THE INFLUENCE OF VARIOUS COLLABORATIVE ASPECTS OF LARGE AND MEDIUM COMPANIES ON REGIONAL PERFORMANCE

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Abstract: *In this paper we investigate a modern topic in the regional economics literature, namely the concept of microeconomic competitiveness. Particularly, we investigate the influence of the collaborative activities of the large and medium firms, as a regional prerequisite for cluster formation and development, and the relationship with various regional level performances. For years already, scholars debated within the economics literature if the regional clusters drive the regional performance. Therefore, we contribute to this stream of research through investigating if the specific conditions in the regional context, in our case the collaborative aspects of the companies operating in the region, influence the regional performance. Through a statistical analysis of the data provided by 40 best performers medium and large companies, operating in three regions for economic development in Romania, we found significant associations between the proposed variables. Specifically, we found that the regions in which the companies reported higher scores for proactivity regarding collaboration identification and formation, higher commitment for collaboration participation, respectively higher scores for their collaborative competences and abilities are the regions which also reported higher regional level performances. The results from our study are valuable for the regional economics literature since underline the fact that in order to build regional competitiveness, respectively to accelerate the economic growth and development, the existent companies operating in the regions also need to take some specific actions. The companies and firms play an important and active role in the regional economic development. In contrast to a 'orthodox' top-down approach for economic development, the paper brings support to the stream of research on regional economics which militates for collaboration between the public and private sector, and for regional development through microeconomics competitiveness building, local and regional.*

Keywords: *regional economics; spatial economics; regional performance; medium and large companies; strategic alliances; microeconomics competitiveness*

JEL Classification: *O18; R11*

1. Introduction

Regional economics or regional science as it is broadly known in the economics literature (Barna, 2008; Chen & Schintler, 2023; Milne, 1993; Moller, 2019) continue to be an important subject for research and for the economic practice (Antonescu, 2019; Kitson, Martin & Tyler, 2004). Regional scholars developed over the years many theories and models for the explanation, prediction and understanding of regional development phenomena in order to influence the economic practice and the public policies (Antonescu, 2019; Bogdanski, 2012; Chen & Schintler, 2023). In general, regional economics – which is the concept we prefer for this paper – and the constituent subdisciplines tried to provide answer to the specific question: why some regions develop better, faster and obtain a better quality of life for its citizens in comparison with other regions? (Kitson, Martin & Tyler, 2004). Most of the existent theories and models also include a performance component such as an output for their proposed causality. For example, the gross domestic product growth per capita (Alesina *et al*., 1996; Jula et al., 1999), or the regions' resistance to shocks (Sutton & Arku, 2022).

What we argue in this paper is that many of the existent theories in the regional economics literature discuss the economic development phenomena from a top-down approach – model broadly known in the economics literature such as the regional model or the top-down economic development model (Bogdanski, 2012; Riddle, 2014). A topic less debated in the regional economics literature – for example as resulted from the bibliometric analysis conducted recently by Chen & Schintler, 2023 – is that of microeconomic competitiveness to which we refer in this paper.

Microeconomics competitiveness reflects the regional economic growth and development through a bottom-up approach/model considering or placing in the main attention for economic development the needs of the companies and firms in the region to compete and obtain success in the national and/or international markets (Porter, 1990, 2003). According to Porter *et al.* the regional or local competitiveness is determined by the particular conditions in each specific location, conditions which are important for both productivity and innovation (Furman, Porter & Stern, 2002; Porter, 1998; Porter & Stern, 2001). According to this view, the microeconomic competitiveness is determined by three conditions in the regional context, conditions which explain why some regions obtain better performances in comparison with

other regions: (1) a more favourable local business environment, (2) the state of cluster development, and (3) advanced strategies and operations of companies operating in the region (Delgado *et al*., 2012; Porter, 1990). From these three determinants of regional/local competitiveness in this paper we focus our attention on clusters (such as a specific form of collaboration). In fact, we investigate a very narrow aspect of cluster identification, formation, and development, namely that of the collaboration aspect of clusters. Any cluster depends for its success on a successful collaboration (Lehene, 2020).

There is a continuous debate in the regional economics literature if the regional clusters developed within regions or cross-regions influence the regional performance (Delgado, Porter & Stern, 2011; Delgado, Porter & Stern, 2014; Porter, 2003) or firm performance (Grahof, 2020). In this paper, we imagine a cluster such as a specific form of collaboration just like any other strategic alliances, strategic partnerships, or strategic networks, but in the clusters' case given a spatial consideration. Thus, a regional cluster reflects a form of collaboration developed between various firms and even public organizations, organizations pertaining to different industries, both vertically and horizontally connected, collaboration developed in specific product or service segments in specific regions. A cluster might include suppliers, manufacturers, distributors, complementors such as universities or financial institutions and even might involve the local authorities (Porter, 1998).

A prerequisite for regional cluster formation and development is the collaborative competences and the abilities the firms in one region possess, competences and abilities developed in their own company (Lehene, 2020). The main assumption is that the regions in which the companies possess more advanced competences and abilities for inter-organizational collaboration manifest a higher predisposition for cluster formation and development. In these regions, clusters can develop faster and more effectively since the regional companies possess already the necessarily competences and abilities for collaboration building and development. The same assumption might be true for proactivity in cluster formation and for commitment to cluster participation. In this line of thinking, the regions in which the companies are proactive regarding cluster identification and formation (e.g. companies might scan continuously the local environment for cluster formation and/or for participation opportunities) or they are more committed to participation in local clusters, are the regions in which the regional clusters might form faster and better. Thus, in this paper we try to investigate if the collaborative aspects mentioned above – proactivity, commitment, collaborative competences and abilities – also influence the various regional level performances. Therefore, we try to find answers to

questions such as: The regions in which the companies are more proactive regarding collaboration formation and development obtain better regional performances as well? What about the collaborative competences or the collaborative commitment of the companies in the region? Are these variables also associated with the superior regional performances? Do the regions in which the medium and large companies operating there are more proactive, committed or possess advanced collaborative competences obtain also better regional level performances? Are these variables associated?

2. Literature review

2.1. Theories of regional economic development

Regional economic development such as a scientific domain pertains to the regional science, regional economics (Barna, 2008; Chen & Schintler, 2023; Milne, 1993; Moller, 2019) or urban economics (Clipa, 2016; Mills, 1967; Romer, 1986). There is an increasing interest to study regional problems both in academia and in the economic practice (Chen & Schintler, 2023). Such as an independent discipline regional economics, formally established in 1954 by the American economist Walter Isard (Chen & Schintler, 2023) is preoccupied with studying economic problems such as the spatial localization of industries and firms (Krugman, 1991; Porter, 1998; Rastvortseva, 2022; Weber, 1929), assurance of economic equilibrium or political stability (Alesina *et al*., 1992), spatial economic growth and development (Cheshire & Duranton, 2005; Moeller, 2019), factor of production mobilization across spaces and the relationship with the governmental policies (Rickard, 2020), regional economic resilience (Martin & Sunley, 2014; Sutton & Arku, 2022), or regional competitiveness (Borozan, 2008; Kitson, Martin & Tyler, 2004; Pelinescu *et al*., 2015). And these are just few areas of inquiries which normally preoccupied the regional scholars during the field's evolution over time. A brief review of the existent subjects, topics and subdisciplines in the regional science is presented to readers by Chen & Schintler (2023) and of existent theories by Bogdanski (2012) and Moeller (2019).

From a historical point of view, the existent regional theories in the regional economics literature can be broadly classified in three categories (Antonescu, 2019): (1) classical regional development theories (e.g. Hotteling's 1929's or Weber's 1929's classical location theory); (2) neoclassical regional development theories (e.g. the demand driving theory/the Keynesian model of economic growth of Hartman & Seckler, 1967); and (3) modern or recent regional development theories (e.g the New Economic Geography of Krugman, 1991).

From other perspective, all the regional development theories proposed by regional scholar over the years can be classified in two categories: (1) exogenous theories of regional development and (2) endogenous theories of regional development (Barna, 2008; Bogdanski, 2012). From a historical perspective, first developed the exogenous theories (Bogdanski, 2012). The exogenous theories put at the center for their explanation of economic growth and development the factors which reside outside the region. The exogenous factors are factors which are not influenced by the region, are factors developed outside the region which are transferred in the region from other regions (Antonescu, 2019). Examples of exogeneous theories are the demand driving theory/the Keynesian model of economic growth (Hartman & Seckler, 1967), the theory of economic growth through exports (Myrdal, 1967), the theory of growth poles (Perroux, 1955) *apud* Antonescu (2019) or the theory of core and periphery developed by Krugman in (1991).

On the other hand, **t**he endogenous theories are more recent economic developed theories (Bogdanski, 2012). In contrast with the exogenous theories and models, in the endogenous theories researchers put at the center for their explanations and descriptions regarding the economic growth and development factors/determinants developed inside the region (Antonescu, 2019; Barna, 2008). Theories considered endogenous are the theory of economies of agglomerations (Clipa, 2016; Porter, 1998), the theory of economies of localization (Jula *et al*., 1999), the industrial districts theory (Marshall, 1920), **t**he theory of Teritorial Systems of Production (e.g. industrial park, scientific and technological park, strategic networks) [Tanțău, 2011)], or the more recent developed cluster theory (Porter, 1998).

Most of the theories presented above, as mentioned in a previous paragraph, are top-down models for regional development or regional models. Next, we are going to briefly review a modern model for regional development – a bottom-up regional development model – a model which puts at the center for its explanation, prediction and understanding of economic growth and development the needs of the companies and firms to be competitive in the national and/or international arena. Of course, is not the only one model existent in the economics literature which militates for a bottom-up regional development approach but for sure is a model supported by evidence and for this reason it is called also the data-driven regional development model (Porter, 2003).

2.2. Microeconomics competitiveness – a modern data driven model

A modern paradigm for regional development is that of competitiveness determined at the microeconomic level. As mentioned in the pages above, competitiveness historically has been studied and has been associated almost exclusively with a top-down paradigm (Bogdanski, 2012), or with the regional model particularly when

contrasted with the corporate model (Riddle, 2014). A modern approach with which we align our view of competitiveness and of regional economic growth and development is that of microeconomic competitiveness. First, we should mention that in this paper we refer to the concept of 'competitiveness' associated with that of productivity. For example, a location is more productive than other location if the output/value obtained per day of work overcomes the output/value obtained by the rival location in the same period of time (Porter, 1990).

According to this view, the competitiveness of a country or region is determined by three national/regional level factors: (1) *the endowments* the country or region had inherited from its past/from previous generations or simple from its geographical location in the world; (2) *the stability of the macroeconomic system and political institutions* (e.g a low level of inflation), aligned with *the social progress of the resident people in the region;* and (3) the *microeconomic competitiveness* determined by regional firms and companies which need to be competitive in the national and/or international competition. Narrowing down our discussion, the competitiveness at the third level – the microeconomic level – is determined by three dimensions/conditions existent in the specific location: (1) the quality of the regional/local business environment; (2) the state of the cluster development; (3) advanced firms' operations and strategies (Delgado *et al*., 2012; Porter, 1990).

In this paper, from the three microeconomic determinants of regional/locational performance we are going to put our attention to investigate some particular aspects regarding the cluster formation. One important aspect of cluster formation and development is the collaborative aspect/collaborative activities conducted by the firms in the specific location. As mentioned in the introduction section as well (1) the collaborative competences and abilities of the firms and companies operating in one region, (2) the proactivity regarding collaboration identification, and (3) the commitment to enter and stay in a relationship, all constitute a prerequisite for cluster formation and development in one region. Based on the assumptions above, we argue that these aspects are also associated with the regional performance enhancement, in the sense that the regions in which the companies are more proactive, committed and possess more advanced collaborative competences are also the regions characterized by higher regional level performances. Thus, we formulate the following hypotheses for statistical testing:

H1. The regions in which the companies operating in the region possess higher levels of collaborative competences, thus permit better cluster formation and development, are the regions obtaining better regional performances.

H2. The regions in which the companies operating in the region are more proactive regarding collaboration formation, thus permit better cluster formation in the region, are the regions obtaining better regional performances.

H3. The regions in which the companies operating in the region manifest higher levels of commitment for collaboration participation, thus permit better cluster formation in the region, are the regions obtaining better regional performances.

3. Research Methodology

3.1. Research strategy

For the purpose of this paper, for the independent variables we used some items from a questionnaire implemented in a previous project which we conducted at our institution but for other purpose. In survey-based empirical studies the answers provided by the respondents might be biased and influenced depending to the goal of the specific study (Bhattacherjee, 2012). The main advantage of the research strategy implemented in this paper is that it permitted us to analyse the answers provided by the respondents, no matter/independently the goal of the present research. Thus, in this study perhaps the answers analysed were less biased, providing us the opportunity to identify more objectively the proposed associations between variables. On the other hand, for the dependent variables the data are quite objective since we used data collected by the Romanian National Institute of Statistics (RNIS, 2018).

We collected the survey data in 2018. We administered the questionnaire through the email, between October 2017 – March 2018. We have contacted the best performers 785 medium and large companies operating in Romania, depending to their revenues, from which decided to participate 46 companies, leading to a participation rate of 5.85%. We used two sources in order to obtain the data regarding the best-performers companies operating in Romania: *Top 500 Business Magazine* (2016) and *Top 1000 Piața Financiară* (2017). The final sample contains the answers provided by 29 large companies and organizations (more than 250 employees) and by 17 medium-size firms (between 50 and 249 employees). We have included two companies less than 50 employees in the medium-size category (34, respectively 31 employees). 30 executives (e.g. President, CEO, General Manager) participated in the study. In addition to the executive suite, we have analysed the answers provided by 10 middle managers (e.g. marketing manager), 5 first-line managers/operations managers (e.g. team leader), and one marketing specialist.

3.2. Independent variables

The main goal in this study is to test some aspects of modern microeconomic competitiveness, particularly the collaborative aspects regarding the formation and development of local clusters and the relationship between these collaborative aspects and the regional and county performances. Thus, we considered the following independent variables: Regional Proactivity (proactive regions are considered the regions in which the existing firms are proactive), Regional Commitment (committed regions to cluster formation are considered the regions in which the investigated firms reported better scores for commitment), Regional Collaborative Competences (collaborative regions are considered the regions in which the studied companies reported higher scores for their collaborative competences). (Figure 1 and Table 1.)

We measured all the independent variables mentioned above using a 5-point Likert scale ranging from 1 to 5 with the following meaning "1 = Strongly Disagree and 5 = Strongly Agree" We kindly asked the managers to appreciate the degree the statement in the questionnaire fit the situation in their company, according to the scale mentioned above.

3.3. Dependent variables

In order to measure the dependent variables, we resorted to data collected by the Romanian National Institute for Statistics (RNIS). Thus, we considered the absolute values (the evolution of the variables) for the period 2010-2016 for the following variables: Region Median Salary (REGSALARY), Region Unemployment (REGUNEMPLOY), Region New Business Formation (REGNBF), Region R&D Personnel (REGRDPERS), Region Employees (REGEMPLOYEES), Region Revenues (REGREVENUES), Region Exports (REGEXPORTS). (Table 1.) The most recent publication/report issued by RNIS regarding the regional performances is the edition published in 2018. For all the variables considered in our study the most recent period reported in *Statistică Teritorială* is 2010-2016. For the goals of our study, we considered appropriate this period since the managers in our questionnaire also needed to evaluate the situation in their company, regarding their collaborative activities, during a five-year period, period which fit/overlaps with the data collected by RNIS.
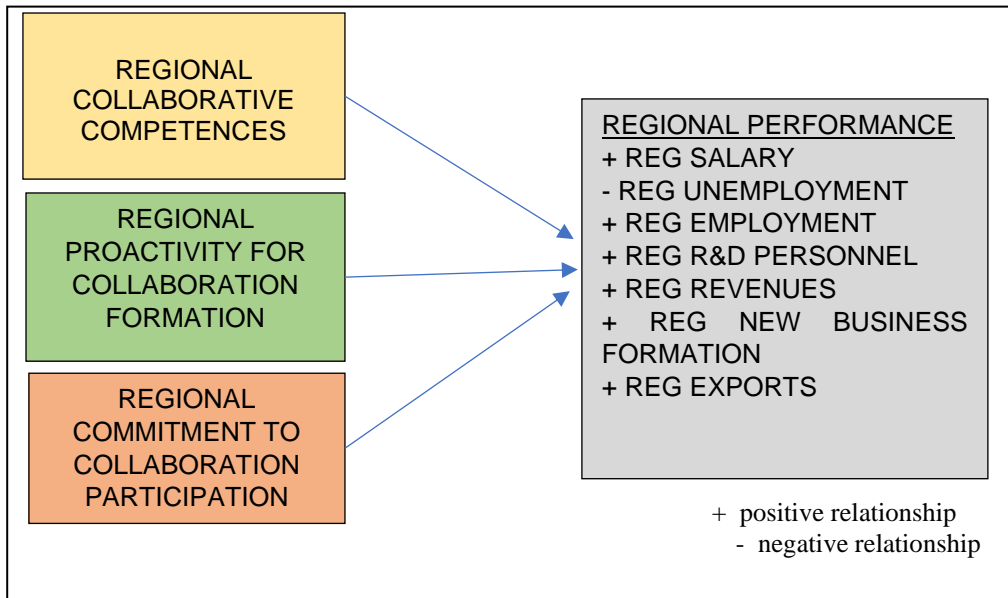
Figure 1: Theoretical model

Source: authors own elaboration

4. Data analysis

We start the data analysis section aiming to investigate the topic of our study at the county level. More specifically we aimed to investigate the impact of various collaborative aspects of the companies operating in the Romanian regions – county level – on regional performances such as median salary or unemployment. We conducted the correlation analysis, and we did not find significant associations for the variable we studied. (Table 2.)

Table 1: Variable measurement

Variable	Number of items	Measurement	Cronbach Alpha (standardized)	Definition
REGCOMPE (IV)	51	Likert scale 1→5	0.956 (0.961)	The degree the companies in the region possess collaborative competences for cluster development
REGPROA (IV)	6	Likert scale 1→5	0.858 (0.862)	The degree the companies in the region are proactive in

				cluster or collaboration formation
REGCOMMIT (IV)	5	Likert scale $1\rightarrow5$	0.795 (0.814)	The degree the companies in the region are committed to collaboration or cluster formation
REGSALARY (DV)	1	Absolute value	-	Region Median Salary (2010-2016) $\Delta\text{REGSALARY} = \text{SALARY}_{2016} - \text{SALARY}_{2010}$
REGUNEMPLOY 2010 (DV)	1	Absolute value	-	Region Unemployment 2010
REGUNEMPLOY 2016 (DV)	1	Absolute value	-	Region Unemployment 2016
REGRDPERS (DV)	1	Absolute value	-	Region R&D Personnel (2010-2016) $\Delta\text{R\&DPERS} = \text{R\&D}_{2016} - \text{R\&D}_{2010}$
REGEMPLOYEES (DV)	1	Absolute value	-	Region Employees (2010-2016) $\Delta\text{EMPLOYEES} = \text{EMPLOYEES}_{2016} - \text{EMPLOYEES}_{2010}$
REGREVENUES (DV)	1	Absolute value	-	Region Revenues (2010-2016) $\Delta\text{REVENUES} = \text{REVENUES}_{2016} - \text{REVENUES}_{2010}$
REGNBF (DV)	1	Absolute value	-	Region New Business Formation (2010-2016) $\Delta\text{NBF} = \text{NBF}_{2016} - \text{NBF}_{2010}$
REGEXPORTS (DV)	1	Absolute value	-	Region Exports (2010-2016) $\Delta\text{EXPORTS} = \text{EXPORTS}_{2016} - \text{EXPORTS}_{2010}$

Note. IV – Independent Variable, DV – Dependent Variable

Source: authors own elaboration

In the next stage, we grouped the firms in the corresponding regions for economic development, and we found significative associations between the same variables. For example, between Regional Proactivity for Collaboration Formation (REGPROA) and Regional Median Salary Evolution (REGSALARY) measured at the county level we have obtained r = 0.135, *p > .05*, denoting that there is no association between these variables. But when we investigated the same relationship at the regional level, we found a significative and positive effect of REGPROA on REGSALARY (r = 0.339, *p< .05*). We observed the same situation when we correlated the REGPROA with REGUNEMPLOY. First, we have observed a weak and no significative effect of REGPROA on REGUNEMPLOY r = - 0.136, *p > .05* measured at the county level. Then when we grouped the firms in the corresponding regions for economic development, we observed a negative and significative effect of REGPROA on REGUNEMPLOY 2016 (r = - 0.334, *p< .05*). Based on these observations, we concluded that yes there is a relationship between the collaborative aspects and the regional performances. For example, the regions in which the medium and large companies are more proactive regarding collaboration or cluster identification and formation display also lower levels of unemployment.

Table 2: Correlation Matrix

VARIABLE	REGCOMPE	REGPROA	REGCOMMIT	REGSALARY	REGUNEMPLOY 2016	REGUNEMPLOY 2010	REGRDPERS	REGEMPLOYEES	REGREVENUES	REGNBF	REGEXPORTS
REGCOMPE	1.00	0.628**	0.793**	0.261+	-0.287*	-0.257+	0.181	0.294*	0.231+	0.292*	0.106
REGPROA		1.00	0.685**	0.339*	-0.334*	-0.268*	0.272*	0.312*	0.329*	0.292*	0.245+
REGCOMMIT			1.00	0.329*	-0.337*	-0.329*	0.280*	0.328*	0.309*	0.314*	0.203
REGSALARY				1.00	-0.926**	-0.889**	1.000**	0.821*	0.999**	0.739**	0.848**
REGUNEMPLOY 2016					1.00	0.904**	-0.925**	-0.976*	-0.908**	-0.939**	-0.584**

REG UNE MPL OY 2010						1.00	- 0.83 9**	- 0.871* *	- 0.842 **	- 0.8 31 **	- 0.570 **
REG RDPE RS							1.00	0.820* *	0.999 **	0.7 38 **	0.849 **
REGE MPL OYE ES								1.00	0.794 **	0.9 91 **	0.393 **
REG REVE NUES									1.00	0.7 08 **	0.871 **
REG NBF										1.0 0	0.269 *
REGE XPO RTS											1.00

Notes. **Correlation is significant at the 0.01 level (1-tailed); *Correlation is significant at the 0.05 level (1-tailed); [+]Correlation is significant at the 0.1 level (1-tailed).

Source: authors own elaboration based on respondents' answers

For these considerations, since in our sample of 46 companies we have in most of the cases one, two or three companies participating from each county, we decided to group the companies in regions for economic development and continue studying the subject of our study at the regional level. (According to *Strategia Națională de Dezvoltare Durabilă 2014-2020* Romania is divided in eight regions for economic development: North-East, South-East, Muntenia South, Oltenia South-West, West, North-West, Center, Bucharest lfov.) Thus, we continued to conduct our analysis at the regional level grouping the companies in their corresponding regions for economic development. Since in our sample of 46 best performers medium and large companies we have only 1 company from the West Region, 2 companies from South-West Region and 3 companies from the North-East Region we have excluded from our analysis these regions. Thus, for our empirical analysis we further investigated the companies with operations in three regions: North-West Region (23 companies), Bucharest-Ilfov Region (10 companies), and Center Region (7 companies). In the Table 2 one can observe the results of our analysis.

Hypotheses interpretation

Regarding the first hypothesis (H1), investigating the relationship between the proactivity of the companies in each region and the regional performance, through conducting the correlational analysis we observed that the regions in which the companies operating there reported higher scores for the collaborative competences displayed a positive evolution of salaries, of employees, and of new business formation, for the period investigated. For all these dependent variables we found a positive, medium intensity and significant association between the collaborative competences of the firms operating in the region and the regional performances. There is also a significative, but negative association, between the collaborative competences and the evolution of the unemployment in the region. Those regions in which the companies reported higher scores for the collaborative competences are the regions displaying lower levels of unemployment for the period investigated. We observed also a positive and weak, but still significative association, between the collaborative competences and the evolution of the regional revenues' growth during the 2010-2016 period. Those regions in which the operating companies possess higher levels of proactivity are the regions which reported higher revenues (absolute value) during the period of investigation. On the other hand, it seems that the collaborative competences of the firms are not associated with the R&D personnel evolution and with the regions' exports growth.

For the second hypothesis (H2), investigating the relationship between the proactivity of the companies operating in each region and the regional performance, for the period we explored, we found that with one exception (regional exports), the regions in which the firms and companies reported higher levels of proactivity for collaboration or cluster formation are the regions also displaying higher salaries evolution, higher levels of R&D personnel evolution, higher levels of employees evolution, higher revenues evolution and higher scores for new business formation. For all these dependent variables we observed a positive, medium intensity and significative association between the proactivity of the firms in the region and the regional performances. Consistent with all the hypotheses in our paper we observed that the regions in which the companies are more proactive regarding collaboration formation are the regions also displaying lower levels of unemployment. On the other hand, like in the previous case, it seems that the proactivity of the firms is not associated with regional exports growth.

For the third hypothesis (H3), investigating the relationship between the commitment of the companies in the region and the relationship with the regional performance, the same story as for the second hypotheses. The regions in which the companies are more committed to collaborative relationships participation are the regions

displaying higher salaries evolution, lower levels of unemployment, higher levels of R&D personnel evolution, higher levels of employees and revenues evolution and higher scores for new business formation. There are medium intensity and significant associations between the companies' commitment and the regional performance. (Positive for all the dependent variables and negative for the unemployment - higher the commitment, lower the level of unemployment reported.) In addition, same as for the hypothesis above, there is no relationship between the commitment of the companies for collaboration or cluster participation and the regional performance.

In addition to the proposed hypotheses, we can also observe a highly and positive association between REGSALARY evolution and various other measures of regional performances, respectively a negative and very significative effect of REGSALARY on REGUNEMPLOY ($r = -0.926$, $p < .01$). This means, that there is a positive association between the growth of the salaries in the region and the new business formation in the region for example ($r = 0.739$, $p < .01$). At the same time, all the measures of regional performance are negatively associated with the regional unemployment change. This means that for example, higher the revenues in the region observed lower will be the unemployment level ($r = -0.908$, $p < .01$). At the same time, REGRDPERS, REGEMPLOYEES, REGREVENUES were also positively and strongly associated one with each other. Higher the score for the growth of the regional personnel employed in R&D activities, higher will be the growth of the regional revenues. Regional revenues were also strongly associated with the growth of the exports and the growth of the new business formation in the region. Higher the regional revenues growth observed, higher was the growth of the exports ($r = 871$, $p < .01$) and higher the new business formation observed ($r = 708$, $p < .01$).

For our proposed hypotheses, since we have obtained correlation scores very close to each other we have graphically examined these relationships. After the graphical analysis we have concluded that the scores are so close to each other since we have investigated companies only from three regions (Nort-West 23 companies, Bucharest Ilfov – 10 companies, Center – 7 companies), which represent the dependent variables. But, the scores obtained by the companies in these three regions for example for Regional Productivity (independent variable) are quite different. Regarding the relationship between Regional Proactivity and Region Revenues Growth (2010-2016) we have obtained $r = 0.329$, $p < .05$ denoting a significative relationship between regional proactivity and revenues growth. Thus, in this case, the companies (in fact, the group of companies) in the Bucharest-Ilfov Region (ΔREVENUES = 91.209 mil RON) are the companies which also reported higher scores for the independent variable which in this case is Regional Proactivity. On the

other side of the coin, the companies in the Nord-West Region (ΔREVENUES = 43.601 mil RON) are the companies which reported more modest Regional Proactivity scores. In fact, through the graphical analysis one can observe that the group of companies in each region cluster together (up or down on the axis) depending on their scores reported for region revenues evolution. Those companies operating in higher revenues scores regions clustering above on the chart but with variations between them since their proactivity scores are different. The correlation in this case might be interpreted as follows: for a positive coefficient, the regions in which the group of companies reported higher scores for proactivity are also the regions which obtained better regional performances, over the period of investigation.

5. Limits and opportunities for new research

The main limit in our study is the fact that the relationships between independent and dependent variables are medium intensity and for some variables we only found a weak intensity, but still significant association. Thus, further studies could investigate the same relationships considering more companies in each region and perhaps including all the development regions in Romania. At the same time, the fact that we have observed specific associations between the proposed variables in our study does not automatically mean that the independent variables proposed by us are the cause of the variation in the regional performances. The observed associations denote that there is a relationship between the collaborative aspects and the regional performances. The independent variables might be the cause – for example the companies' proactivity might drive the regional performance – but at the same time the regional superior performances might determine the companies to be more proactive as well. Thus, the causality – beyond association – should be investigated in further studies.

There are also some limits regarding the sample of companies participating in our study. We have analyzed the answers provided by 40 best performers medium and large companies operating in three regions for economic development in Romania. Perhaps, through investigating SME, for example, researchers might obtain different results. The same assumption might be true in the case of below average medium and large companies. At the same time, we have investigated the relationship between some collaborative aspects and the regional performances in Romania. Researchers in other parts of the world perhaps could obtain different results.

From a theory point of view, in this paper we have investigated the relationship between some collaborative aspects – given the theoretical assumption that the collaborative aspects represent an essential aspect for cluster formation and

development – and the regional performance. Other regional aspects in the regional context might influence the formation and development of clusters as well. For example, the public policies developed and implemented by the local authorities also might influence the formation and development of clusters. At the same time, further studies should investigate the presence of clusters and the relationship with the regional performance, particularly in Romania, where as far as we know the data regarding this topic is limited enough.

6. Conclusions

In the pages above we have discussed an important and recent topic of debate in the regional economics literature and practice, namely that of microeconomic competitiveness. In fact, we discussed a very specific and narrow topic in the microeconomics competitiveness domain. There are many theories and models developed over the years in the existent regional economics literature. Although the regional competitiveness and the relationship with the regional performance has also been debated in previous studies – both internationally and in Romania as well – as far as we know the contribution of the existent firms and companies operating in the region to the regional development is a topic which received less attention from the part of regional scholars. Thus, most of the existent studies examined the regional competitiveness from a macroeconomics perspective (regional model) and very few studies investigated the competitiveness topic from a bottom-up perspective, considering the needs of the regional companies to be competitive in the national and/or international arena.

Starting from our assumption that the collaborative activities of the firms operating in the region represent an important variable for cluster formation and development (the regions in which the companies possess more advanced capabilities and competences for inter-organizational collaboration display a more favorable predisposition for cluster formation and development), in this paper we investigated if there is a relationship between some specific collaborative aspects and the regional performance.

For all three proposed hypotheses, we found that the regions in which the best performers medium and large companies reported higher scores for collaboration formation and development (with one exception exports growth) are the regions which also reported higher levels of salaries growth, employment growth, revenues growth, new business formation growth, R&D personnel growth (exception for the collaborative competences). At the same time, the collaborative aspects investigated by us are also associated but negatively with the lower levels of unemployment. The regions in which the best performers medium and large companies reported higher

scores for the collaborative aspects are the regions which also experienced lower levels of unemployment. On the other hand, the collaborative aspects proposed by us are not associated with exports growth in the considered period. From other perspective, we also observed strong associations between all the regional performances variables in our study. This means that the regions displaying higher salary growth, for example, are also the regions characterized by higher revenues growth, employment growth, R&D personnel growth, new business formation growth and lower levels of unemployment.

Our findings are valuable for the regional economics literature since underline the fact that for cluster formation and development, which constitutes an important aspect in the modern regional economic development theory (Porter, 2003), an important aspect is the consideration of the collaborative activities of the firms and companies operating in the region. The local and/or regional clusters are in the center of attention for modern regional development in order to accelerate and support the regional economic growth and development (Porter, 2003). Thus, according to our data the companies in the regions need to be proactive in cluster formation, need to be committed for the participation in clusters and very important need to work to develop their competences and abilities for inter-organizational collaboration. Otherwise, the development of regional clusters might be hampered even if the local authorities make all the possible to support the development of regional clusters in order to support higher levels of economic growth. Consistent with the main theories reviewed in the pages above, the regional competitiveness development is a process top-down but also bottom-up. It is a partnership between the local authorities and the business sector. Thus, the companies in the specific regions also need to take specific actions to be more proactive in cluster identification and formation, committed to the participation in clusters initiatives and develop their competences and abilities for inter-organizational collaboration. As we have seen in our study, the regions in which the companies are more proactive regarding cluster formation, committed to participation in clusters and reported higher scores for the collaborative competences are the regions which are also characterized by higher regional performances.

References
1. Alesina, A., Ozler, S., Roubini, N. & Swagel, P. (1996) Political instability and economic growth, *Journal of Economic Growth* 1(2): 189-211.
2. Antonescu, D. (2019) *Dezvoltarea regională. Teorie și practică*, Iași: Lumen.
3. Barna, R.C. (2008) *Economie Regională*, Cluj-Napoca: Editura Fundației pentru Studii Europene.

4. Bhattacherjee, A. (2012) *Social Science Research: Principles, Methods, and Practices,* Florida: Textbooks Collection.

5. Bogdanski, M. (2012) Modern Theories of Regional Development – a Review of Some Concepts, *Oeconomia Copernicana*, 2, 25-41.

6. Borozan, D. (2008) Regional competitiveness: some conceptual issues and policy implications, *Interdisciplinary Management Research*, IV: 50-63.

7. Business Magazin (2016, October 24) Acestea sunt cele mai mari companii din România. Pe ce loc se află prima companie românească. *Business Magazin*. Retrieved from https://www.businessmagazin.ro/actualitate/acestea-sunt-cele-mai-mari-companiidin-romaniape-ce-loc-se-afla-prima-companie-romaneasca-15849928.

8. Cheshire, P. & Duranton, G. (2005), *Recent Developments in Urban and Regional Economics*, MA: USA Edward Elgar Publishing.

9. Chen, Z. & Schintler, L. (2023) Rediscovering regional science: Positioning the field's evolving location in science and society, *Journal of Regional Science*, 1-26.

10. Clipa, R.I. (2016) *Economiile de aglomerare și competitivitatea regională*, Iași: Editura "Universității Alexandru Ioan Cuza".

11. Delgado, M., Porter, M. & Stern, S. (2011). Clusters, Convergence, and Economic Performance. *National Bureau of Economic Research*, 1-49.

12. Delgado, M., Ketels, C., Porter, M. & Stern, S. (2012). The Determinants of National Competitiveness. *NBER Working Paper*, 18249.

13. Delgado, M., Porter, M. & Stern, S. (2014) Defining Clusters of Related Industries. *National Bureau of Economic Research*, 1-46.

14. Furman, J.L., Porter, M.E. & Stern, S. (2002) The Determinants of National Innovative Capacity. *Research Policy*, 31: 899-933.

15. Grashof, N. (2020) Firm-specific cluster effects: A meta-analysis, *Papers in Regional Science*, 99: 1237–1260.

16. Hartman, L.M. & Seckler, D. (1967) Towards the application of the dynamic theory to regions, *Journal of Regional Science*, 7(2).

17. Kitson, M., Martin, R. & Tyler, P. (2004) Regional competitiveness: an elusive yet key concept? *Regional Studies*, 38(9), 991-999.

18. Krugman, P. (1991) Increasing returns and economic geography, J*ournal of Political Economy,* 99(3): 483-499.

19. Institutul Național de Statistică (2018) Repere economice și sociale regionale: *Statistică teritorială*. Retrieved from: https://insse.ro/cms/files/Publicatii_2018/84.Repere_economice_si_sociale_Statistica_terit oriala/Repere_economice_si_sociale_regionale_statistica_teritoriala.pdf.

20. Jula, D., Ailenei, D., Jula, N. & Gârbovean, A. (1999) *Economia Dezvoltării*, București: Editura Viitorul Românesc.

21. Lehene, C. (2020) *Strategii de colaborare între companii. Contribuții privind creșterea performanțelor relaționate cu productivitatea și inovarea*, Cluj-Napoca: Presa Universitară Clujeană. http://www.editura.ubbcluj.ro/www/ro/ebooks/domains.php?id=14.

22. Marshall, A. (1920) *Principles of Economics*. London: Mcmillan.

23. Martin, R. & Sunley, P. (2014) On the notion of regional economic resilience: Conceptualization and explanation, *Journal of Economic Geography*, 15(1): 1–42.

24. Ministerul Dezvoltării Regionale și Administrației Publice (2013, July) *Strategia Națională pentru Dezvoltare Regională 2014-2020.* Retrieved from: https://inforegio.ro/images/Documente_de_programare/Strategia_Nationala_Dezvoltare_R egionala_-_iulie_2013.pdf.

25. Milne, W. (1993) The Interaction between Regional Science and Economics: An Economist's View, *The Review of Regional Studies*, 65-72.

26. Mills, E. S. (1967), An aggregative model of resource allocation in a metropolitan area. *The American Economic Review*, 57(2), 197–210.

27. Moller, J. (2019) Theories in Regional Economics in the Light of Local Development, in Futo, P. (2019) *Contemporary drivers of local development*, 23-39.

28. Myrdal, G. (1967), *Economic theory and underdeveloped regions*, Duckworth.

29. Pelinescu, E., Iordan, M., Chilian, M. N & Simionescu, M. (2015) *Competitivitate: competitivitate regională în România*, București: Editura Universitară.

30. Perroux, F. (1955) La notion de pole de croissance, *Economie appliquee*, 1-2.

31. Piața Financiară (2017, February 8) Top 1000 companii după cifra de afaceri pe 2015. *Piața Financiară*. Retrieved from http://www.piatafinanciara.ro/top-1000-companii-dupa-cifra-de afaceri-pe-2015/.

32. Porter, M.E (1990) *The Competitive Advantage of Nations*. Harvard Business Review, 71-91.

33. Porter, M.E. (1998) Clusters and Competition: New Agendas for Companies, Governments, and Institutions, *on Competition*, pp 3-54, Boston, MA: Harvard Business School Press.

34. Porter. M.E & Stern, S. (2001) Innovation: Location Matters. *MIT Sloan Management Review,* 42(4): 28-36.

35. Porter, M.E. (2003) The Economic Performance of Regions. *Regional Studies*, 37(6&7): 549-578.

36. Rastvortseva, S. N. (2022) An Overview of Investigations Concerning Agglomerations in Regional Economy. *Ekonomika regiona [Economy of regions],* 18(2), 324-337.

37. Riddle, P. (2014) Location and Company Competitive Advantage: The View from the Business, *Regional Studies,* 1-17.

38. Romer, P. M. (1986) Increasing returns and long-run growth, *Journal of Political Economy*, 94(5), 1002–1037.

39. Rickard, S. (2020) Economic Geography, Politics, and Policy, *Annual Review of Political Science,* 23:187–202.

40. Sutton, J. & Arku,G. (2022) Regional economic resilience: towards a system approach, *Regional Studies, Regional Science*, 9:1, 497-512,

41. Tanțău. A. (coord.) (2011) *Ghid de bună practică pentru clustere și rețele de firme*, București: Print Group.

42. Weber, A. (1929) in C. Friedrich (Ed. & Trans.), *Theory of the location of industries*. University of Chicago Press.