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REGIONAL ECONOMIC DYNAMICS: MANAGERIAL INSIGHTS ON AGRICULTURAL PERSPECTIVES

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Abstract

The objective of this study is to identify the primary determinants that shape agricultural development within the broader context of regional economy. Using data from 157 online questionnaires collected from managers of food and processing companies in North Macedonia, a principal component analysis is conducted to evaluate the factors of influence. The findings reveal that the factors such as “Regional economy general”, “Regional economy – evaluation of the status” and “Governmental support” have relatively lower impact, while “COVID-19” and “Russia-Ukraine crisis” have moderate impact. On the other hand, “Regional development – expectations” is perceived as the most influential factor. These results may provide valuable insights for policy makers in devising effective strategies to address regional challenges and foster sustainable agricultural development in the country.

Key words: *Development, Perceptions, Factors, Regional rural economy.*

Introduction

Agriculture, as a crucial sector, has been significantly impacted by numerous crises throughout history. Its significance and its evolution in volatile environments are characterized by globalization, climate change, pandemics, political instability, conflicts, and other challenges. Consequently, agriculture’s role has been vastly discussed by emphasizing its investment power (Mattas & Pagoulatos, 1990), exports’ effects (Bairak & Hughes, 1996; Hughes & Litz, 1996), demand-based approach (Mattas & Shrestha, 1989; Tzouvelekas & Mattas, 1999), indirect benefits (Baumol & Wolff, 1994; Hamilton et al., 1991), empowering labor and financial markets (Johnson, 1997; Gardner 2002), etc.

This research contributes to the state of the art by agreeing that agriculture supports and gets the economy moving as noted by Mosher (1966), thus playing significant role in driving regional growth and economic development (Beckman & Countryman, 2021; Bournaris et al., 2016; Erol et al., 2011; Loizou et al., 2019; Mattas & Loizou, 2017; Wu et al., 2012). To this end, this study provides valuable insights on assessing the impacts of identified drivers within the agricultural outlook. In particular, the study identifies key determinants within the regional economic dynamics and quantifies their influence from a managerial perspective. The case of North Macedonia, as an agricultural country that has encountered challenges arising from pandemics and war-conflict crises, is elaborated upon in this research.

The paper is organized as follows. After the introduction, Section 2 describes the methodology, while Section 3 presents the results. The main findings and discussion are noted in Section 4, and finally, last section considers the conclusion and research limitations.

Methodology

The study employed a three-stage methodology. In the first stage, a qualitative approach was utilized by an extensive literature review.

The second stage involved data collection through a survey conducted in December 2022 among decision-makers (owners and managers) of agricultural and processing companies in North Macedonia with regional export/import orientation. A questionnaire was developed, encompassing perception related to the current status, problems, and challenges of agriculture.

A fixed-choice self-administered questionnaire was used, employing a five-point Likert scale (1 = strongly disagree to 5 = strongly agree), along with direct yes/no answer statements. The questionnaire was distributed via email addresses obtained from the National Chamber of Commerce. A follow-up reminder was sent after a three-day notice period. A total of 157 acceptable responses were collected. The questionnaire was structured as:

- Section 1: Perception of the regional economy in terms of agricultural development.
- Section 2: Business in a turbulent environment (questions related to COVID-19 and Russia-Ukraine crisis).
- Section 3: General data.

In the third stage of the research, Principal Component Analysis (PCA) was conducted using SPSS, with Oblimin rotation to account for any factor.

Results

The PCA identified six main influential factors incorporating two times two sub-factors. Table 1 presents paraphrased questions as statements whereas the context of regional countries refers to neighboring countries Albania, Serbia, and Montenegro.

Table 1. Factors and PCA results

Factor (F) / Question (Q)	Loading/Cr Alpha	Mean	Std. Deviation	Std. Error Mean	t	Sig. (2-tailed)
F1: COVID-19	0.905	2.661				
Q: Substantial profit decrease	0.891	2.120	0.96974	0.077	4.89681	0.000
Q: Negative consequences to products demand	0.897	1.439	0.49791	0.040	1.52272	0.000
Q: Problems due to restrictions	0.982	3.063	1.54705	0.123	0.51588	0.000
Q: Company's trade decrease in general	0.932	3.382	2.00171	0.159	0.73760	0.000
Q: Company's trade decrease with regional countries	0.821	3.210	2.01606	0.161	1.80118	0.000
F2: REGIONAL ECONOMY - GENERAL	0.835	1.943				
Q: Regional trade exchange as alternative to EU possibilities	0.913	2.420	0.99439	0.079	7.30356	0.000
Q: Presence of obstacles for regional cooperation related to company's activities	0.805	1.790	0.40875	0.032	8.88395	0.000
Q: Comparing trade conditions to those of 10 years earlier	0.786	1.618	0.85136	0.068	12.9834	0.000
F3: REGIONAL ECONOMY – EVALUATION OF THE STATUS	0.758	2.134				
<i>F3.1: Collaboration</i>	<i>0.837</i>	<i>1.346</i>				
Q: Obstacles for regional economic cooperation	0.934	1.319	0.56657	0.045	15.0723	0.000
Q: Cooperation with countries from the region	0.792	1.401	0.34823	0.028	12.9489	0.000
Q: Share in total company income	0.785	1.319	0.68909	0.055	30.5757	0.000
<i>F3.2: Estimation</i>	<i>0.678</i>	<i>2.921</i>				
Q: Field of cooperation	0.804	4.414	1.88464	0.150	6.076794	0.000

Q: Reason for no-cooperation	0.734	2.542	1.34207	0.107	4.2816	0.000
Q: Business share of cooperation with Serbia	0.370	3.127	1.18606	0.094	3.93639	0.000
Q: Business share of cooperation with Albania	0.680	2.503	1.40340	0.112	13.364	0.000
Q: Business share of cooperation with Montenegro	0.802	2.019	0.99015	0.079	12.4128	0.000
F4: REGIONAL DEVELOPMENT – EXPECTATIONS	0.853	3.140				
<i>F4.1: Micro aspects</i>	<i>0.750</i>	<i>2.390</i>				
Q: Improved company's business	0.832	1.834	0.84616	0.067	17.2603	0.000
Q: Enhanced company's competition	0.553	3.764	0.89256	0.071	10.72983	0.000
Q: Improved company's distribution	0.864	1.573	0.55705	0.044	9.5991	0.000
<i>F4.2: Macro aspects</i>	<i>0.955</i>	<i>3.889</i>				
Q: Possibilities for joint regional market	0.956	3.885	0.91964	0.073	12.06272	0.000
Q: Regional economic cooperation leads to better product distribution	0.954	3.892	0.91693	0.073	12.18544	0.000
F5: GOVERNMENTAL SUPPORT	0.869	2.220				
Q: Subsidy for agricultural products	0.818	1.879	0.32719	0.026	14.51319	0.000
Q: Subsidy for processing capacities	0.935	1.733	0.44408	0.035	6.559664	0.000
Q: Subsidy for trade	0.938	1.739	0.44067	0.035	6.791609	0.000
Q: Satisfaction of form and amount of state subsidy	0.766	3.917	1.49770	0.119	7.673409	0.000
Q: State economic measures to mitigate COVID-19 crisis	0.886	1.828	0.37857	0.030	10.85715	0.000
F6: RUSSIA-UKRAINE CRISIS	0.811	2.702				
Q: Significant profit decrease	0.845	1.905	1.04871	0.084	7.11553	0.000
Q: Consequences to demand for agricultural/dairy/meat products	0.857	1.548	0.49931	0.039	1.198796	0.000
Q: Type of problems	0.696	3.217	1.19999	0.095	2.261262	0.000
Q: Extent to product decrease	0.822	3.440	1.99788	0.159	0.37949	0.000
Q: Extend to trade decrease	0.837	3.401	2.03451	0.162	0.60803	0.000

The indicators in this study have a mean overall Cronbach's alpha value of 0.839, surpassing the suggested benchmark of 0.6 (Nunnally & Bernstein, 1994). The appropriateness of the factor analysis is supported by Bartlett's test, which is highly significant ($p < 0.05$), and loadings greater than 0.5.

The analysis identified six factors:

- The first factor, "COVID-19," has a high Cronbach's alpha value of 0.905 and consists of five items.
- The second factor, "Regional economy - general," has a Cronbach's alpha value of 0.835 and comprises of three items.

- The third factor, "Regional economy – evaluation of the status" (0.758) is composed of two sub-factors: "Collaboration" (0.837), which has three items, and "Estimation" (0.678), which has five items.
- The fourth factor, "Regional development – expectations" (0.853) also has two sub-factors: "Micro aspects" (0.75), with three items, and "Macro aspects" (0.955).
- The fifth factor, "Governmental support," has a Cronbach's alpha value of 0.869 and includes five items.
- Finally, the sixth factor, "Russia-Ukraine crisis," has a Cronbach's alpha value of 0.811 and contains five items.

Findings and Discussion

The factor with the highest mean value of perception (3.14) is "Regional development – expectations," indicating that it is the most influential factor. Specifically, the sub-factor "Macro aspects," which focuses on regional economic development and addresses neighboring countries such as Albania, Serbia, and Montenegro, is perceived as the highest by far (3.889). The study suggests that developing and boosting the regional economy with free trade, no customs, and border restrictions presents a challenge, particularly for the closest countries in the surrounding area. This finding is consistent with previous research by Mattas and Loizou (2017) and Wu et al. (2012), which discuss the significant contribution of agriculture to the economy.

The operations of agricultural, food production, and processing companies in North Macedonia are moderately affected by both the "COVID-19" and "Russia-Ukraine crisis" factors. Since mid-March 2020, North Macedonia dealt with the pandemic, resulting in reduced working hours, limited movement, slowed manufacturing activities, closed regular sales channels, questionable placement, and many purchasing issues. However, the "COVID-19" factor is perceived as having a moderate influence on agricultural growth in North Macedonia, with an average value of 2.661. This suggests that there was no substantial larger effect on national agricultural production and trade markets, which is similar to the findings of Beckman and Countryman (2021) for the U.S. economy. Nevertheless, export limits were implemented as a common governmental action to protect food supplies and ensure food security (Beckman & Countryman, 2021; Casey & Cimino-Isaacs, 2020; IFPRI, 2020; Torero, 2020; Wang et al., 2020; Wang & Na, 2020). Conversely, COVID-19 did have some latent detrimental effects on logistics and distribution, which are common consequences of pandemics (Gray, 2020; Reardon & Swinnen, 2020; Reardon et al., 2020).

Additionally, the research revealed that the "Russia-Ukraine crisis" had a moderate impact on North Macedonia's agriculture sector. The managers rated their perception of it as having the second-highest mean value (2.702). The study identified that the global food production chain was interrupted due to the price rise of agricultural inputs, including oil, natural gas, and fertilizers, as a result of the conflict. The conflict also led to export limitations that impacted the regional and global grain market, leading to global food insecurity. Specifically, population displacement, damaged infrastructure, and restricted free movement of people and products resulted in disruption to agricultural output and global trade, which affected the processes of crop cultivation, harvesting, and selling (Lin et al., 2023).

Furthermore, managers rated the factors "Regional economy - evaluation of the status" and "Governmental support" as less significant in influencing the agricultural development of North Macedonia. Specifically, the managers perceived the "Regional economy - evaluation of the status" as an overall factor with a mean value of 2.134, consisting of two sub-factors. The first sub-factor, "Collaboration," which pertains to the regional economic cooperation with neighboring countries Albania, Serbia, and Montenegro, was considered as the weakest (1.346), while the second sub-factor, "Estimation," was perceived as highly impactful (2.921). This indicates a need to further address and strengthen the current state of regional economic cooperation, along with sustaining high expectations. Moderate influence is perceived also by the "Governmental support" factor. The process of regional development and economic growth is specifically driven by the given support of the countries' governments. Managers perceived the governmental assistance as having a mean value of 2.22 meaning modest but significant effects. This underscores the need for resilience and adaptive capacity to maintain agricultural production and processing during times of crisis, as small agricultural countries like North

Macedonia face challenges in ensuring food security. This finding is consistent with the global trend identified in a previous study (Pu & Zhong, 2020).

“Regional economy – general” is rated as having the lowest mean score of all identified factors (1.943). Based on managerial perception, the agricultural development in the regional economy is faced with numerous challenges that require attention. Despite the positive transformations that the agricultural sector in North Macedonia has undergone, there is still a need to implement measures that foster innovation and technological advancement. While regional trade exchange may serve as a means of advancing European cooperation, it cannot be considered a complete solution. Various obstacles associated with the activities of companies impede substantive regional cooperation. Consequently, the agricultural sector must progressively evolve towards becoming more modern and industry focused.

Conclusion

The research offered an evaluation of agricultural sector in North Macedonia and its development in the broader economic context. It examined the impact of six driving factors on the regional economic dynamics. The study specifically surveyed managers of agricultural, food production, and processing companies in North Macedonia to gauge their perception of the business environment. This was measured by analyzing the incentives provided by the government, as well as the inhibitors caused by external factors such as the COVID-19 pandemic and the Russia-Ukraine crisis.

There is an immediate necessity to transition towards sustainable and equitable agricultural practices to establish a resilient and sustainable food system capable of enduring future shocks and crises. Ultimately, investing in agricultural, food, and processing companies is crucial for promoting sustainable economic growth.

The study has few gaps which can be filled in by future research, as:

- It focuses only on management, neglecting other aspects of perception such as policymakers and consumers.
- It might be affected by the common method variance effect because it relies on data collected through questionnaires.
- It is limited by the small number of items included and could benefit from incorporating more information about the regional economy and growth, including collaboration, technology, innovation, and more direct connections to governmental policies.
- It applies a narrow approach that may be transformed into multifunctional and interdisciplinary towards developing integrated policies and strategy documents for agricultural growth.
- Despite these limitations, the findings offer some general recommendations which might be useful for improving agricultural growth in the regional economy context.

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