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Review of the doctoral dissertation

**Barraí Hennebry, MSc**

Review of the doctoral dissertation

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entitled **Dynamics and Spatial Polarisation of Rural Regions in Europe.**

**An Economic Investigation.**

Doctoral thesis written under the supervision of Prof. Tadeusz Strykiewicz

and

Prof. Maria Ferreiro in the Department of Economic Geography

### **1. Formal grounds for the review**

The formal and legal grounds for reviewing the doctoral dissertation of Barraí Hennebry, MSc (Resolution No. 002/2021/2022) is a letter from Prof. dr hab. Paweł Churski, Chairman of the Scientific Council of Socio-Economic Geography and Spatial Management of 22 September 2021. Under the requirements of the Act-Law on Higher Education and Science, Article 187 of 20 Juli 2018 on academic degrees and the academic title as well as on degrees and title in the field of art (Journal of Laws 2020 item 85, as amended), the purpose of the review is to assess whether the presented dissertation meets requirements necessary to award the doctoral degree. Bearing in mind that the doctoral dissertation should constitute an original solution to an academic problem and demonstrate the general theoretical knowledge of the candidate when assessing the doctoral dissertation, I adopted the following criteria: the importance of the

subject matter, the purpose and scope of the thesis, the layout of the work, research methodology, theoretical and methodological foundations and the selection of literature and source materials.

## **2. Basic information about the dissertation**

The dissertation submitted for the review has a total of 127 pages, which makes six chapters, including three empirical (3, 4 and 5), one theoretical-methodological chapter (1) as well as conclusions and recommendations (6), a bibliography, list of tables and figures and appendix. The work includes 26 tables and 17 figures in the form of diagrams, line charts, scatter charts, diagrams and choropleth maps. The text is supplemented with information about the author's research activity, i.e. peer-reviewed journal articles and conference presentations. The dissertation submitted for evaluation is a part of a larger project entitled "RurAction - Social entrepreneurship in structurally weak rural regions: Analysing troubleshooters in action", funded by the European Union's Horizon 2020 research and innovation program under the Marie Skłodowska Curie grant agreement number 721999. Ten PhD students took part in the RurAction Project, including the author of this dissertation, who focused on the intersection of rural development, social innovation and social entrepreneurship research. The focus of the present thesis is solely on the economics of rural regions in Europe.

## **3. The meaning of the topic taken**

I consider it very important to take up this research topic concerning rural areas because, within regional studies, urban economics has become a separate branch of study, while rural economics still tends to be under-researched. There is still insufficient empirical research on the factors that distinguish structurally strong rural regions from weak rural regions. Meanwhile, rural areas play an essential role in the country's socio-economic development. In recent years, although the literature on the subject has attempted to adapt the existing theories of economic development for rural studies or use economic methods and language to create new models for explaining rural development, there is a lack of specific empirical research into the factors that differentiate structurally strong rural regions from structurally vulnerable rural regions. Taking up this research topic by the PhD candidate fills the gap in the literature in the field of regional studies on the socio-economic characteristics that lead to polarisation between rural regions, in essence trying to understand why some rural regions are lagging while others are thriving. Especially since the economics of rural development is left underexplored and no economic models focus on rural development. In addition, since the 2008 financial crisis has

influenced the undertaking of research regarding regional economic resilience concerning urban and city areas, there has been a sharp increase in research on regional economic resilience.

An innovative approach to the research topic. This dissertation was proposed as a purely quantitative economic analysis of rural regions. It raises the issue of approaching a conceptual subject matter, rural studies, from a positivist position. The dissertation submitted for review used the mainstream economic theories and techniques and applied them exclusively to rural regions by excluding urban and intermediate regions. The work represents an interdisciplinary approach to the subject of the study, which in the presented approach is located at the interface between the sciences of geography and economics. The author took up this challenge and implemented it with great care. Despite emphasising this interdisciplinary nature, the dissertation remains strictly a part of the study of socio-economic geography and spatial management. I consider the choice of the topic of the dissertation to be accurate and justified and also very interesting for the reviewer.

#### **4. Purpose and scope of work**

The spatial scope of the study was selected according to the set goal of the work and concerned rural regions in Europe (NUTS3). What is understood by rural regions is the definition by the European Commission, which means the regions which have more than 50% of their population living in rural grid cells. The national research was conducted for selected countries: Germany and Greece, Austria, Portugal and Ireland. The temporal scope covered the years 2000-2017, emphasising two sub-time before and after 2008 periods, that is, pre-crisis and post-crisis. This time division was to show whether the financial crisis exacerbated rural disparities or whether it helped to equal the economic output among rural regions and to understand the growth paths of rural regions before the recession, the resilience of rural regions. The cognitive aim of the dissertation was to examine the dynamics and spatial polarisation of rural regions in Europe from an economic perspective. The purpose of this research was: (1) to understand the extent to which this polarisation exists, (2) what factors lead to polarisation and (3) how shocks such as the financial crisis of 2008 contribute to this polarisation, in other words: how resilient rural regions are. The thesis that the author intended to prove was not directly formulated in work, nor did he formulate research hypotheses that could be verified or falsified. The author accomplishes the aim of the work through three research questions, as follows:

1. What are the regional disparities among rural regions in Europe? What is the trend over time? Can convergence be observed? What are the determinants of economic growth in rural regions?
2. What is the structural strength of the rural regions, and how did it change over time? What socio-economic characteristics influence the structural strength of the rural regions?
3. What is the economic resilience of rural regions, i.e. how have they responded to the crisis of 2008/09? What are the socio-economic characteristics that contribute to resilience? Will resilience to the 2008 financial crisis predict resilience to the Covid19 crisis?

The author appropriately justified the research problem expressed in each question based on the literature on the subject and set precise research tasks. All research questions were consistently tested using appropriately selected methods presented in subsection 1.4.

The work's application goal resulted from the PhD candidate's participation in the RurAction Project, which enabled him to conduct numerous workshops and interviews with stakeholders, social entrepreneurs, and political decision-makers. It provided a thorough theoretical and practical basis for developing the collected material.

## **5. Layout of work**

The structure of the paper is correct and in line with the research concept. The layout has been entirely subordinated to the adopted goal and forms a logical and coherent whole. In the introduction (1) to the dissertation, the author briefly presents the issues discussed and the research plan. The first chapter of seven pages introduces the topic and covers the research goal and research questions, source materials and data, methods, and spatial and temporal scope and terminology issues. Chapter 2 is theoretical and presents a pervasive review of theoretical and empirical literature from the international circulation, mainly from reputable publishers, textbooks and monographs. The value of the work is contained in chapters 3-5 on the empirical part of the work. Each begins with an introduction, including theoretical background, introductory information and research questions, and ends with a summary. Additionally, in these chapters, the author described the research methods used in detail. The work ends with chapter 6, which presents the research results and their interpretation and recommendations.

The structure of the work allowed the author to present and describe the theoretical issues of research to the spatial analysis of individual aspects of the research. The spatial analysis concerned the EU and the regional approach on the example of selected countries, which enriched the work with a regional approach.

## **6. Research methodology**

The research uses various techniques, including simple descriptive statistics (such as mean, standard deviation, coefficient of variation and others),  $\beta$ -convergence testing, creation of a composite index, creation of a sensitivity index and econometric regression analysis. A research methodology was selected for each research question and presented in individual chapters. The research used independent variables that represent specific socio-economic characteristics of rural regions. These variables can broadly be divided into business and economy, people and population, rurality and society and community. The attempts made should be considered carried out with the proper use of the statistical workshop. The PhD candidate is aware of the research difficulties, especially related to the determination of factors identifying regional polarisation, and is also aware of the practical limitations in access to data, i.e. the process of operationalisation. It should be noted that the reviewed work is also illustrated with cartography - it contains 17 figures (mainly cartograms, cartodiagrams and charts) and on the other hand, with statistically documented - 26 tables. It should be emphasised that the PhD candidate's participation in the RurAction Project made a significant contribution by stakeholders, both social entrepreneurs and decision-makers. The author used many references and resources from organisations and agencies such as the European Commission, ESPON and the OECD. This practical orientation also led to incorporating specific country case studies into three empirical chapters, so while it is a study of the dynamics of rural regions in the EU, special attention is paid to different countries in different chapters.

## **7. Assessment of the content of the work**

In my opinion, the dissertation presented for review is an example of reliable research, both theoretical and empirical. The high degree of difficulty resulted mainly from the adopted research concept, based on theoretical achievements. **Chapter 1** correctly presents the purpose of the research, research questions, issues and the research methods used. The author justifies the choice of the research topic, referring to participation in the RurAction Project. Additionally, the author describes the basic concepts used in work. **Chapter 2** is an integral part of the work and is devoted to theoretical research issues. The chapter begins with an extensive literature discussion on research issues. The author presents the outline of the development of economic theories properly in chronological terms and conducts a discussion concerning rural areas. It rightly indicates a significant share of research concerning cities, showing the weakness of the methodological approach in rural areas. The author presents issues

related to Rural Regions in Regional Economic Growth Theories (2.1), Neo-endogenous Rural Development (2.2) and Regional Economic Resilience (2.3). The author extensively presented and described the theoretical background of rural development in light of the concept and theories of growth in regional economics and rural polarisation in the long run or the characteristics of a structurally strong rural region. The author has reviewed economic theories, the theoretical and empirical studies on regional economic resilience based on literature items from the international circulation of scientific literature, mainly from reputable publishers. Economic theories have been presented in chronological order, from the oldest to the modern. The author also undertook the task of transferring them to rural areas.

**Chapter 3** is empirical and provides answers to the first research question.

This chapter is dedicated to understanding the reality of the changing dynamics of regional disparities, the convergence of rural regions since 2000 and what factors had contributed to the economic growth of rural regions since the financial crisis of 2008. For this purpose, the author selected the five mainstream economic growth models explaining regional disparities, convergence, and the determinants of economic growth for rural regions and then reviewed which, if any, of these theories provide the best foundation for understanding the situation in rural areas regions. The distinguishing element of this chapter is the ability to select appropriate models proposed to test these various theories and their interpretation concerning rural areas. The research task to examine the regional disparities among rural regions in Europe was carried out based on GDP per capita and employment rates.

The examination of the regional disparities among rural regions in Europe in terms of GDP per capita and employment rates was carried out in great detail and diligently. Similarly, a check for convergence among rural regions in Europe between 2000 and 2017 was carried out. The analysis of spatial differentiation concerned rural areas concerning the EU at the international level. The next stage of the work was analysing the trend of the changing rural disparities, i.e. how these disparities changed over time. It was done on the EU level and then for two countries: Germany and Greece, i.e. at the national level. Such an approach to the research procedure allowed for the geographical identification of the poorest and wealthiest regions and understanding how the national setting is essential for the development of rural regions.

The selection of German and Grece for the research is presented in a general way: "two other RurAction countries" and "two very different countries, facing different issues of regionalisation" [p. 8]. The author referred in a similar way to other selected countries, Austria and Portugal, "both countries face issues of regionalisation" [p. 9].

In the case of the study of Ireland, the justification was more complete "it was one of the countries most affected by the financial crisis of 2008 but witnessed a strong recovery" [p. 10]. I consider selecting these countries for detailed analysis accurate, although I feel a certain insufficiency in presenting the arguments, which was the author's guiding principle when choosing the research area. In my opinion, supplementing the historical background would enrich the understanding and interpretation of the research results. The more so that the area of East Germany developed under entirely different political and economic conditions until 1991 than West Germany, which had a substantial impact on the ownership structure and size of agricultural land, and the development of rural settlement aimed primarily at the amalgamation of state-owned land and cooperative farms.

**Chapter 4** answered the second research question. In this chapter, the research aims to fill the gap in the literature by using OECD's Handbook on constructing composite indicators (2008) to develop an index that captures the structural strength of rural regions (the SSRR index). Four indicators were selected to develop the SSRR index: GDP per capita, employment, net business creation, and crude net migration rate. When choosing them, the author was guided by the importance of these indicators for rural regions. In order to create the index, the TOPSIS method was used. The SSRR index was calculated for 153 rural regions across fourteen EU countries from 2008 to 2015. The proposed index was created to allow for it to be measured annually and allows for international comparisons.

The PhD candidate is aware of the difficulty of the research task undertaken and that the structural strength of rural regions is a complex issue and cannot be understood by simple, onedimensional measures of economic strength, such as GDP per capita. Nevertheless, he undertakes the difficult task to create a multidimensional index that measures the structural strength of rural regions (the SSRR index), which proves the high research maturity of the PhD candidate. This index, called the Structural Strength of Rural Regions Index (SSRR index), measures the multidimensional nature of structural strength. The SSRR index developed allowed for a better understanding of the rural polarisation in both countries, the changing dynamics over time and the determinants of structural strength. The SSRR index was applied at the EU level for all countries with available data and two selected countries, Austria and Portugal, from 2000 to 2015. The SSRR index developed allowed for a better understanding of the rural polarisation in both countries, the changing dynamics over time and the determinants of structural strength. In addition, the PhD student skillfully criticises the so far used rural development index for rural regions by Michałek and Żarnekow (2012) for Poland and Slovakia, pointing to their shortcomings, e.g. the indicators used for creating the index do

not remain constant over time, which impairs the possibility of international and time comparisons. A similar opinion is given about the rural development index for rural regions in Portugal by Abreu et al. (2019), indicating that it is relatively easy to create and can therefore be applied by policymakers on the one hand, but at the same time is limited because it is based on the Portuguese census which is conducted every ten years. These observations and the words of criticism prove the academic maturity of the PhD candidate and the ability to select and apply appropriate rural development index.

**Chapter 5** provides answers to the third research question. The PhD candidate, bearing in mind that rural regions are less resilient than urban regions, undertook the problematic research task of defining the determinants of regional economic resilience in rural regions. Economic resilience is defined as the ability of an economy to withstand and respond to a crisis. In this respect, there are two stages of economic resilience: resistance, which is how the economy reacts to an initial shock, and recovery, which is how the economy reacts to a shock. This chapter provides an excellent description and analysis of the resilience of EU rural regions with particular reference to counties in Ireland. In the case of Ireland, the PhD candidate indicates that the choice of this research area is not accidental because the country is a positive example of recovery from the recession, citing the media term the 'Celtic Phoenix' and the German Minister of Finance, Wolfgang Schauble. It proves a good knowledge of the literature on the subject and the political and economic situation before and after the crisis. The PhD candidate also undertook the task to see whether there is a correlation for the economic resilience of Irish counties for subsequent recessions, e.g. Covid 19. The selection of indicators resulted in excluding important EU countries, such as France, Poland and the UK, from the research due to the lack of availability of statistical data. Therefore, the conclusions resulting from the conduct of these studies may be incomplete and may not identify significant problems of the polarisation of rural areas.

The obtained research results made it possible to answer the research questions posed in **Chapter 6** In summing up, the PhD candidate came up with very mature conclusions. He noticed that, among others, rural regions could be productive, structurally robust, resilient and foster economic growth. At the same time, it is unclear if resilience to the 2008 financial crisis will be a predictor for resilience to future crises. All the more so as the current crisis Covid19 is now providing us with a second case, which is very different in many respects, in which to understand economic resilience. On a European scale, the economy is an example of a core-periphery economy predicted by new economic geography. The economy works in a cyclical fashion of boom and bust. The research here finds that levels of convergence are more



substantial during the boom years and weaker in the bust years. Summing up, I believe that the subject is cognitively interesting, the subject and scope of the research has been appropriately defined. The author has used the foundations of economic theory and some standard economic techniques to understand regional disparities, convergence and economic growth in rural regions in the EU, especially in Germany and Greece, Portugal, Austria and Ireland.

## **8. Assessment of literature and source materials**

The selection of literature and source materials deserve a positive assessment.

The list of used literature includes 111 items, including one author's scientific article by a PhD candidate. Its assessment showed that the subject of the works is diverse and adequate to the dissertation topic and includes items of literature on the subject ranging from the mid-1950s to current articles from scientific journals, conference materials and books from world literature (p. 112-121). In my opinion, this proves a solid query and a significant workload for the PhD candidate. The literature review also showed several publications by employees of the University of Adam Mickiewicz in Poznań.

The work does not use the reviewer's book on the topic in which the issue of spatial differentiation of rural development is presented on the example of Poland and East Germany. It is worth noting that the PhD candidate used many references and resources that come from organisations and agencies such as the European Commission, ESPON and the OECD. The way of referring to individual literature items proves that the author became familiar with them and used them to a large extent in his analyses. Referencing to different articles occurs at different stages of the work.

Moreover, the evaluation of the literature list showed examples that are inconsistent with the work's text. On the one hand, some publications cited in the text were found, but they were not included in the final literature list: [p. 20] Maddison, 1982 [p. 33] Romer, 1987 [p. 69] Wink et al., 2016; Todtling, 1983; Neufeld, 2017; Kilper, 2009; Good, 1981 [p. 75] Mayer, 1981; Lois-Gonzalez, 2007 [p. 107] Harsanyi, Selten, 1988. The source material was based on secondary data from various sources, notably Eurostat, OECD regional database, and national statistics offices.

### **Technical errors**

[p. 56] - wrong numbering in the description of subsections: it is 3.4, 3.5, 3.6, while it should be 4.4, 4.5 and 4.6.

Incorrect literature records were found in the literature list (missing or additional periods, commas)

## **9. Conclusion**

Summing up, I can say that the answers to the research questions were given, the aim of the work was fully achieved. The central research values of the dissertation submitted for evaluation include:

- The research topic was well-chosen, topical and cognitively interesting.
- The subject and scope of the research were correctly defined.
- The layout of the work is logical.
- The interdisciplinary approach to research (between economics and geography) deserves additional emphasis. The author proved that he understands regional economics and polarisation growth theories and can apply them to rural areas.
- The author has demonstrated considerable knowledge and understanding of the issues and literature on the subject.
- The methodological chapter was well described.
- The results of the work obtained in the research are correct and may be helpful for economists, geographers, and decision-makers.
- The work is well established in the literature on the subject.
- The work proves his excellent theoretical and practical knowledge and deep knowledge of the presented issues.
- Good mastery of the research workshop: the ability to pose scientific problems
- The ability to correctly infer.

The dissertation shows a logical sequence of individual stages of the research work, and the undertaken topics are essential for the formulated goals. Conclusions and answers provided to the research questions prove the ability to identify the relationship between the phenomena and the synthesis of results. However, in the analytical part, the statistical description of the issues predominates without an in-depth interpretation. A deeper analysis and interpretation prevail in the Conclusion.

The doctoral dissertation presented for evaluation is an original solution to a scientific problem. It contains both elements of theoretical and, to a large extent, empirical considerations. The presented research results are logical, exhaustive and some of the conclusions are original. Considering the empirical quality of the dissertation, the amount of work devoted to the research, and the interpretation of the obtained results, I believe that the PhD candidate has

demonstrated extensive theoretical and practical knowledge and deep knowledge of the presented issues. In my opinion, Barraí Hennebry, MA, has significant and sufficient potential to conduct independent scientific research.

I state that according to the Act - Law on Higher Education and Science, Article 187 of 20 Juli 2018 on academic degrees and academic title (Journal of Laws of 2020, item 85, as amended), the doctoral dissertation of Barraí Hennebry, MA, meets both the substantive and formal requirements for doctoral dissertations. Thus, I am asking for its author to be admitted to the following stages of the doctoral dissertation.

*Aleksandra Jezienka - Thöle*