

ANALYZING FARM COMPETITIVENESS: AN EXAMINATION OF POST-INVESTMENT SUBSIDIES IN THE REPUBLIC OF MOLDOVA

ANALIZA COMPETITIVITĂȚII FERMELOR: O EXAMINARE A SUBVENȚILOR POSTINVESTIȚII ÎN REPUBLICA MOLDOVA

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In today's rapidly changing economic landscape, the importance of a farm's competitiveness is more critical than ever, serving as a decisive factor for the survival and prosperity of firms. The Republic of Moldova's agricultural sector holds a crucial role while remaining highly vulnerable to various influences. The Government relies on subsidies administered by the Agency of Intervention and Payments for Agriculture (AIPA) to enhance the sector's growth and competitiveness. This paper conducts a comparative analysis between subsidy recipients and non-recipients. It aims to examine the impact of post-investment subsidies on farms' competitiveness using data from a survey conducted in the summer of 2021, which included 685 farms. The competitiveness of the farm businesses on the markets was assessed through self-assessment questions included in the survey, shedding light on the challenges faced by farms, including issues related to product prices, price stability, and competition from other producers. The analysis provides insights into the interrelationship between post-investment subsidies and farms' competitiveness in Moldova.

Keywords: *agriculture, competitiveness, post-investment subsidies, Moldova.*

INTRODUCTION

The Moldovan economy relies significantly on the agricultural sector in terms of contribution to GDP and employment as mentioned by Shik et al. [1, p. 30]. As a result of its crucial role, many countries provide significant government support to their

agricultural sectors. Moldova is no exception and has notably prioritized farm support within its governmental policies [2, p. 2; 3, p. 623]. The policy objective to increase agriculture's competitiveness vis-à-vis EU producers is reflected, among others, in the National Development Strategy "Moldova 2020" and the most recent National Strategy for Agricultural and Rural Development „Moldova 2030”.

Agricultural subsidies represent one of the key instruments the Moldovan Government employs to stimulate the agricultural sector's development as pointed out by Cimpoeis [4, p.169]. At present, the Agency of Interventions and Payments in Agriculture (AIPA) serves as the organization entrusted with subsidy allocation in Moldova, effectively managing the resources of the National Fund for the Development of Agriculture and Rural Environment (NFDARE) [3, p.623; 5, p.157]. AIPA's main responsibilities include overseeing fund management for agricultural support, evaluating applicant eligibility, and maintaining internal controls as mentioned by Herzfeld et al. [6, p. 10].

Subsidies distributed by AIPA stand out as the pivotal mechanism for fostering agricultural production [7, p. 9] and, as pointed out by Masotti et al. [8, p. 4], they are designed to strengthen investments in farms and rural areas, enhance rural infrastructure, and cover expenses for farm extension service. In general, the measures in the subsidy support program should enhance agricultural productivity, boost the income of agricultural producers, and promote sustainable rural development [8, p. 4].

However, scholars complain that Moldova's agricultural subsidy program favors only larger producers. The large number of small farms, which might face more difficulties accessing external finance and providing leverage to improve rural livelihoods, is not addressed appropriately as stated by Lucasenco [9, p. 734]. Against this background, it is crucial to look closely at the farms, their investment activities, their challenges in accessing credit, and the role of subsidies.

In Moldova, there are three types of subsidy support: post-investment subsidies, pre-investment subsidies, and production-related direct payments [3, p. 624; 10, p. 3]. Post-investment subsidies, as non-refundable and non-taxable financial aid from the NFDARE, support investments in agriculture and rural development. Similarly, pre-investment subsidies offer non-refundable and non-taxable financial assistance for investments by young farmers and women launching start-up projects. Direct payments represent non-refundable financial support provided in a fixed amount per animal, contingent on the species and quantity of animals.

Post-investment subsidies constitute the most considerable portion of government support [10, p. 4; 11, p. 5] (Figure 1). In Moldova, the modernization of the agro-industrial sector and the development of rural localities are ensured by establishing pillars, including: increasing the competitiveness of the agro-industrial sector through market modernization and restructuring, ensuring the sustainable management of natural resources in agriculture, and improving the standard of living in rural areas according to AIPA [12, p.3].

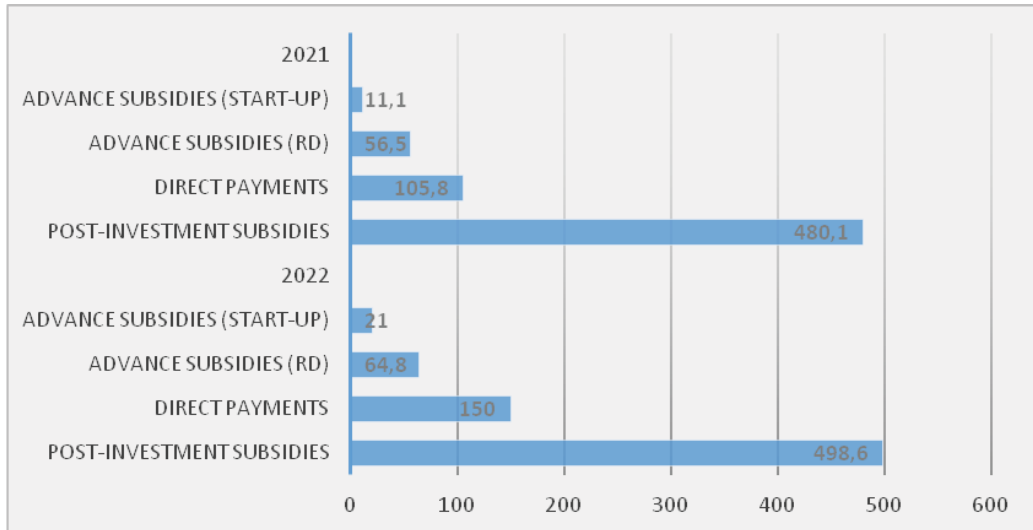


Fig. 1. Budgetary support to farms from the National Fund for the Development of Agriculture and the Rural Environment by type of subsidy (in mil. MDL, 2021- 2022)

Source: AIPA Annual Reports 2021-2022

Most of the allocated funds are primarily channeled into the key pillar, which aims to boost the competitiveness of the agri-food sector by facilitating farms' modernization and market integration [5, p. 158]. This pattern also applies to the previous years, dating back to 2012, as outlined by Herzfeld et al. [6, p. 13]. Additionally, in 2023, the Government approved the regulations for new subsidy mechanisms, and they are currently in the process of being drafted for subsequent publication [13, p. 4].

As defined by Kleinhanss [14, p. 24], competitiveness is a broad term encompassing the evaluation of interactions among businesses, industries, and the domestic and global economies. In the current dynamic economic landscape, the relevance of competitiveness has escalated, making it a critical factor for a farm's survival and prosperity, as specified by Akben-Selcuk [15, p. 1]. The increasing focus on competitiveness highlights the imperative for businesses to constantly evolve and foster innovation to remain pertinent and flourish within the rapidly changing global marketplace. Assessing subsidy policies for private firms and their impact on regional growth requires a focus on competitiveness, as policies not enhancing productivity are bound to fail over time, as emphasized by Bernini et al. [16, p. 760].

Moreover, the relevance of farms' competitiveness is currently evident across academic, business, and political spheres [17, p.; 18, p. 311], particularly in Moldova, facing increasing competition with further integration into EU markets.

Therefore, this paper analyzes post-investment subsidies and their relation with farms' competitiveness. More specifically, we compare the responses of recipients and

non-recipients of subsidies, addressing questions concerning the most critical challenges they face, including issues related to access to inputs, the level and stability of product prices, and competition with other producers. Our results contribute to the ongoing discourse on farms' competitiveness and government support in the agricultural industry by providing a more systemic perspective on farms' challenges.

The remainder of this contribution is organized as follows: After a short overview of the methodology, we present our data collection strategy. The fourth section is devoted to the comparison of the responses and a discussion of the results.

METHODS AND DATA

The methodology of our study employs a comparative analysis, widely used in the literature. For example, Buigues and Sekkat [19, p. 22] employ a comparative analysis to assess the role of public subsidies in supporting businesses across OECD countries, evaluating government interventions' effectiveness in addressing objectives and the implementation of policy instruments. Similarly, Piatkowski [20, p. 1] employs a comparative analysis to evaluate investment activities between two groups of enterprises: those utilizing EU subsidies and those that do not. Another example is the study by Jansik and Irz [21, p. 206], who use a comparative analysis to evaluate the competitiveness of the dairy sectors in the eight EU countries of the Baltic Sea region.

In the context of our study, we adopt a comparative analysis approach, focusing on assessing how post-investment subsidies influence the competitiveness of farms within Moldova's agricultural sector. Our primary objective is to provide a comprehensive assessment of the effectiveness of these subsidies in enhancing the competitive dynamics among farms in Moldova. To evaluate the competitiveness of these farm businesses in the market, we implemented a self-assessment strategy that involved including dedicated self-assessment questions in the survey.

This approach allowed participating farms to individually evaluate diverse factors related to marketing challenges, competitiveness, production skills, and operational challenges. Through this process, they evaluated elements affecting their competitiveness, including aspects such as access to input accessibility, product prices, price stability, quality standards, access to financing, government support and competition from other producers.

This study is based on primary data collected through a farm survey conducted in the Republic of Moldova during the summer of 2021. The survey was a fundamental component of the "MDA-Impact – Agricultural Policy Impact Assessment for the Republic of Moldova" project, funded by the Food and Agriculture Organization of the UN (FAO). The project aimed at assessing the impact of agricultural policy instruments in Moldova.¹

¹ Report after the implementation of the project available online: <https://ideas.repec.org/p/ags/iamodp/327297.html>

To ensure a representative sample, the survey employed a stratified random sampling methodology based on a list of beneficiaries in 2018 provided by the Agency for Interventions and Payments in Agriculture (AIPA). Non-beneficiaries of subsidies were selected through a snowball sampling (a non-recipient farm with similar characteristics provided by a recipient farm). The survey predominantly focused on measures with the highest number of beneficiaries, relying on data supplied by AIPA disaggregated by regions [11, p. 12].

With the scope of maximum representativeness, the sample spanned across all regions in Moldova but, due to time and budget limitations, was initially composed of 800 respondents. Following the cleaning process, which excluded test-interviews, non-operational farms, fish farms outside the research scope, and small semi-subsistence farms that didn't align with the sample selection criteria, the number was refined to 685 respondents. The final dataset encompasses subsidy recipients and non-recipients from 29 rayons in Moldova (Figure 2), with 515 recipients and 170 non-recipients distributed across these regions. Figure 2 provides an overview of the ultimate distribution of subsidy recipients and non-recipients across rayons in Moldova.

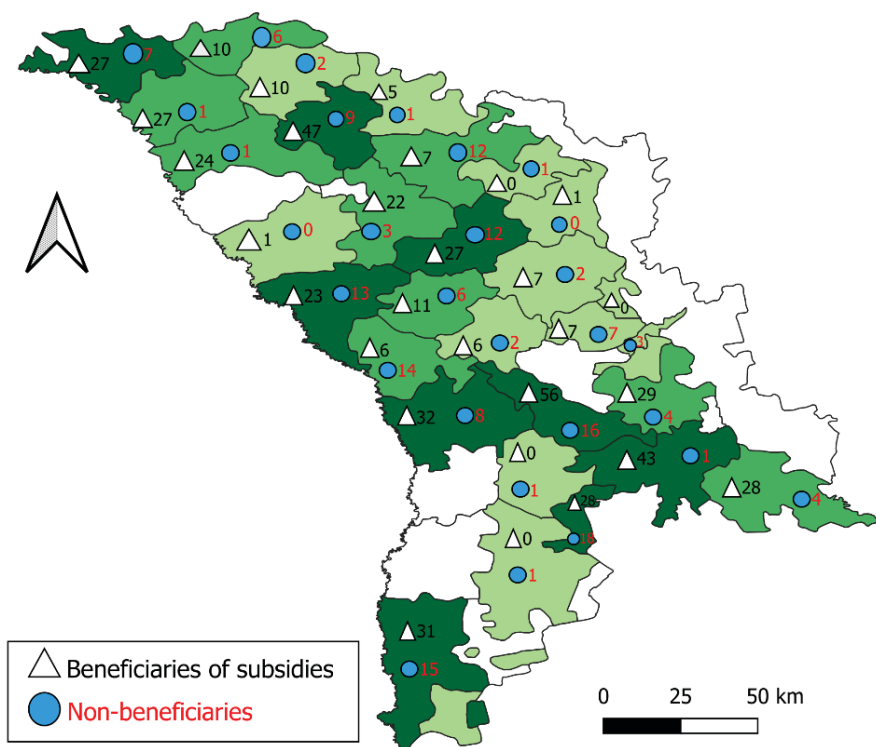


Fig. 2. Distribution of subsidy recipients and non-recipients across rayons in Moldova
Source: Own Survey (2021)

Based on the regional distribution in the survey, the central region had the highest number of subsidy beneficiaries (205) and non-beneficiaries (88), followed by the North region with 180 beneficiaries and 42 non-beneficiaries. The South region had 130 beneficiaries and 40 non-beneficiaries (Fig. 3).

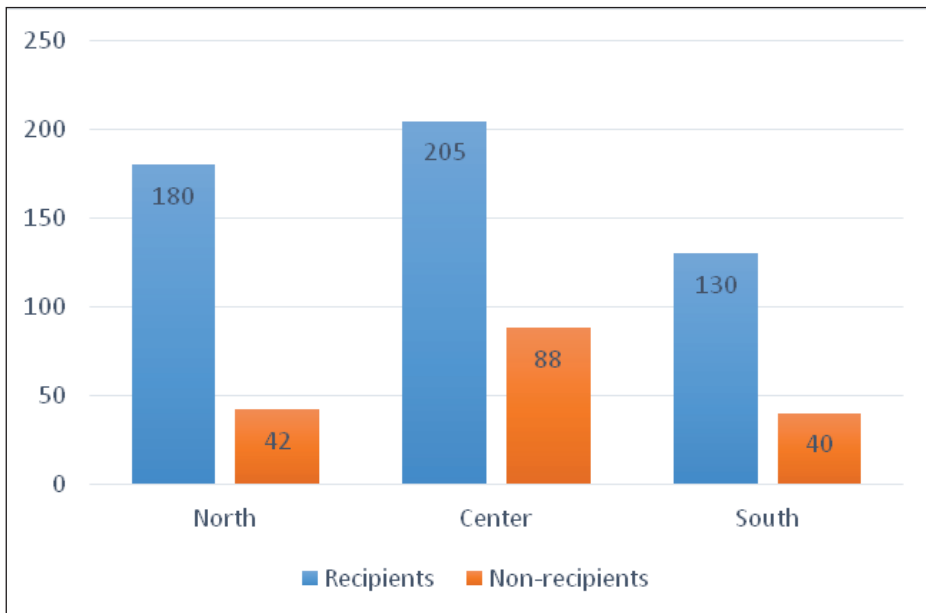


Fig. 3. Regional distribution of the survey respondents

Source: Own survey (2021)

This precise selection process ensured that the survey delved into measures that encouraged a wide array of investments (Table), including the establishment and modernization of multiannual plantations, the acquisition of conventional agricultural machinery and equipment, technological upgrades for livestock farms, the procurement of breeding animals, the purchase of irrigation and no-till equipment, as well as measures designed to facilitate access to loans for agricultural producers. It's noteworthy that some farms benefitted from multiple measures.

Table

1. Distribution of subsidy recipients within survey sample across sub-measures

Measures	Sub-measures	Beneficiaries
Measure 1	1.1 Stimulating investments for the production of vegetables and fruits on protected land	18
	1.2 Stimulating investments for the establishment, modernization and deforestation of multiannual plantations, including vineyards and fruit plantations	205
	1.3 Stimulating investments for the procurement of conventional agricultural machinery and equipment	357
	1.4 Stimulating investments for the equipment and technological renovation of livestock farms	22
	1.5 Stimulating the procurement of breeding animals and maintaining their genetic background	7
	1.7 Stimulating the lending of agricultural producers by commercial banks and non-banking financial institutions	222
	1.7 A Stimulating the risk insurance mechanism in agriculture	266
Measure 2	1.6 Stimulating investments for the development of post-harvest and processing infrastructure	129
	1.8 Stimulating the establishment and functioning of agricultural producers' groups	2
	1.9 Stimulating promotional activities	4
Measure 3	2.1 Stimulating investments to consolidate agricultural land	1
	2.2 Stimulating investments for the purchase of irrigation equipment	62
	2.3 Stimulating agricultural producers to compensate irrigation costs	8
	2.4 Stimulating investments for the purchase of no-till and mini-till equipment	73
	2.5 Supporting the promotion and development of organic agriculture	13
Measure 4	Improvement and development of rural infrastructure	36
Measure 5	Consulting and training services	3

Source: Own survey (2021)

Results of our analysis were obtained from the self-assessment questions² related to the competitiveness of farm businesses in the market. The survey participants were asked about a series of statements and to express their agreement or disagreement regarding these statements concerning their farm business activities.

RESULTS AND DISCUSSION

The self-assessment questions were categorized into three groups: marketing challenges, competitiveness and production skills, and operational challenges. In Figure 4, we present the responses from both subsidy beneficiaries and non-beneficiaries to self-assessment questions related to marketing challenges.

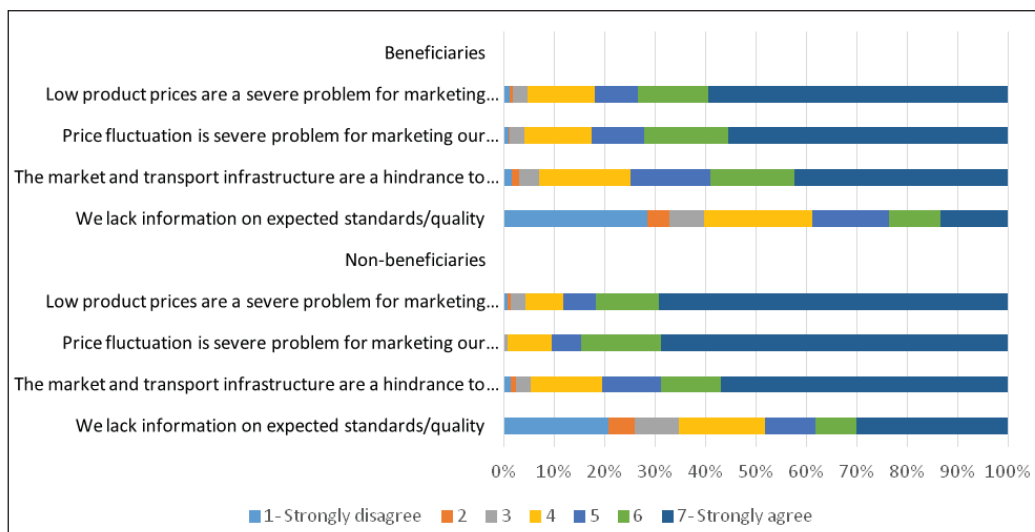


Fig. 4. Answers to self-assessment statements related to marketing challenges

Source: Own survey (2021)

² Self-assessment questions presented in the survey pertain to expressing farmers' agreement or disagreement with the following statements:

1) Low product prices are a severe problem for marketing our products; 2) Price fluctuation is severe problem for marketing our products; 3) The market and transport infrastructure are a hindrance to marketing our products (e.g. bad roads, no collection point); 4) We lack information on expected standards/quality; 5) The competition from other producers is very high; 6) We cannot meet quality standards demanded by buyers; 7) We offer the quantities demanded by buyers; 8) Our farm could be more competitive if we improved our agricultural production skills; 9) Our farm could be more competitive if we had access to marketing related business training; 10) It is difficult to find hired workers; 11) Our farm could be more competitive if we had better access to financing; 12) Government support is not accessible or not sufficient for developing our farm business.

The analysis of self-assessment responses reveals distinct perceived differences between subsidy beneficiaries and non-recipients in terms of marketing challenges. Notably, beneficiaries express varying degrees of concern regarding low product prices, price fluctuations, and the hindrance posed by market and transport infrastructure. Additionally, a substantial number of both groups acknowledge a lack of information on expected standards/quality as a notable challenge, with recipients exhibiting slightly lower concerns across these dimensions.

In Figure 5, we present the responses from both subsidy beneficiaries and non-beneficiaries to self-assessment questions related to competitiveness and production skills.

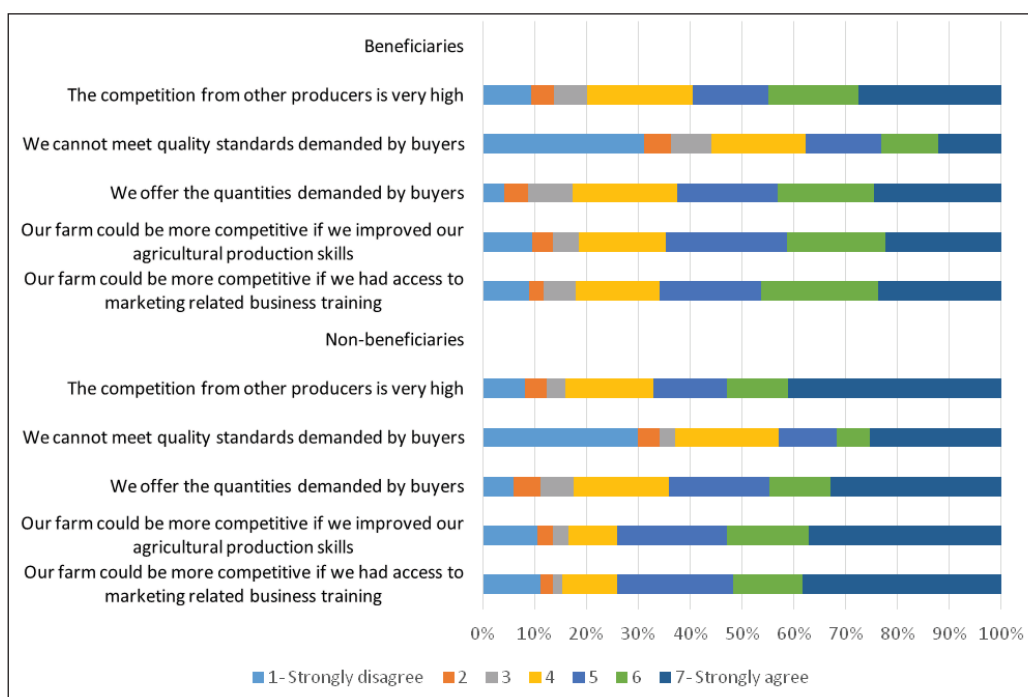


Fig. 5. Answers to self-assessment statements related to competitiveness and production skills

Source: Own survey (2021)

The self-assessment responses from both subsidy beneficiaries (515) and non-recipients (170) illuminate essential aspects of competitiveness and production skills. In terms of the competitive landscape, a substantial number of non-beneficiaries acknowledge the high competition from other producers, emphasizing the pressure in the agricultural sector. A comparable acknowledgment of the competitive environment is observed among recipients, though fewer strongly express this sentiment.

Divergent opinions exist regarding the ability to meet quality standards and quantity demands from buyers, with a significant number of both recipients and non-recipients strongly disagreeing. However, positive sentiments prevail among both groups concerning the ability to meet the quantities demanded by buyers, indicating potential opportunities for both segments in meeting market demands. The analysis also reveals varying responses regarding the need for enhancing agricultural production skills, highlighting the heterogeneous skills and potential areas for improvement. Moreover, there is a strong consensus among both beneficiaries and non-recipients on the positive impact of access to marketing-related business training, signaling a potential avenue for enhancing competitiveness. These nuanced insights underscore the complexity of challenges faced by both groups, emphasizing the need for tailored strategies, including focused training programs and support mechanisms, to address specific competitiveness and production skill gaps within the agricultural sector.

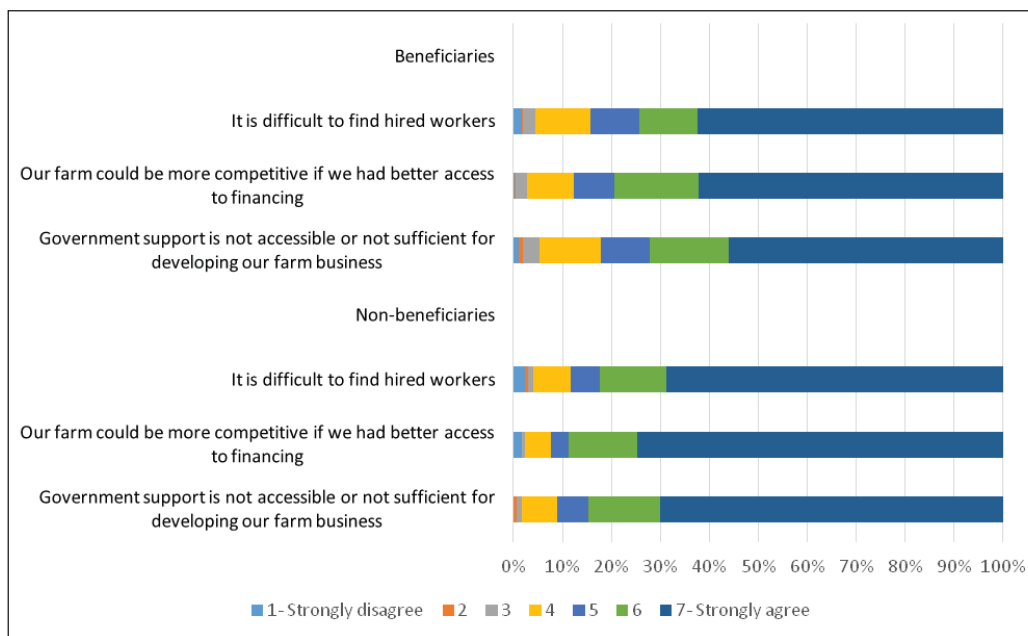


Fig. 6. Answers to self-assessment statements related to operational challenges

Source: Own survey (2021)

Responses from beneficiaries of subsidies and non-beneficiaries to self-assessment questions related to operational challenges are presented in Figure 6. From Figure 6, we can see that the analysis of self-assessment responses regarding operational challenges unveils noteworthy disparities between subsidy recipients and non-recipients. The difficulty in finding hired workers is a shared concern, with non-beneficiaries expressing higher levels of agreement. Additionally, both groups acknowledge the pivotal role of better access to fi-

nancing in enhancing farm competitiveness. Notably, non-beneficiaries express a stronger agreement with this statement. Furthermore, the perceived inaccessibility or insufficiency of government support for developing farm businesses emerges as a considerable challenge, with non-beneficiaries consistently expressing higher levels of agreement.

These findings illuminate key operational challenges faced by agricultural stakeholders, offering valuable insights for targeted interventions and policy adjustments. The nuanced landscape calls for tailored strategies to address specific gaps within the agricultural sector, emphasizing the importance of focused training programs, support mechanisms, and policy refinements to enhance competitiveness, address operational challenges, and ensure the sustainable development of the agricultural sector.

CONCLUSION

The study results shed light on the varying concerns and priorities of subsidy beneficiaries and non-beneficiaries in Moldova's agricultural sector. While both groups share apprehensions about low product prices and price fluctuations, they exhibit differences in their perspectives on other issues.

Subsidy beneficiaries show a more positive outlook, expressing strong disagreement with statements related to ease of information accessibility, quality standards, and quantities demanded by buyers. They express a keen interest in enhancing their competitiveness through skill development, resource access, and training. However, they still face challenges in finding hired workers and question the accessibility and adequacy of government support.

Non-beneficiaries underscore the significant impact of low product prices and market-related challenges, highlighting collective recognition of these market obstacles. They also emphasize the importance of improving their agricultural production skills, accessing resources, and receiving support to boost their farm business competitiveness.

In summary, these findings provide insights into the diverse challenges and priorities experienced by both subsidy beneficiaries and non-beneficiaries. These insights could guide policymakers in crafting tailored interventions and support initiatives to strengthen the competitive landscape of Moldova's agricultural sector. By addressing these specific concerns, policymakers can enhance the sector's competitiveness as it navigates the complexities of the modern marketplace.

References:

1. SHIK, O., STRATAN, A., IGNAT, A. and LUCASENCO, E. *Evaluation of agricultural support in the Republic of Moldova*, presented at the 07th International Symposium “Agrarian Economy and Rural Development - Realities and Perspectives for Romania”, Bucharest, Romania, 2016, pp. 30-36. [Online]. Available: https://www.econstor.eu/bitstream/10419/163350/1/ICEADR-2016_p030.pdf

2. CIMPOIES, L. *Subsidies and their impact on the competitiveness of the agricultural sector in Moldova* presented at the 7th International Scientific Conference Rural Development, Lithuania, 2015, pp. 1-5. [Online]. Available: <https://hdl.handle.net/20.500.12259/257495>
3. SARBAN, C. Economic growth of the agrarian sector and improvement of living standard in the Republic of Moldova in the context of the subsidy process. In: *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*, 2022, vol. 22, no. 2, pp. 623-630. [Online]. Available: https://managementjournal.usamv.ro/pdf/vol.22_2/Art73.pdf
4. CIMPOIES, L. Agricultural support policy in Moldova: a key factor to agricultural development? In: *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*, 2021, vol. 21, no. 2, pp. 169-176. [Online]. Available: https://www.managementjournal.usamv.ro/pdf/vol.21_2/Art20.pdf
5. CIMPOIES, L. and SARBU, O. The economic impact of farm subsidies in Moldova's agricultural sector development. In: *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*, 2020, vol. 20, no. 2, pp. 155-160. [Online]. Available: https://managementjournal.usamv.ro/pdf/vol.20_2/Art19.pdf
6. HERZFELD, T., LUCASENCO, E. and ZVYAGINTSEV, D. Agricultural policy development in Moldova over one decade: recent estimates and an outlook towards EU accession. In: *Economy and Sociology*, 2023, no. 2, pp. 7-21. doi: <https://doi.org/10.36004/nier.es.2022.2-01>
7. WB, Structural transformation of Moldovan smallholder agriculture: implications for poverty and shared prosperity. In: *Moldova Poverty Assessment*, 2016, pp. 1-60. [Online]. Available: <https://openknowledge.worldbank.org/server/api/core/bitstreams/565f99b7-5265-53df-84d4-d01cfc3aa347/content>
8. MASOTTI, M., CRIVELLARO, F., TURLEA, A.L., IORI, E. and Vittuari, M. A long history of public support for agricultural development: Lights and shadows of rural development programs and migration governance in the Republic of Moldova. In: *Policy Brief Series*, 2023, no. 15, pp. 1-8. [Online]. Available: <https://agrumig.iwmi.org/wp-content/uploads/sites/41/2023/06/AGRUMIG-Policy-Brief-Series-No-15.pdf>
9. LUCASENCO, E. *Public support to agricultural producers in the Republic of Moldova – trends and recommendations*, presented at the Economic growth in the conditions of globalization, Chisinau, Moldova, 2022, pp. 368-374. [Online]. Available: <http://dspace.ince.md/jspui/handle/123456789/1576>
10. AIPA. *AIPA Activity Report -2021*. Agency of Intervention and Payments for Agriculture (AIPA), 2021, pp.1-33. [Online]. Available: http://aipa.gov.md/sites/default/files/Raport%20de%20activitate_AIPA_2021.pdf

11. MÖLLERS, J., HERZFELD, T., BATEREANU, L. and ARAPI-GJINI, A. An analysis of farm support measures in the Republic of Moldova, Institute of Agricultural Development in Transition Economies (IAMO). In: *IAMO Discussion Papers*, 2022, vol. 327297, pp. 1-70. [Online]. Available: <https://ideas.repec.org/p/ags/iamodp/327297.html>
12. AIPA. *AIPA Activity Report -2022*. Agency of Intervention and Payments for Agriculture (AIPA), 2022, pp. 1-55. [Online]. Available: https://aipa.gov.md/sites/default/files/Raport%20de%20activitate%20AIPA_2022.pdf
13. AIPA. *AIPA Activity Report – 2023- Semester I*. Agency of Intervention and Payments for Agriculture (AIPA), 2023, pp.1-23. [Online]. Available: https://aipa.gov.md/sites/default/files/Raport%20de%20activitate%20_AIPA%20-%20Semestrul%20I%20-%202023.pdf
14. KLEINHANSS, W. Competitiveness of the major types of agricultural holdings in Germany. In: *Problems of Agricultural Economics / Zagadnienia Ekonomiki Rolnej*, no. 1 (342), pp. 24-39. doi: <https://dx.doi.org/10.2139/ssrn.2154790>
15. AKBEN-SELCUK, E. Factors Affecting Firm Competitiveness: Evidence from an Emerging Market. In: *International Journal of Financial Studies*, 2016, vol. 4, no. 2, pp. 1-10. [Online]. Available: <https://www.mdpi.com/2227-7072/4/2/9>
16. BERNINI, C., CERQUA, A. and PELLEGRINI, G. Public subsidies, TFP and efficiency: A tale of complex relationships. In: *Research Policy*, 2017, vol. 46, no. 4, pp. 751-767. doi: <https://doi.org/10.1016/j.respol.2017.02.001>
17. BACHEV, H. Competitiveness of Bulgarian Farms in Conditions of EU Cap Implementation. In: *SSRN Electronic Journal*, 2012, pp. 1-42. doi: <https://dx.doi.org/10.2139/ssrn.2154790>
18. CERRATO, D. and DEPPERU, D. Unbundling the construct of firm-level international competitiveness. In: *Multinational Business Review*, 2011, vol. 19, no. 4, pp. 311-331. doi: <https://doi.org/10.1108/15253831111190162>
19. BUIGUES, P.-A. and SEKKAT, K. Public Subsidies to Business: An International Comparison. In: *Journal of Industry, Competition and Trade*, 2011, vol. 11, no. 1, pp. 1-24. doi: [10.1007/s10842-010-0074-1](https://doi.org/10.1007/s10842-010-0074-1)
20. PIĄTKOWSKI, M.J. Results of SME Investment Activities: A Comparative Analysis among Enterprises Using and Not Using EU Subsidies in Poland. In: *Administrative Sciences*, vol. 10, no. 1. doi: [10.3390/admsci10010004](https://doi.org/10.3390/admsci10010004)
21. JANSIK, C. and IRZ, X. Competitiveness of Dairy Farms In Northern Europe: A Cross-Country analysis. In: *Agricultural and Food Science*, 2015, vol. 24, no. 3, pp. 206-218. doi: [10.23986/afsci.50881](https://doi.org/10.23986/afsci.50881)