

CONVERGENCE BETWEEN EUROPEAN AND UKRAINIAN AGRARIAN SECTORS: A LITERATURE OVERVIEW

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Abstract

The article provides an overview of the literature in the field of agrarian economics. Attention is focused on the possibility of Ukrainian agricultural sector modernization to the level of the European Union. The purpose of the article is to highlight important issues related to efficiency improvement of Ukrainian agricultural sector. The purpose of the work connected with the achievement of specific objectives: to describe the situation in the agricultural sector of the European Union, including the countries of Eastern Europe; to highlight the peculiarities of the agricultural sector functioning in Ukraine; to explain the specificities of R&D, clustering, innovation and interdisciplinarity in the agricultural sector. Results of this work contain an explanation of convergence between the agrarian sectors of European Union and Ukraine as a complex interdisciplinary phenomenon.

Keywords: *agrarian sector, convergence, European Union, interdisciplinarity, Ukraine*

JEL classification: *Q10, Q18*

1. Introduction

Agrarian sector is an important of economy for both Ukraine and the European Union [EU]. Issues of its development and improvement are complex and multifaceted. In the course of the research we tried to highlight problems that, in our opinion, are important for the development of agrarian sector as a part of Ukrainian economy. Acceleration of convergence in the sector between Ukraine and the EU is another important question. We focused on the interdisciplinary aspects of agricultural sector development. Thus, the

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article shows that specific agrarian knowledge is dominant but other areas of academic knowledge are also crucial.

Interdisciplinary knowledge associated with agrarian sciences related to the following academic disciplines: globalization, food industry, macroeconomics, international economic relations, ecology, governance, politics, law, entrepreneurship, sociology, mathematics, economic cybernetics, clustering, engineering, ICT. All these spheres of knowledge have been effectively used for decades in conjunction with specific agrarian knowledge. The use of interdisciplinary knowledge is effective because the interdisciplinary worldview is linked to real problems and also help to avoid over-theorizing.

Given that complex interdisciplinary knowledge relates to real reforms in the agrarian sector of economy, it will be important to highlight issues that are relevant to the EU as well as those that are important to Ukraine. Such complex and different knowledge emerges as a discourse concerning productivity grows in the agricultural sector of economy.

2. Content

In the course of our work, we will focus on the following issues: agricultural sector of the EU economy, problems of the agrarian sector transformation in some Eastern European countries, situation with the agrarian sector of Ukrainian economy, role of R&D and clustering in the agricultural sector development, importance of innovations and interdisciplinarity in accelerating of the agricultural sector development.

2.1. European Union

The EU is an important producer of commodities in agricultural sector. Both separate countries and Europe as a whole provide an important examples for our overview. We would like to draw attention to a large-scale research concerning understanding of agricultural industry functioning in the EU as a whole.

One of the most significant studies was conducted in 27 EU countries between 2009-2011 (Nowak & Kaminska, 2016). The study concerned the measurement of competitiveness, as it is one of the main indicators of economic success. It should be noted that there is diversification in the functioning of agricultural sectors in different EU countries. Another large-scale study concerns the time period between 1995 and 2009 (Makutėniene, Balezentis & Streimikiene, 2016). This study is particularly important because

it links value-added problems in the agricultural sector to energy efficiency and can serve as an example for the development of Ukrainian agricultural sector. When we discuss the relations between agrarian sector and food industry in the EU countries, one can refer to the study, which was carried out in the period between 2002 and 2013 (Reiff, Ivanicova & Surmanova, 2018). The results of that study indicate significant difference between agrarian sector and food industry. On the whole, it can be said that the agricultural industry in the EU is effective and its development can be considered as a stable (Kocisova, Gavurova & Kotaskova, 2018). This is due to the fact that 47% of the total EU area is used in the agricultural sector (Ogorevc & Slabe-Erker, 2018).

It should be noted that in the last quarter of the twentieth century, there has been a growing link between global capital and agrarian industry (Bor, 2013). In this regard, it is worth paying attention to trade flows between countries. This topic is especially relevant for the countries of South-Eastern Europe (Matkovski, Zekic, Savic & Radovanov, 2018). The development of import-export trade plays an important role as these countries may take part in international market activities.

The above literature review indicates a strong link between an agrarian sector and energy, food, geography, globalization, macroeconomic theory. Considering the diverse interdisciplinary links, attention must be paid to an environmental performance of agricultural sector (Moutinho, Robaina & Macedo, 2018). Along with different economic factors, environmental factors are one of the main factors in the EU. Therefore, Ukraine should practically implement environmental theory in order to be a participant in EU policies.

2.2. Eastern European countries

The example of Eastern European countries is especially valuable for reforming the agrarian industry in Ukraine. As Eastern European countries are geographically close to Ukraine, most of them are post-communist countries, so it is obvious that reforms carried out in them may also be beneficial for Ukraine. First of all, it should be mentioned that changes in the agricultural sectors of these countries are characterized by transformation, integration and polarization (Bański, 2018). Both for Ukraine and post-communist countries it was important to move from collectivization and central planning to change in the legal form of agricultural enterprises (Adamisin, Kotulic & Kravcakova Vozarova, 2017).

One of the most relevant examples for Ukraine is the example of Poland. The period from 2002 to 2010 was used to prepare Poland's accession to the EU agricultural sector (Jeziarska-Thöle, Janzen & Rudnicki, 2014). Efforts during that period focused on assistance programs and implementation of the Common Agricultural Policy. Another equally useful example is Romania. In this country, the development of agricultural industry is mainly determined by the structure of agricultural industry (Otiman, 2012). Thus, Ukraine needs to pay more attention to structural reforms in the agricultural sector, as well as to the strategic elements of its development.

Although Ukraine has a common communist past with most of the Eastern European countries, the development of agricultural sector in some of them is not similar to the development of agricultural sector in Ukraine. For example, in the Baltic countries, agricultural exports are weakly linked to GDP growth (Remeikiene, Gaspareniene & Volkov, 2018). While in Ukraine, Economic Association with the EU created favorable conditions for exports of agricultural products to the EU. Another example is the Czech case. In the Czech Republic, the number of agricultural enterprises is increasing and the size of agricultural holdings is decreasing (Janovska, Simova, Vlasak & Sklenicka, 2017). In contrast, current situation in the agrarian sector of Ukraine is characterized by creation of agricultural enterprises and growth of their size. This is due to the creation of a land market in Ukraine.

It is obvious that agricultural sector in Eastern European countries is integrating and transforming, but it is also polarizing (see above). Therefore, Ukrainian politicians should carefully select examples of reforms that can be applied in Ukraine and focus on the strengths of domestic producer.

2.3. Ukraine

Agriculture is one of the main sectors of Ukrainian economy, but its functioning is still low (Popov, 2017). This statement also applies to horticulture: despite its long history, the horticultural market is in its infancy (Karpenko, Burliai, Burliai & Mostovyak, 2016). This means that Ukraine still has a lot to do to develop agriculture. One of the main drivers of the industry's development is the improvement of bilateral trade relations between Ukraine and the EU (Yatsenko, Nitsenko, Karasova, James & Parcell, 2017). Let's look at some other important features of agricultural development in Ukraine.

One of the main characteristics of current agricultural development in Ukraine is the strengthening of large and very large agricultural enterprises position (Yatsiv & Kolodiichuk, 2017). Thus, different relations in the

agricultural market are formed, but these processes are included in the broader system - the formation of a market economy in Ukraine. Ukrainian economy, following the examples of some European countries (target countries), can significantly accelerate development in the industry, if it use the examples of successful policies, reforms and innovations (Vasylieva, 2018).

Development of agriculture in Ukraine concerns the creation of numerous interdisciplinary links between specific agricultural knowledge and other academic domains. Political science, international relations, law, macroeconomics and finance provide information that can significantly accelerate the development of agriculture in Ukraine. Currently, socioeconomic development of rural areas, as well as systematic use of innovative mathematical models, are one of the most pressing issues, which also have a complex interdisciplinary nature.

The use of innovative mathematical models can greatly assist in the assessment and prediction of economic processes and phenomena in agriculture (Nikolenko, Jurakovskiy, Ivanyuta, Andronik & Sharkovska, 2018). In addition, mathematical models can help to structure approaches to agricultural management, systematize information gathering, and help to establish correlation between key performance indicators. The involvement of a large number of academic disciplines correlating with agriculture can be so great that it can reach the level of transdisciplinarity. One of such issues may be the socio-economic development of rural areas (Zalizko, Fedun & Martynenkov, 2017). This topic is particularly important in the context of decentralization and it will only evolve, capturing a growing range of interdisciplinary knowledge.

2.4. R&D and Clusters

R&D is important for all academic fields and industries. Agriculture is not an exception, in Ukraine this issue is of particular relevance. Increasing agricultural R&D is often associated with increasing agricultural quantity and quality (Kubankova, Hajek & Votavova, 2016). Moreover, there is a lasting positive effect and impact of agrarian R&D and investment on agricultural sector functioning and regional development (Anousheh, Hojabr-Kiani, Mojtahed & Ranjbar, 2018). There are more than ten agrarian universities in Ukraine. This means that spending increase on science at these universities can significantly improve the situation with agricultural in Ukraine. Equally important is the problem of clusters and clustering of agriculture.

Clusters formation can reduce negative trends in agriculture at the national level and help to avoid many obstacles (Vasylieva, 2016). Creation of homogeneous clusters can optimize land use and streamline relationships within the land market (Strojny & Piecuch, 2017). Creation of clusters can also enhance stakeholder collaboration and take into account different agrarian interests (Betáková, Haviernikova, Jašková, Hagara, & Zeman, 2017). All of this proves the efficiency of clusters creating within Ukrainian agriculture.

2.5. Innovations and Interdisciplinarity

Issues of innovations and interdisciplinarity are relevant to agriculture and very promising. Theories of these two components can be applied to most sectors of the national economy. First of all, their development and cultivation can streamline information and intellectual resources (Vdovenko, Baidala, Burlaka, & Diuk, 2018). The scope of such management can be quite different: from the country level and individual regions, to the level of individual enterprises (institutions) and subdivisions within enterprises. Arrangement of information resources can also address specific topics such as land use (Tomchuk, Lepetan, Zdyrko & Vasa, 2018).

Modern computer innovations provide numerous benefits for government and business leaders. The use of specific software is about improving data collection and statistics, business informatics and economic cybernetics. Modern technologies allow us to create detailed economic and mathematical models (Novak, Verniuk & Novak, 2016). In addition, the development of ICT enables us to create a simulation of land relations in agrarian sector (Sodoma, Skhidnytska, Shvorak, Shmatkovska & Zhurakovska, 2018). It is clear that such models can be more than exclusively economic and agrarian. However, the interaction of agriculture with other sectors of a country's life is a complex interdisciplinary problem. So, for now, it's worth focusing on building of simple, yet specialized computer models.

Other important interdisciplinary fields of knowledge may include modernization of mechanical equipment (Krejčí, Mazouch, Vltavská, Kvasnička, 2015), environmental approach and sustainable growth (Kozlovskiy, Baidala, Tkachuk & Kozyrskya, 2018), systemic risk analysis in agricultural sector, Stareviciute, & Alekneviciute, 2018). It is also possible to emphasize the importance of the link between R&D, amount of public investment and practical implementation of created innovations, which is especially relevant for modern Ukrainian farmers.

3. Conclusions

An analysis of the voluminous literature that is related to the development of the agricultural sector in Ukraine shows that some experience of individual EU countries can be actively applied to Ukrainian agriculture. Convergence between the EU and Ukraine is complex, affecting both the developed economies of the EU and Eastern European countries.

Agricultural sector is an important component of Ukraine's GDP. Although agriculture in Ukraine has a long tradition, there is still considerable latent resource for its development. Ukraine has to organize the efforts of all stakeholders with a view to structured and strategic agriculture management.

Convergence in the agrarian sector between the EU and Ukraine can be greatly accelerated by integration of government, business and academic institutions efforts. Complexity of problems related to the development of Ukrainian agriculture has clear interdisciplinary character. Therefore, knowledge resources and skills of educational and scientific staff are indispensable for the creation of a theoretical framework for the modernization of Ukrainian agriculture.

4. References

- Adamisin, P.; Kotulic, R.; Kravcakova-Vozarova, I. (2017) Legal Form of Agricultural Entities as a Factor in Ensuring the Sustainability of the Economic Performance of Agriculture, *Agricultural Economics*, 63(2), p. 80–92.
- Alekneviciene, V.; Stareviciute, B.; Alekneviciute, E. (2018) Evaluation of the Efficiency of European Union Farms: A Risk-Adjusted Return Approach, *Agricultural Economics*, 64(6), p. 241–255.
- Anousheh, S.; Hojabr-Kiani, K.; Mojtahed, A.; Ranjbar, H. (2018) Agricultural R&D, Spatial Spillover and Regional Economic Growth in Different R&D Sectors of Performance: Evidence from a Spatial Panel in Regions of the EU-28, *Agricultural Economics*, 64(4), p. 163–169.
- Bański, J. (2018) Phases to the Transformation of Agriculture in Central Europe – Selected Processes and Their Results, *Agricultural Economics*, 64(12), p. 546–553.

- Betáková, J.; Haviernikova, K.; Jašková, D.; Hagara, V.; Zeman, R. (2017) Potential for Clustering in the Agricultural Sector Assessment: The Case of Slovakia, *Economic Annals-XXI*, 167(9-10), p. 23-27.
- Bor, Ö. (2013) Agrarian Transformation: Power and Dominance in Markets, *International Journal of Food and Agricultural Economics*, 1(1), p. 1-12.
- Janovska, V.; Simova, P.; Vlasak, J.; Sklenicka, P. (2017) Factors Affecting Farm Size on the European Level and the National Level of the Czech Republic, *Agricultural Economics*, 63(1), p. 1–12.
- Jezierska-Thöle, A.; Janzen, J.; Rudnicki, R. (2014) Agrarian-Economic Structure of Agricultural Holdings in Poland and East Germany: Selected Elements of Comparative Analysis, *Quaestiones Geographicae*, 33(2), p. 87-101.
- Karpenko, V.; Burliai, O.; Burliai, A.; Mostovyak, M. (2016) Ukrainian Gardening Market Trends Under Globalization, *Economic Annals-XXI*, 161(9-10), p. 51-55.
- Kocisova, K.; Gavurova, B.; Kotaskova, A. (2018) A Slack-Based Measure of Agricultural Efficiency in the European Union Countries, *Journal of International Studies*, 11(1), p. 189-200.
- Kozlovskiy, S.; Baidala, V.; Tkachuk, O.; Kozyrskaya, T. (2018) Management of the Sustainable Development of the Agrarian Sector of the Regions of Ukraine, *Montenegrin Journal of Economics*, 14(4), p. 175-190.
- Krejčí, I.; Mazouch, P.; Vltavská, K.; Kvasnička, R. (2015) Age of Machinery and Equipment in the Czech Agriculture, *Agricultural Economics*, 61(8), p. 356–366.
- Kubankova, M.; Hajek, M.; Votavova, A. (2016) Environmental and Social Value of Agriculture Innovation, *Agricultural Economics*, 62(3), p. 101–112.
- Makutėniene, D.; Balezentis, T.; Streimikiene, D. (2016) Energy Use and Intensity in Agriculture Across European Countries, *Montenegrin Journal of Economics*, 12(1), p. 85-93.
- Matkovski, B.; Zekic, S.; Savic, M.; Radovanov, B. (2018) Trade of Agri-Food Products in the EU Enlargement Process: Evidence from the Southeastern Europe, *Agricultural Economics*, 64(8), p. 357–366.
- Moutinho, V.; Robaina, M.; Macedo, P. (2018) Economic-Environmental Efficiency of European Agriculture – A Generalized

Maximum Entropy Approach, *Agricultural Economics*, 64(10), p. 423–435.

- Nikolenko, L.; Jurakovskiy, E.; Ivanyuta, N.; Andronik, O.; Sharkovska, S. (2018) Investment Policy of Governance of Economic Security of Agrarian Sector of Ukraine on the Basis of Theory of Fuzzy Logics, *Montenegrin Journal of Economics*, 14(4), p. 125-140.
- Novak, I.; Verniuk, N.; Novak, Yu. (2016) Structuring of Sources of Attracting Capital to Agricultural Production as a Prerequisite for the Formation of an Effective Investment Mechanism in the Agricultural Sector, *Economic Annals-XXI*, 159(5-6), p. 29-33.
- Nowak, A.; Kaminska, A. (2016) Agricultural Competitiveness: The Case of the European Union Countries, *Agricultural Economics*, 62(11), p. 507–516.
- Ogorevc, M.; Slabe-Erker, R. (2018) Assessment of the European Common Agricultural Policy and Landscape Changes: An Example from Slovenia, *Agricultural Economics*, 64(11), p. 489–498.
- Otiman, P. I. (2012) Romania's Present Agrarian Structure: A Great (and Unsolved) Social and Economic Problem of Our Country, *Agricultural Economics and Rural Development*, 9(1), p. 3–24.
- Popov, A. (2017) Assessment of Land Fragmentation of Agricultural Enterprises in Ukraine, *Economic Annals-XXI*, 164(3-4), p. 56-60.
- Reiff, M.; Ivanicova, Z.; Surmanova, K. (2018) Cluster Analysis of Selected World Development Indicators in the Fields of Agriculture and the Food Industry in European Union Countries, *Agricultural Economics*, 64(5), p. 197–205.
- Remeikiene, R.; Gaspareniene, L.; Volkov, A. (2018) Evaluation of the Influence of the Export in Agricultural Products on the Baltic States Economic Growth, *Montenegrin Journal of Economics*, 14(3), p. 83-94.
- Sodoma, R.; Skhidnytska, H.; Shvorak, A.; Shmatkovska, T.; Zhurakovska, I. (2018) Peculiarities of Agrarian Receipts as a Modern Financial Tool, *Economic Annals-XXI*, 169(1-2), p. 46-49.
- Strojny, J.; Piecuch, J. (2017) The Land Use Structure of Agricultural Holdings in the Central and East European Countries and Its Evolution, *Agricultural Economics*, 63(1), p. 13–23.

- Tomchuk, O.; Lepetan, I.; Zdyrko, N.; Vasa, L. (2018) Environmental Activities of Agricultural Enterprises: Accounting and Analytical Support, *Economic Annals-XXI*, 169(1-2), p. 77-83.
- Vasylieva, N. (2016) Cluster Models of Households' Agrarian Production Development, *Economic Annals-XXI*, 158(3-4(2)), p. 13-16.
- Vasylieva, N. (2018) Ukrainian Agricultural Contribution to the World Food Security: Economic Problems and Prospects, *Montenegrin Journal of Economics*, 14(4), p. 215-224.
- Vdovenko, N.; Baidala, V.; Burlaka, N.; Diuk, A. (2018) Management Mechanism of Agrarian Economic System: Composition, Functions and Factors of Development in Ukraine, *Problems and Perspectives in Management*, 16(2), p. 179-189.
- Yatsenko, O.; Nitsenko, V.; Karasova, N.; James, H.S.Jr.; Parcell, J.L. (2017) Realization of the Potential of the Ukraine–EU Free Trade Area in Agriculture, *Journal of International Studies*, 10(2), p. 258-277.
- Yatsiv, I.; Kolodiichuk, V. (2017) Formation of Social Responsibility of Large Agricultural Land Users in Ukraine, *Economic Annals-XXI*, 168(11-12), p. 48-52.
- Zalizko, V.D.; Fedun, I.L.; Martynenkov, V.I. (2017) Representative Model of Economic Development for an Agricultural Enterprise in the Context of Socioeconomic Rural Space Formation, *Montenegrin Journal of Economics*, 13(3), p. 53-62.