaluation, and received their assessments through the same channel. With the input from these experts, we revised the instruments, making necessary corrections to enhance their relevance and applicability. This methodological approach was instrumental in developing well-informed and expert-validated policy instruments that are essential for addressing the challenges faced by the agricultural sector during future crises, including pandemics. The experts’ assessment was conducted in June–July 2023. Furthermore, the study employed various research methods, including critical literature analysis, a descriptive approach, the comparative method, and verbal logic.

RESULTS AND DISCUSSION

In the period of 2020–2021, the agricultural sector in Poland faced significant challenges due to the COVID-19 pandemic. Efforts to mitigate the negative economic impact of the crisis on this sector involved the allocation of financial assistance from various sources. In response to the COVID-19 pandemic, the Polish government increased its support for agricultural holdings and introduced new instruments while modifying some of the previously used ones [Jędruchniewicz 2022b, Jędruchniewicz and Wielechowski 2022].

The primary entities providing public financial support for agriculture in Poland were the Agency for Restructuring and Modernisation of Agriculture (ARiMR), the Agricultural Social Insurance Fund (KRUS), and the National Support Centre for Agriculture (KOWR). ARiMR played a crucial role in coordinating and distributing financial resources to farm producers, offering them tailored support programs designed to address the unique needs of the sector. At the same time, KRUS provided assistance in insurance and social benefits, while KOWR was involved in initiatives to stabilize agricultural markets. Importantly, agricultural producers not only received sector-specific aid but also had access to broader business-oriented support measures at the national level. The following is an overview of the state aid programs and instruments provided to Polish agriculture, including an examination of the extent and composition of this support, categorized by the supporting entity.

In response to COVID-19, financial support for agriculture in Poland, funded by the Agency for Restructuring and Modernisation of Agriculture (ARiMR), was implemented through the Rural Development Programme for 2014–2020 and national aid instruments.

Under the Rural Development Programme for 2014–2020, the measure M21 – Exceptional Temporary Support for Farmers, Micro-Enterprises, and Small- and Medium-Sized Enterprises particularly affected by the COVID-19 crisis (Support for Farmers Particularly Affected by the COVID-19 Crisis) – was implemented. This support was aimed at farmers specializing in the production of beef, milk, pork, poultry for slaughter and breeding, and ornamental plants cultivated under cover. The objective was to compensate for losses caused by COVID-19 and to encourage the continuation of production. The aid was provided as a one-time lump sum payment [ARiMR 2022a, b].

Under the national aid framework, funds were allocated through five actions from the Temporary State Aid Framework Programme:

- Polish anti-crisis measures – COVID-19 – interest rates subsidies (for farmers). Assistance was provided in the form of interest subsidies, with a total budget execution amounting to 0.51 million PLN in 2020 and 2021 [European Commission 2020d];
- COVID-19: Aid scheme for agricultural producers who are at risk of liquidity loss as a result of agricultural market restrictions due to COVID-19. Support was provided in the form of direct grants, with the total budget implementation reaching PLN 396.73 million for the years 2020 and 2021 [European Commission 2020c];
- Aid for producers of ornamental plants (chrysanthemums) threatened by a loss of liquidity due to restrictions on the agricultural market caused by the
COVID-19 epidemic. Support was provided in the form of direct grants, with the total budget implementation reaching 70.33 million PLN for the years 2020 and 2021 [European Commission 2020b];

• Aid for pig producers who are threatened with a financial liquidity loss due to restrictions on the agricultural market caused by the COVID-19 outbreak. Support was provided in the form of direct grants, with the total budgetary execution amounting to 127.83 million PLN in 2021 [European Commission 2020a];

• Aid for pig sow producers who are threatened with a loss of financial liquidity due to restrictions on the agricultural market caused by the COVID-19. Support was provided in the form of direct grants. There is a lack of data regarding budget execution, which stood at 88 million euros [European Commission 2022].

During 2020–2021, Polish farmers received the largest financial support from ARiMR as a result of the COVID-19 pandemic under the Rural Development Programme (RDP) 2014-2020. This support amounted to 1.2 billion PLN, which accounted for two-thirds of the total assistance provided by ARiMR for COVID-19. Under the RDP, around 195,000 applications for support were submitted by agricultural producers in Poland who were affected by the COVID-19 crisis during 2020–2021, and the number of unique beneficiaries was approximately 180,000. The remaining support amount, PLN 595 million, came from the aforementioned five actions under national aid, with the largest expenditure being under the action “COVID-19: Aid Programme for Agricultural Producers at Risk of Losing Liquidity Due to Restrictions in the Agricultural Market Related to COVID-19”, totaling almost PLN 397 million.

• Throughout the COVID-19 pandemic, KRUS introduced and adapted various support instruments for farmers. These included [Jędruchniewicz 2022a] among others:
  • exemption from paying social security contributions;
  • COVID-19 related benefits. Several new benefits and modifications to existing benefits were introduced in response to the pandemic, including:
    • COVID-19 related caregiving benefits;
    • benefits for mandatory quarantine, epidemiological supervision, or hospitalization due to COVID-19;
    • COVID-19 related sickness benefits;
    • post-COVID-19 rehabilitation.

During the years 2020–2021, KRUS allocated a total of nearly 365 million PLN for actions directly related to COVID-19. In 2020, which was the period of the pandemic’s highest activity, KRUS disbursed the largest amount of COVID-19 related benefits to farmers, amounting to PLN 213.2 million. In 2021, expenditures on these benefits totaled PLN 151.6 million. The value of the care benefits paid by KRUS in relation to COVID-19 constituted over two-thirds of the total funds dedicated to actions directly associated with the coronavirus pandemic. Expenditures on benefits related to quarantine, epidemiological supervision, or hospitalization due to COVID-19 amounted to PLN 114.1 million. Meanwhile, the total amount of sickness benefits related to COVID-19 paid out in 2020–2021 was PLN 3.3 million.

A significant part of the activities of the National Support Centre for Agriculture (KOWR) in 2020 and 2021, directly or indirectly, involved public support actions aimed at limiting the negative effects of the pandemic in agriculture. However, as asserted by the KOWR board, the number of actions exclusively related to the occurrence of COVID-19 and combating the pandemic was limited. The activities of KOWR directly related to mitigating the effects of COVID-19 in 2020–2021 primarily included [KOWR 2021, 2022]:

• support for producers of ornamental plants (chrysanthemums) threatened with financial liquidity loss due to market restrictions in agriculture caused by the COVID-19 epidemic;
• management of movable property from registered pledges;
• analytical work.

A critical review of the literature and the qualitative approach in the form of expert reviews allowed for the identification of the following five key areas in relation to the occurrence of the COVID-19 pandemic:

• restrictions on the sale of agricultural products, leading to a reduction in farm incomes;
challenges with worker availability;
• logistical issues and the availability of production resources;
• illnesses, quarantine, or isolation affecting farmers;
• heightened risk in agricultural activities.

In light of these specified issues, initial drafts were established for new and adjusted instruments aimed at reducing the negative consequences of future pandemics in the agricultural sector. These drafts were presented to 15 experts from academic circles and agricultural organizations. In general, the proposed instruments received a positive assessment. Simultaneously, the experts provided their reflections, inquiries, and objections. All feedback was thoroughly examined. Integrating the experts’ feedback and hesitations led to the development of the final version of instruments aimed at mitigating the adverse effects of future pandemics in agriculture. These instruments would complement a broad spectrum of existing instruments in agricultural policy.

To address the obstacles related to the first area, namely restrictions in the sale of agricultural products and/or reduction of farm incomes, the following instruments were proposed:
• The Integrated Agricultural Platform (IAP) was created by a government institution. The module of this platform would serve to match agricultural producers’ offers with the demand of food buyers. It would enable transactions and contain only information for direct contact with producers;
• The Anti-Crisis Agricultural Fund (ACAF) would be financed half by agricultural producers through mandatory contributions (e.g., 0.5% of direct payments) and half by the state budget. Producers would be compensated for losses incurred due to the pandemic from this fund. Once ACAF reached a certain value, the payment of contributions would be suspended. The resumption of paying contributions would occur when the Fund decreased to a specified minimum value;
• The accelerated and expanded emergency procurement of agricultural products would take place during the pandemic, subject to the approval of the European Commission. It would be implemented in all sectors particularly affected by the pandemic and would concern a specified amount of agricultural produce per hectare. It would be initiated after a drop in sales in sectors beyond a previously determined percentage;
• Legal regulations are being implemented to promote wider liberalization of rules concerning the processing and direct sale of products by farmers or smaller processors.

To address the problem related to the availability of workers, the following instrument proposals would be useful:
• The Integrated Agricultural Platform (IAP) was created by a government institution. This platform’s module is designed to match the labor demands of agricultural farms with individuals seeking seasonal or long-term employment. The information in this module should be linked with data held by District Labor Offices;
• A regularly updated list of countries with preferences for temporary employment in agriculture would be included as an element of the Integrated Agricultural Platform. This list would inform which countries can send people to work in agriculture during the pandemic, based on simplified procedures for issuing short-term work permits;
• State co-financing during the pandemic would cover costs related to employment in an agricultural farm. This co-financing would apply to workers employed under a contract for specific work, which is concluded for the period of a farmer’s inability to work, as well as to individuals working in the farm who are members of his family, and persons employed under an employment contract. The inability to work of these individuals would have to result from the pandemic.

For more effective coping by agricultural producers with logistical problems and the availability of means of production during the pandemic, the following instrument proposals could be used:
• Crisis reserve of agricultural production resources. The minimum level of essential agricultural production resources and sanitary supplies would be jointly managed by the Government Strate-

Another significant problem during the pandemic is the illness, quarantine, or isolation of farmers. In this case:

- The Integrated Agricultural Platform (IAP) could help in addressing this problem. One module of this platform would serve to provide information about farmers and their family members who are ill, in quarantine, or in isolation, which can disrupt agricultural production on the farm. Government agencies equipped with resources would provide the necessary technical assistance. The information in this module should be linked with the data held by the Sanitary Inspection and the Agricultural Social Insurance Fund.

Meanwhile, to reduce the fifth problem (increasing the risk of agricultural activities), the following instruments were proposed:

- An information package on sanitary safety in agriculture would be an essential component of the Integrated Agricultural Platform. This package would be regularly updated and provide guidelines for ensuring the safe organization of work on farms and the sale of agricultural products during the pandemic, specifically focusing on sanitary safety measures;
- Free training on risk management in agricultural activities would be conducted by government agencies. This training would encompass the implementation of risk management strategies in farm activities. It could be included as part of a broader training program on agricultural producers’ economics.

Support for agriculture during the pandemic, in addition to new and modified agricultural policy instruments, would also include state actions: providing assistance to agricultural producers in implementing new sanitary safety rules, supporting exporters in maintaining access to international markets, supporting the expansion of warehouses and storage systems for agricultural products, promoting cooperation with local agricultural organizations and regional and local food solutions, facilitating rapid improvement of liquidity for agricultural farms during the pandemic, expanding and improving infrastructure within the so-called “privileged corridors” to ensure the flow of goods and agricultural production means, supporting farmers in applying risk management strategies, and launching programs to increase agricultural productivity and the ability to sell agricultural products using modern technologies.

The effectiveness of proposed agricultural policy instruments in mitigating the adverse effects of the COVID-19 pandemic has been extensively studied globally. Our research partially aligns with the findings of Baležentis et al. [2021], who emphasize the importance of alleviating financial burdens through measures such as credit payment deferral, particularly in agricultural supply chains. This approach corresponds to our proposal of the Anti-Crisis Agricultural Fund (ACAF). Both proposals aim to increase the financial resilience of farms during the crisis. The proposal of Baležentis et al. [2021] focuses on leaving more financial resources on farms. However, our proposal focuses on the direct provision of funds by ACAF to farmers during crises caused by the pandemic. Furthermore, the significance of enhancing resilience and sustainability in the agricultural sector, as suggested by Bochtis et al. [2020], supports our recommendation for the Integrated Agricultural Platform (IAP). This platform can facilitate physical distancing and promote hygiene practices among agricultural workers, addressing the challenges identified in our survey. Lioutas and Chartasri [2021] highlight the role of resilience-promoting policies and smart farming technology in mitigating the impacts of major crises. This insight underpins our proposal for crisis reserves of means for agricultural production and financial support for direct sales, which aim to foster resilience in the Polish agricultural sector. In the context of the United States, Johansson et al. [2020] describe policy measures implemented by...
the USDA to support farmers and ranchers during the pandemic. This example provides a benchmark for our proposed instruments, suggesting that similar strategies could be effective in the Polish context. Lastly, Abid and Jie [2021] underscore the need for developing new online resources and investing in technology to prevent food crises. This aligns with our proposal for the IAP and the information package on sanitary safety in agriculture, which are designed to leverage technology for effective crisis management.

CONCLUSIONS

Public support instruments have played a crucial role in mitigating the negative effects of the COVID-19 pandemic on agriculture. The range of implemented measures reflects the complex challenges faced by the sector. As the situation evolves, it is necessary to continuously assess and adapt these instruments to ensure the long-term health and sustainability of global agriculture. Between 2020 and 2021, the agricultural sector in Poland faced significant challenges due to the COVID-19 pandemic, which required diverse financial support measures. Key entities such as the Agency for Restructuring and Modernisation of Agriculture (ARiMR), the Agricultural Social Insurance Fund (KRUS), and the National Support Centre for Agriculture (KOWR) played pivotal roles in this regard. ARiMR coordinated and allocated funds through the Rural Development Programme and national aid instruments, with a focus on sectors such as beef, milk, pork, poultry, and ornamental plants. On the other hand, KRUS disbursed substantial COVID-19 related benefits, including care, quarantine, and sickness benefits, while KOWR implemented various support actions to mitigate the pandemic’s impact on agriculture. During this period, ARiMR provided the largest financial support under the Rural Development Programme, amounting to PLN 1.2 billion, with additional support from national aid measures. This comprehensive response highlights the concerted effort to stabilize and support the agricultural sector during an unprecedented crisis.

In conclusion, the comprehensive literature review and expert surveys have led to the development of innovative and practical tools to mitigate the adverse impacts of pandemics on the agricultural sector. These tools, refined through expert feedback, aim to address critical challenges such as restrictions in agricultural product sales, workforce availability, logistical hurdles, and the increased risk in agricultural activities due to illness or quarantine. The proposed solutions, including the Integrated Agricultural Platform (IAP), Anti-Crisis Agricultural Fund (ACAF), and various state-supported initiatives, reflect a multifaceted approach. They not only aim to alleviate immediate pandemic-related distress but also seek to strengthen the sector’s resilience against future crises. These measures, which include both policy and practical interventions, represent a proactive and comprehensive strategy to safeguard the agricultural sector, ensuring its stability and sustainability in the face of unprecedented challenges posed by global pandemics. The integration of these tools into existing agricultural policies demonstrates a dynamic and responsive approach to crisis management, which is essential for the continued prosperity and health of the agricultural sector.

Despite extensive research, there are still significant gaps in our understanding of the full impact of the COVID-19 pandemic on agriculture and the effectiveness of policy responses. One limitation of this study is that we have not empirically verified the effectiveness of the proposed state-supported public support instruments aimed at mitigating the negative effects of the COVID-19 pandemic on agriculture in Poland. Therefore, examining the effectiveness of these proposed measures poses a challenge for our future research.

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INSTRUMENTY OGRANICZAJĄCE NEGATYWNE SKUTKI PANDEMII COVID-19 W ROLNICTWIE

STRESZCZENIE


Słowa kluczowe: pandemia COVID-19, rolnictwo, polityka rolna, wsparcie publiczne, instrument wsparcia