



UNIVERSITATEA BABEȘ-BOLYAI
BABEȘ-BOLYAI TUDOMÁNYEGYETEM
BABEȘ-BOLYAI UNIVERSITÄT
BABEȘ-BOLYAI UNIVERSITY

TRADITIO ET EXCELLENTIA



FACULTATEA DE GEOGRAFIE

**Babeș-Bolyai University of Cluj-Napoca
Faculty of Geography
Doctoral School of Geography**

SUMMARY OF DOCTORAL THESIS

**Smart specialisation as an instrument of Cohesion Policy in
less developed regions. The case of Romania.**

Thesis supervisor,
Acad. Prof. József BENEDEK, PhD.

PhD candidate,
Petra SZÁVICS

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INTRODUCTION

Research and innovation strategies for smart specialisation or smart specialisation strategies are the third generation of such policies within the European Union (EU). These were introduced, starting with the 2014-2020 programming period, as an ex-ante conditionality under Cohesion Policy, connected to research and innovation investments financed from the European Regional Development Fund (McCann, 2015; Foray, 2015). Currently (in the 2021-2027 programming period) these are an enabling condition for the same type of investments (Regulation (EU) 2021/1060) and will probably be relevant in the upcoming financial exercise as the consultations on the future of the policy are undergoing.

Less developed regions, the main beneficiaries of Cohesion Policy funding, should be able to reap the advantages of smart specialisation (McCann, 2015; Doussineau et al., 2018; Gianelle et al., 2020), however, they are stuck in the so-called ‘innovation paradox’, translatable as their great need to enhance innovation performance, intertwined with their low fund absorption capacity (Oughton et al., 2002). A smart specialisation strategy is successful, in case the quality of the policy is good and so is that of its implementation process (Gianelle et al., 2020). The two main elements of a good policy design are the definition of a limited number of vertical smart specialisation priority areas at the right granularity level and the continuous entrepreneurial discovery process (Foray, 2015). This process is iterative and inclusive and should support the definition of priority areas (Foray, 2015), that are reflected in calls for proposals as eligibility requirements (Gianelle et al., 2020). Furthermore, the entrepreneurial discovery should be connected to other regions to support sharing of knowledge and technologies, as well as value chain integration (Ganzaroli, 2024; Foray et al., 2012). It is likely to lead to more developed institutions and innovation systems (e.g. Rodríguez-Pose and Wilkie, 2017). Less developed regions, and especially the ones from Central and Eastern Europe, face specific challenges linked to smart specialisation, due to lack of experience, capacities and capabilities, as well as the weak innovation systems (e.g. McCann and Ortega-Argilés, 2016a; Trippel et al., 2019; Blažek and Morgan; 2019). Most of these problems affect the efficient and effective use of Cohesion Policy funding in a negative manner (Bachtler et al., 2013).

Within this context, the aim of this thesis is to answer to the main (general) research question: What are the drivers and barriers of smart specialisation in Romanian less developed

regions in general and / or particularly in the context of Cohesion Policy? The results have practical relevance, as the thesis identifies practices that can be transferred from one Romanian region to another. Additionally, it formulates recommendations that are grounded in the scientific literature and that can be used by Romanian less developed regions to improve the definition of the smart specialisation priority areas. The contribution of the thesis to the scientific literature is twofold:

- Firstly, it is an overarching empirical study on smart specialisation in Romanian less developed regions, filling the gap that exists, as there are only a couple of such studies focusing specifically on smart specialisation in all, or some, of the Romanian less developed regions (Healy, 2016; Ranga, 2018), part of which were conducted during the research performed for, or complementary to, the elaboration of this thesis (Szávics, 2020; Szávics and Benedek, 2020; Szávics, 2025a; Szávics, under review 2025b;).
- Secondly, it uses and tests a methodological framework that has been specially designed for this research, as there is a lack of a sound and comprehensive, widely accepted analytical framework for the study of smart specialisation (e.g. Rodríguez and Demmler, 2024; Hassink and Gong, 2019).

COHESION POLICY, SMART SPECIALISATION, LESS DEVELOPED REGIONS

The EU's Cohesion Policy is an integrated development policy, aiming to reduce the development gaps between less and more developed regions, measured based on GDP per capita (McCann, 2015; Bachtler and Mendez, 2016). The latest reform of the policy was introduced starting with the 2014-2020 programming period, in the context of the EU 2020 Strategy and relying on the Barca Report (McCann, 2015; Bachtler and Mendez, 2016). The concept of smart specialisation resonated with the elements of the reform, thus, strategies designed according to it were introduced as a Cohesion Policy conditionality (McCann, 2015; Foray, 2015). The initially space neutral and abstract concept was translated into a regional development tool through the elaboration of a methodological guidance (McCann, 2015; Foray, 2015). The methodological approach embeds elements from the Barca (2009) report, as well as elements from the innovation system approach, evolutionary economic geography and theories on the quadruple helix (Foray et al., 2012; McCann, 2015; Foray, 2015).

The methodological framework, as it was demonstrated, offers a place for every type of region and could be highly instrumental for less developed ones (Foray, 2015; McCann, 2015). It offers guidance in a more general manner. Considering that the framework is prescriptive and flexible at the same time (Hassink and Gong, 2019), as well as the complex and sophisticated character of the approach, the methodology turns out to be especially difficult to be followed by regions that are less experienced in the design of such policies (Marques and Morgan, 2018). Another difficulty, stemming from the broader methodological approach, is concerning the methods applied by researchers studying smart specialisation. Such methods, in lack of a standardised guidance, turned out to be neither sound, nor comprehensive (Rodríguez and Demmler, 2024). These are partly relying on the regional innovation system approach (e.g. Asheim et al., 2016) that allows for comparisons between different types of regions, but are considered by other authors (Camagni and Capello, 2013) as too simplistic and overlooking specific place-based contexts. Research on specialisation priority areas was mainly performed using concepts such as (technological) relatedness and branching from evolutionary economic geography, relying especially on patent data (e.g. Boschma and Gianelle, 2014; Balland et al., 2019; Panori et al., 2021), however, the methods used do not permit the analysis of other types of capabilities (D’Adda, 2019). Various studies use statistical indicators and indexes, demonstrating that the Quality of Government index is a good proxy to determine not only the quality of smart specialisation policies, but also the efficiency of and effectiveness of using EU funds (Rodríguez-Pose and Di’Cataldo, 2015; Di’Cataldo et al., 2020; Maroccu et al. 2023). These are part of the institutional approaches stemming from the cross-fertilisation between evolutionary economic geography and regional innovation system theories.

The implementation experience linked to smart specialisation so far suggests that the benefits and added value of the approach are more enhanced in developed regions (European Commission, 2017; Gouzzo et al., 2019). Less developed regions’ challenges are partly common and partly place-dependant (e.g. Blažek et al., 2014a; 2014b; Kroll, 2019), each of them being somehow ‘unhappy’ on their ‘own way’, but also sharing the same ‘key traits, such as the inability to adapt to local conditions’ (Kyriakou, 2017). Some specific problems, characteristic to Central and Eastern European regions, are due to historical paths and specific national contexts, including high centralisation (e.g. Bachtler et al., 2013; Blažek and Morgan, 2019).

METHODOLOGY, METHODS, DATA AND INFORMATION USED

The methodology and methods used are grounded in the literature but are tailored to the national legal context. This framework has been specifically built for the research to support answering the main research question, mainly through comparative analysis between regions, but also to further build on the results of the studies that have already been published.

The methods are mixed using data and information from both primary and secondary sources collected through desk research, as well as through interviews and interaction with quadruple helix stakeholders from the North-West region within the RE-ACT project financed by the EU under the Erasmus+ Programme 2014-2020 (project number 612903-EPP-1-2019-1-PT-EPPKA3-PI-FORWARD).

The various methods are interlinked with five specific research questions:

- 1) What is the general context of smart specialisation at the level of Romanian less developed regions?
- 2) What kind of capacities and capabilities exist at the level of each Romanian less developed region?
- 3) Are the specialisation priorities from Romanian less developed regions targeted and limited in number and is their granularity improving as more experience is gathered (in the 2021-2027 period)?
- 4) How is the entrepreneurial discovery conducted in Romanian less developed regions and how is the overall quality of the regional innovation systems?
- 5) What are the implemented smart specialisation projects in each Romanian less developed regions and what are the amounts absorbed?

Some examples of the data and information that was collected through desk research is: Regional Innovation and Quality of Government indexes, project data from the official webpage of the authorities responsible for programme implementation, policy documents, reports and relevant scientific articles, information from the webpage of the European Commission and the seven Romanian less developed regions, etc..

RESULTS AND DISCUSSIONS

Romania joined the EU in the last accession wave, thus it has less experience linked to Cohesion Policy or research and innovation strategies. This is also reflected in the difficulties encountered with relation to the effective use of available EU funding (Szabo, 2017) and in the country's low innovation performance according to European Innovation Scoreboard. Romania has a centralised research and innovation system (Ranga, 2018) and a rather centralised approach towards the management of Cohesion Policy programmes; however Regional Development Agencies (RDAs) were involved in the implementation of regional operational programmes, and currently (in the 2021-2027 programming period) they manage decentralised regional programmes (Szávics, 2020; Government Decision 398/2015; Law 277/2021).

The RDAs from less developed regions started the design of smart specialisation strategies for 2014-2020 relatively late, to support the fulfilment of the applicable Cohesion Policy conditionality (Healy, 2016; Ranga, 2018; Szávics, 2020). The process was strongly connected to the implementation of Priority Axis 1 of the centralised Regional Operational Programme 2014-2020 (Szávics, 2020). Initially development regions North-West and North-East benefited from assistance on behalf of the European Commission, which was later extended to all Romanian regions (Ranga, 2018; Pilati and Hunter, 2020). North-West and North-East were more advanced with the implementation of their smart specialisation strategies and received more support from an initiative implemented by the World Bank (Ranga, 2018; Administration Agreement, 2018). The specialisation priority area definitions used by the two regions for 2014-2020 was more in line with the methodological approach and with the EU practice (Szávics and Benedek, 2020).

The innovation performance of the North-East and North-West regions is better, compared to other less developed Romanian regions, and improved the most during 2015-2020 (European Commission, 2023). In each region, there are counties that have a better innovation performance (Șerbănică, 2021). In the same period, the Quality of Government Index was higher for Centre, West and for South-Muntenia regions, or for North-West and South-West Oltenia, depending on the year for which it was measured (Nicholas et al., 2015; 2017; 2021; 2024). North-West region is at the forefront when it comes to fund attraction from Cohesion Policy, or from programmes dedicated to research and innovation projects from EU level funding instruments. In case of national level shared management programmes with funding dedicated to research and innovation

projects, South-Muntenia development region is more successful in attracting funds. Within regions, the counties that are considered more innovative by Șerbănică (2021) manage to attract most of the funds from these sources.

When it comes to the Priority Axis 1 of the Regional Operational Programme 2014-2020, North-West and North-East regions have benefitted more, as they have managed to absorb 69.50 percent of the total payments made, which were mostly channelled towards less innovative, non-core counties. This can be attributed to their experience connected to smart specialisation, but also to the character of the policy – relying on the bottom-up approach (McCann, 2015); and oriented towards ‘not picking winners’ or ‘the same winners’ (Boschma, 2009) -, however, can also be explained through mismatches between the area of interest of potential beneficiaries and regional smart specialisation priorities, or, the lack of connection of certain research organisations with their regions. This latter has also been observed in the literature, especially with relation to universities (e.g. Marques and Morgan, 2018).

The number of the regional smart specialisation projects completed is rather low, and the amounts used are less than the available budget. The reasons for this low performance are highlighted in the evaluation report of the programme that also underlines that there was a high rejection rate of projects (Familiari and Allesandrini, 2023). Part of the challenges mentioned in the report are the same as the challenges mentioned by regional quadruple helix stakeholders from which information was collected within the RE-ACT project, *i.e.* capability and capacity problems and weak innovation systems. North-West, West, Centre and North-East regions include the most varied instruments, tools and methods for conducting the entrepreneurial discovery in their action plans developed for 2021-2027. The same regions have a better innovation performance (European Commission, 2023). Centre region is the only one foreseeing an action to further involve universities in the entrepreneurial discovery (Order no. 20486/2024), and alongside South-West Oltenia region, is the only one benefiting from tailored support offered by the European Commission linked to smart specialisation in the current programming period. The actions connected to the entrepreneurial discovery that are included in the regional plans (Order no. 20486/2024) fail to include measures to involve stakeholders in the analysis of monitoring results and in deliberations regarding policy adjustments or revision of funding instruments as suggested by authors like McCann and Ortega-Argilés (2016b) or Gianelle et al. (2016). All regions foresee measures aiming to foster interregional collaboration that is probably attributable to the applicable

conditionalities (Regulation (EU) 2021/1060). This is important, as less developed regions need access to extra-regional sources of knowledge (e.g. Foray, 2019; Belussi et al., 2018), and, as for now, only North-West, North-East and Centre regions are involved in interregional thematic partnerships linked to smart specialisation (Szávics, under review 2025b).

The entrepreneurial discovery should be further used by all regions to make their smart specialisation priority areas more targeted. This would be necessary also to use funds more efficiently (McCann, 2015). While the number of specialisation priority areas included in the smart specialisation strategies revised for 2021-2027 mainly follow the EU level practice - five to six specialisation areas (e.g. European Union, 2021; Maroccu et al., 2023) -, except in the case of Centre region that defines nine priorities, the more granular analysis of the various layers of specialisation priorities shows that in case of most regions these have become broader compared to those included in the previous strategies. This is reflecting the logic of giving ‘something for everybody’ (Di’Cataldo, 2020) from the funding available. Exceptions are North-East and South-Muntenia regions that have managed to apply a more targeted approach. The findings also indicate that the priority area definitions differ a lot between regions, underscoring that the policy itself remains too complex and sophisticated for policymakers from less developed regions as highlighted by Marques and Morgan (2018).

CONCLUSIONS

The findings reveal that the capacities and capabilities are both the most important drivers and the most challenging barriers of smart specialisation in Romanian less developed regions. The North-West and North-East regions that managed to absorb most of the Cohesion Policy funding available for regional smart specialisation projects are the ones that received more support linked to the policy from the European Commission during 2014-2020. The same two regions have started the implementation of their strategies earlier (Ranga, 2018) and managed to leverage most of the funding opportunities under the priority axis dedicated to smart specialisation from the Regional Operational Programme 2014-2020. The two regions had a better quality of policies designed in 2014-2020 (Szávics and Benedek, 2020). The value of the regional innovation index increased the most in these two regions between 2016 (the year when the regional smart specialisation processes started) and 2023 (the year when the financial implementation of the Regional Operational

Programme 2014-2020 ended) according to European Commission (2023). The increase in the value of the index cannot be attributed to the regional smart specialisation projects, as their impact is expected to be produced later. It is rather explainable by the bottom-up character of the policy and the entrepreneurial discovery process, in particular.

The findings are partly in line with the scientific literature, especially with the institutional approaches, and partly divergent from these. The results show that capacities, capabilities, experience and the quality of the innovation systems matter, and so do the formal and informal institutions, as highlighted by e.g. Blažek et al. (2014a; 2014b); Trippl et al. (2019); McCann and Ortega-Argilés (2016a; 2016b). Nonetheless, the research results also indicate that even if these are connected to some extent to the innovation performance, they cannot be directly linked with the value of statistical indicators and indexes, or attributable to these. Thus, even if the use of indexes such as the Quality of Government, lead to useful research results when comparing less with more developed regions (e.g. Rodríguez-Pose and Di’Cataldo, 2015; Di’Cataldo et al., 2020) these are less relevant for formulating suitable recommendations on the way of solving the ‘innovation paradox’ in less developed regions.

The thesis includes practical recommendations for RDAs linked to the two core aspects of smart specialisation, *i.e.*:

- (a) Regions – except for North-East and South-Muntenia - should strive to apply a more targeted approach towards specialisation priorities relying on the concept of relatedness from evolutionary economic geography (e.g. Boschma et al., 2017), on other dimensions of relatedness between unrelated activities (Deegan et al., 2021), or could define cross-sectoral specialisation priorities (Mäenpää and Teräs, 2018),
- (b) Besides supporting a revision of priority areas, the entrepreneurial discovery should also focus on the analysis of monitoring results and the revision of the policy, or its implementation instruments based on these. Furthermore, the entrepreneurial discovery should be connected to extra-regional knowledge sources. The mix of tools and instruments foreseen by North-West, North-East, West and Centre regions could be an inspirational source for RDAs from other regions.

The conclusions come with some limitations, such as the unavailability of qualitative information linked to the quadruple helix interaction from more than one less developed region and the lack of data regarding the number of organisations that were eligible to receive financing from the Regional Operational Programme 2014-2020. As this second problem will probably persist, further research could be conducted on the entrepreneurial discovery, as well as on the role of higher educational institutions within it, considering also their integration in closer and wider innovation systems.

Further research topics stems from an additional finding of the research, namely, that the territorial distribution of research and innovation funds at county level (within regions) is different in case of the Horizon 2020 Programme and Competitiveness Operational Programme 2014-2020, than in the case of the Regional Operational Programme 2014-2020. Complementary research has already been conducted and showed that in some regions, with a more balanced urban settlement structure, regional smart specialisation projects are highly likely to contribute to the reduction of intra-, thus, also interregional disparities (Szávics, 2025a). This finding relies on the ‘double bell’ conceptual framework (Capello and Cerisola, 2024) and the polycentric development model. The research should be further extended to cover project partnerships, leading to a more in-depth understanding of the factors contributing to the differences observed with connection to the spatial distribution of funds, including the connections universities have with different innovation systems (regional, national, European, sectorial or technological).

Finally, due to its timing the research could not cover an analysis on the impact of regional smart specialisation projects. Such research would be worthwhile in the future with focus on the 2014-2020 programming period. This could lead to additional conclusions linked to the reduction of intra- and interregional disparities. Furthermore, research, similar with the one presented in this thesis, could be replicated for the 2021-2027 programming period and further extended to the impact of the policy on reducing both intra- and interregional disparities. The results, analysed comparatively with the ones from this thesis, could further enrich the understanding about the drivers and barriers of smart specialisation not only in Romanian less developed regions, but also in other catching-up regions, especially from Central and Eastern Europe.

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¹ Alternative link for the report: https://www.europarl.europa.eu/meetdocs/2009_2014/documents/regi/dv/barca_report_/barca_report_en.pdf

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