

PRESENCE OF RELATED INDUSTRIES AND COMPLEMENTORS IN THE LOCAL ECONOMY AND FIRM PERFORMANCE

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ABSTRACT

There is a vast body of literature in the economics and business academia investigating if the presence and development of clusters of related industries and complementors in the regional or local economy drive the firm or regional performance. Despite the high enthusiasm with which the businesses and policy makers embraced the cluster theory recently appeared also some contradicting evidence regarding the pure effect of participation of firms in this type of geographical bounded collaborative strategies and firm performance. In this paper, relying on empirical evidence provided from inside the firm by experienced managers we found relatively weak support for some aspects of cluster theory. Through a statistical analysis of the answers provided by 65 medium and large companies operating in the manufacturing sector in Romania we provide evidence of a relatively weak effect of presence of related industries and complementors in the local economy and productivity related performances (revenues, profits, labor productivity, customer satisfaction, organizational growth) and no relationship with innovation related performances (new product development, products and processes/operations improvement, diversification, market expansion). The findings from our paper contribute to the stream of research and theories which prioritize for the achievement of superior performances, what happens inside the firm, what the firm and company centric strategies, rather than the contextual conditions such as the presence and participation in local clusters.

KEYWORDS: *clusters, manufacturing sector, firm performance, regional economics, agglomeration economies.*

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1. INTRODUCTION

Clusters or geographical/spatial bounded collaborative strategies, imagined as new spatial organizational forms (Porter, 1998), constitute a modern subject for research and teaching in many academic fields. The interest starts with economic policy and public administration (Antonescu, 2019; Constantin, 2004; Franco et al. 2012; EC, 2020; ECCP, 2023), continues with the spatial dimension of economy proposed in the regional science and economic geography (Krugman, 1991; Fujita & Krugman, 2004) and of course in the management and marketing fields, investigating the participation of firms in local or regional clusters for competitive reasons (Grashof, 2020, 2021; Porter, 1990). There is an enormous interest to study this form of spatial collaborative activity organization by both practitioners and research academia (Garanti & Berzina, 2013). Despite the rising interest in the last decades to study the local or regional clusters the concept per se is not as new as one might expect. The concept dates back to at least 1900. Alfred Marshall (1920) was the

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first to observe that firms locate near to each other since they benefit from various economies of scale. Among the time, the regional scholars termed these economies as economies of agglomeration (Clipa, Pohoata & Clipa, 2012). Firms locate near to each other in industrial districts - as scholars termed these collaborative forms at the time – since benefit from three main advantages: 1) access to specialized labor and capital, 2) specialized inputs for their operations and 3) access to spillover knowledge which facilitate productivity and innovation (Bogdanski, 2012; Constantin, 2004; Delgado, Porter & Stern, 2011; Pohoata et al., 2013). These externalities are broadly known in the regional economics literature such as the Marshall's trinity (Clipa, 2016; Constantin, 2004; Pohoata et al., 2013).

Among the time, existent studies in the economics or regional economics literature investigated various aspects of cluster formation and development. For example, cluster conceptualization, cluster constituencies and organization and cluster life cycle (Porter, 1998; Tanțău, 2011), the contribution of clusters to the regional development (Citkowski, 2020; Dan, 2012; Garanti et al., 2013), clusters effect on firm performance (Grashof, 2020, 2021) or regional performance (Delgado, Porter & Stern, 2010; 2011; 2014; Neffke, Henning & Boschma, 2011; Porter, 2003) or the implications of various collaborative aspects of medium and large firms on regional performance (Lehene & Nistor, 2023). Even though the appearance and the development of this vast collection of evidence in the last decades, there is a gap in the existent literature to which we refer in this study. As far as we know, most studies in the existent literature investigated the clustering of companies and institutions throughout an archival data research strategy. Mainly, through large-scale quantitative analyses (e.g. Franco et al. 2021; Grashof, 2021; Porter, 2003) or meta-analyses (e.g. Grashof, 2020). More specifically, relying on existent data sources, such as various statistical and historical records, researchers proposed theories and statistical models to provide a description, understanding, explanation and prediction regarding the participation of companies in regional or local clusters. What we argue in this paper is that even though the high informatory power and utility for the practice these studies might have relying only on existent recorded data, without considering evidence provided directly from inside the company, the explanation regarding cluster presence and participation of companies in these collaborative initiatives and the implications for firm performance is limited enough.

Thus, since many studies did not consider the firm perspective regarding the presence of clusters in their local economy and their participation and involvement in these regional or local collaborative strategies – how the firms actually see the things – in this paper we try to provide an explanation regarding the existence and participation of firms in local clusters for competitive reasons, relying on empirical evidence provided directly from inside the company. In short, we try to provide an answer to the following research question: *Do the firms which encounter in the local economy or in the location where they operate related industries and complementors obtain better performances in comparison with other firms in the same industry but which do not encounter the same local conditions?* Or, is the presence of related industries and complementors in the local economy a good explainer regarding the differences in firm performance (why some companies obtain better performances in comparison with other companies in the same industry)?

In this paper we also investigate in detail some specific aspects of cluster presence in the local economy and firm's participation in these collaborative initiatives such as: 1) the access and presence of suppliers of factors of production in the local economy; 2) the degree of closeness of collaboration between the firms and the local partners; 3) if the firms also contribute to the growth and development of their local partners (being them suppliers or complementors). Concretely, we investigate the relationship between these 'cluster dimensions' and firm performance. In other words, we try to provide an answer to the specific question: *Which elements in the local cluster influence what type of firm performance, whether productivity related performances or innovation related performances?*

We conceptualize the first specific aspect 'ACCESS', the second one 'COLLABORATION', and the third one 'COMMITMENT'.

The reminder of the paper is organized as follows. We start with a very brief literature review regarding the conceptualization of local/regional clusters and the existent findings regarding the benefits the firms might extract from participating in these spatial bounded collaborative strategies. Then, we present in detail the research methodology adopted for this paper. We continue with data analysis and interpretation. The paper ends with the main implications for companies and with discussing the main conclusions.

2. LITERATURE REVIEW

2.1 The concepts of regional or local clusters

Why do firms cluster together? What kind of benefits might extract the firms from being located near to each other? How do these geographically bounded collaborative strategies form? These are some of the questions researchers tried to provide an answer among the time in order to explain the agglomeration phenomena of firms and companies in various regions (Clipa, 2016; Constantin, 2004; Duranton & Kerr, 2015; Porter, 1998). Even though the attention devoted to study the benefits the firms might extract by being located in the proximity of other related firms had been increased over the last decades up to now there is not a clear consensus among the scholars and practitioners regarding which are the constituent parts of a cluster, how the cluster per se should be organized for superior performances or more importantly if the participation of companies in these spatial collaborative strategies bring them real benefits (Grashof, 2020, 2021).

In its simple form, a local or regional cluster is a form of collaboration between various firms and institutions in a region or location which work together in a particular product/service focused domain. A regional or local cluster represent a specific form of collaboration just like any other strategic alliance, strategic partnership or strategic networks, but in the cluster's case given a spatial consideration (Lehene et al., 2023). A regional cluster reflects a form of collaboration developed between various firms, organizations and public institutions pertaining to different industries, both vertically and horizontally connected, which closely collaborate in specific product or service segments in a specific region. A cluster might include suppliers, manufacturers, distributors, complementors such as universities or financial institutions and even might involve the local authorities (Porter, 1998).

There are many reasons why firms cluster together. Starting with classic Marshallian triad which date back to 1920's recent synthesis-oriented studies propose main reasons or objectives for the formation and development of such spatial collaborative activity organization. For instance, Tanțău (2011) argue that firms involve in local clusters mainly for research & development projects, for political actions development and implementation, for the development of commercial cooperation, for education & training objectives, for the introduction of new innovations, or even might cluster together to nurture the regional development. However, will be quite appropriately to mention in this context that the firms rarely enter one partnership being it a network, cluster, or alliance for a single objective (Klijn et al., 2010). For instance, in a recent study conducted on a sample of 47 joint ventures operating in Europe the authors reported that only 8% from firms enter a joint venture for a single reason. There was a main reason, however, which in this case was learning but this main reason was coupled with other multiple secondary reasons (Klijn et al., 2010).

In addition, many scholars proposed typologies for the classification of cluster initiatives. For example, Constantin (2004) and Bogdanski (2012) propose that the local or regional cluster might been observed in the local economies in the form of simple agglomeration of companies, might been observed such as an industrial parc, or might developed such as a territorial network. The collaborative activity between the partners in the local cluster – no matter the typology proposed –

might be organized such as a gentlemen's agreement, strategic partnership, strategic alliance, or the collaboration even might take the form of a joint venture (Lehene, 2020).

Regarding work and activities organization in the local or regional clusters, or more broadly in any collaborative strategy, spatial or non-spatial developed, various other aspects had been investigated in the existent economics, regional economics or strategic management literature. For example, some scholars investigated the structural factors and activities which might influence the commitment of partnering companies to a regional strategic network (Andresen, Lundberg & Roxenhall, 2012), the determinants of partner opportunism (Das & Rahman, 2010) or risk management (Das & Teng, 1999, 2001) during collaboration participation, or the determinants of alliance capability building for company participation in strategic alliances, networks or clusters (Kale, Dyer & Singh, 2002; Luvison & de Man, 2015; Sluyts et al., 2011). More specific topics such as the factors/determinants which influence the formation and development of regional clusters in creative industries (Mackiewicz & Namyslak, 2021), apparel industry (Pietroni et al., 2010) or ICT sector (Bestvina-Bukvic & Durdevic-Babic, 2021) have been also investigated recently.

In general terms, in the extant literature, clusters have been associated with many dimensions of performance, in one form or in another, whether we speak at the macroeconomic, mesoeconomic or microeconomic level. From a macroeconomic perspective, clusters are regarded as useful tools governments and public authorities might use to accelerate the economic growth and development and enhance local or regional competitiveness (Delgado, Porter & Stern, 2011; Porter, 2003). According to recent evidence, regional clusters are associated with accelerating the local entrepreneurship and new business formation in the area of cluster specialization, contribute to the employment growth, contribute to increasing the productivity of constituent firms or industries and to innovation enhancement. Local or regional clusters are seen as magnets for attracting new investments and FDI in their areas of specialization, and very important are seen as a driving force for the regional development through increasing the potential for regional products exports (Porter, 1990, 1998, 2003; Delgado, Porter & Stern, 2011). From other perspective, the development of local clusters is also associated with various firm level outcomes such as the development of new innovations by companies participating in such collaborations, productivity growth, or simple by cost reduction having already specialized suppliers in the local economy (Porter, 1998).

In this line of thinking, one important aspect which received less attention by scholars in the economics, regional economics or strategic management and marketing literature is that of clustering of firms for superior productivity or innovation related performances. These two fundamental dimensions of organizational performance are totally different because what drives the productivity is counter effective for innovation (O'Reilly & Tushman, 2013; Tushman & O'Reilly, 1996). More specifically, do the companies which participate in these spatial bounded collaborative strategies obtain better productivity and/or innovation related performances? Moreover, which elements of cluster influence what type of performance, productivity or innovation? Productivity related performances versus innovation related performances have been studied in the field of strategic management more generally (David, 2007/2013; Hitt et al., 2007), but also in more specific fields such as the strategic alliances and networks (de Leeuw et al., 2014; Nielsen & Gudergan, 2012; Rice & Galvin, 2006; Lehene & Borza, 2017; Lehene, 2020). Thus, we formulate the following hypothesis:
H1: There is a positive relationship between the presence of related industries and complementors in the local economy and firm performance.

2.2 Elements of local clusters and their impact on firm performance

As detailed above, various other aspects beyond the cluster concept per se and the relationship with various measures of firm or regional performance have been investigated recently. For example, Lehene & Nistor (2023) found that the regions in which the best performers medium and large companies are more proactive, committed to cluster formation and possess superior collaborative

competences are also the regions which experienced various forms of regional performance growth during a five-year period of investigation. We also try to investigate some specific aspects regarding cluster formation and development but from company perspective, relying on empirical data provided directly by experienced managers from inside the company. Thus, we are going to investigate 1) the degree the firms encounter in the local economy specialized factors of production for their industry needs (such as specialized labor and capital), 2) if the companies have developed close collaborations with local partners (being them suppliers, complementors or competitors) and 3) if the companies involve in the local economy through a creating shared value paradigm/commitment and involvement in the local economy in the form of a collaborative agreement on a long-term basis (Kramer & Porter, 2011). We investigate these three cluster specific aspects in relationship with various measures of firm performance.

In accordance with the recent development of the ambidexterity concept we investigate the relationship between the presence of related industries and complementors in the local economy and various measures of firm performance. Thus, all the dependent variables we propose for measuring firm performance are related to both fundamental dimensions of organizational performance – productivity and innovation (O'Reilly et al., 2013; Tushman & O'Reilly, 1996). From other perspective, we propose and investigate some dependent variables which relate to classical theories developed decades ago in the strategic management or marketing literature. For example, the concepts of diversification or market expansion proposed by Igor Ansoff (David, 2007/2013; Hitt et al., 2007). In this context, it is also important to mention that in this paper, as will be detailed in the research methodology section as well, we refer to firm performance in comparison with other companies in the same industry. At the center for measuring the firm performance is the concept of competitive advantage introduced some decades ago by Michael Porter (1985) and existent today in almost all strategic management textbooks (Borza, 2012; Brătianu, 2002; David, 2007/2013; Nicolescu & Popa, 2011; Popa, 2004). Thus, we formulate the following hypotheses:

H2: There is a positive relationship between firm's access to its necessary factors of production in the local economy and firm performance.

H3: There is a positive relationship between the development of close collaborations of firm with local partners and firm performance.

H4: There is a positive relationship between firm's contribution to the growth and development of local partners and firm performance.

3. METHODOLOGY

3.1 Research strategy

For the purpose of this paper, we designed and implemented a questionnaire at the national level. We have contacted 1,025 medium and large companies operating in the manufacturing sector in Romania. We collected the empirical data in three waves between 15 Aprils and 15 September of 2023. Each company was contacted by email at least three times, receiving a letter of intent and the questionnaire. After five months of data collection activities, finally we received the questionnaires completed by 65 companies from which 50 are medium-size companies (between 50 and 249 employees) and 15 are large companies (more than 250 employees). The 65 companies pertain to 16 industries/divisions and to 26 industry segments/NACE codes within the 16 industries investigated, all operating in the manufacturing sector.

Most managers which participated in our study are very experienced managers with many years of managerial experience. The average number of years of managerial experience reported by managers in our study is 16 years, the manager less experienced working in management position for 2 years and the most experienced possessing already 40 years of managerial experience. More specifically, we have analyzed the answers provided by 35 top managers/executives (e.g., Business Owner,

Administrator, CEO, General Manager), 19 middle managers (e.g. Marketing Director, Production Director), 6 operations managers (e.g. team leader, chief accountant) and of 3 non-managerial personnel (e.g. engineer, accountant) but which are all aware regarding the operations of the company as a whole and their business environment. In our sample, depending on the company ownership we have analyzed the answers provided by 39 Romanian companies and 26 international companies/subsidiaries of international companies.

The procedure for obtaining the relevant sample of companies is described below. (See also the Figure 1.) First, we chose the general population which consists in all the firms operating in Romania which produce goods or services for the local or traded economy. In total, in Romania, in the NACE system there are 21 sections which we are going to call from now on *Economic Areas* (classified from A to U), which contain together 614 NACE codes which we are going to call from now on *industry segments*, within which operate companies whether in the local or traded economy. Since in the light of this paper is the relationship between the presence of related industries and complementors in the local economy and the performance of local firms, but firms which operate in the traded economy – companies which produce and sell their products on markets outside the local economy – we are going to focus our effort on the section C – Manufacturing Economic Area, for the following three reasons.

First, the backward/upstream industries such as those in the section A (Agriculture, Forestry and Fishing) are in many cases supplier industries of raw materials and components for the local firms in the manufacturing sector which operate in the local economy where they are based. Second, the industries such as the industries in the section B (Mining and Quarring) extensively use natural resources for their operations. The most advanced economies do not rely on exporting of goods and services based on the exploitation of natural resources at their base for building competitive advantage (Porter, 1990). A concept known in the regional economics and strategic management literature as comparative advantage (Porter, 1998). For example, Italian firms in the tiles industry import sand and cement and other raw materials to produce tiles from abroad and do not use their own natural resources for the production of tiles (Porter & Stern, 2001). Third, many other sections contain as a whole industries and firms which operate in the local economy. For example, hotels and restaurants, private clinics, and other caring facilities they all operate in the local economy. Thus, in our framework, the industries and firms in the section C – manufacturing – which produce and export goods and services for the national or international economy represent the main source for the local competitive advantage. The industries and firms which serve the local markets are quite important, but they are not a source for the above average locational economic performances for creating the competitive advantage of locations (e.g. higher salaries) [Porter, 2003].

From other perspective, for the purpose of this paper we selected only the medium and large firms since the small and entrepreneurial firms even if they activate in the traded economy, they are in most of the cases local firms. Moreover, in many cases, even if they participate in local clusters or strategic networks they are suppliers or distributors of the medium and large firms, or they might have not the resources to export to other countries (Ciobanu et al., 2011).

Next, in the section C there are in total 23 divisions/industries (e.g. NACE 10 – food industry/manufacture of food products) each one with its industry segments (e.g. NACE 1013 – production of meat or poultry meat products). We have analyzed each industry segment individually and we have extracted from each segment the total number of firms and companies in order to identify the economic areas, industries and industry segments without intense economic activity. Relying on our theoretical position/framework the locations/local economies develop competitive advantage in activities related with the activities which are already present in the region. A concept called in the regional and urban economics literature related diversification (Neffke et al., 2011). The same is true with the new business formation and the development of new products for export. The entrepreneurial opportunities and the creation of new companies normally will take place within the area of local

specialization – what economic activities take place in the region – and the development of new export products will be related with those present already in the local economy (Neffke et al., 2011). Thus, in Romania, in the section C and its constituent 23 industries/divisions there are 228 industry segments within which activate in total 65,524 firms (NACE, 2023). Following our analysis, we have excluded 3 industries/NACE codes summing in total 130 industry segments but only 4,805 firms.

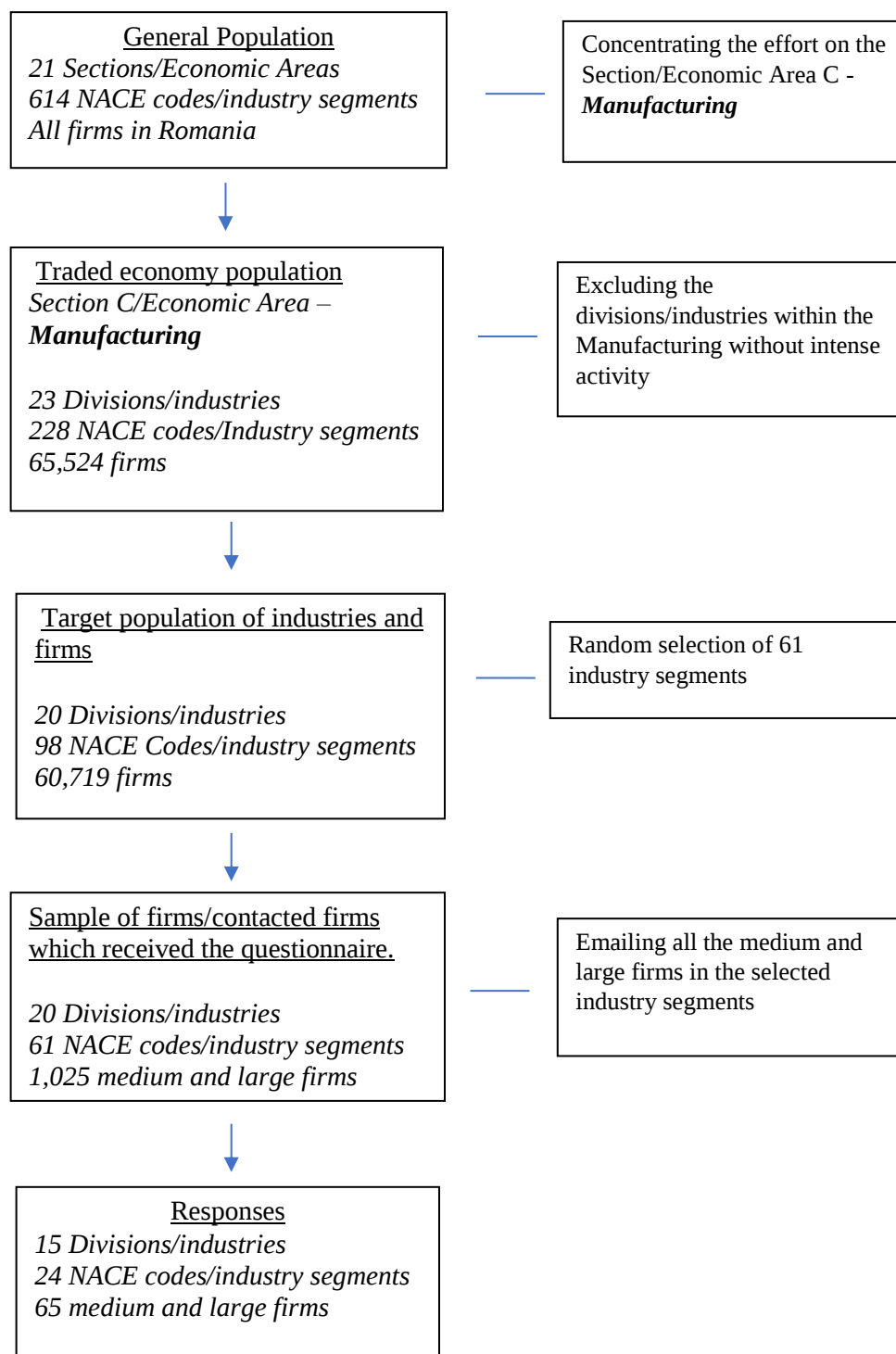


Figure 1. Sampling procedure
 Source: authors' own elaboration

After this stage remained 20 industries and 98 industry segments (industry segments with the most intense activity) summing in total 60,719 manufacturing firms. Next, we randomly chose wave by wave the industry segments – EXCEL RANDBETWEEN – and we have contacted by email all the medium and large companies in each segment for which we obtained the email address. We stop collecting data at the point we got a representative number of questionnaires to permit us the generalization to the specific population or at least to extract some valid conclusions from the point of view of statistics. According to Buiga (2009), Sava (2011), Opariuc (2009) the minimum number of answers in order to apply parametric statistical tests is 30. After five months of data collection activities, we contacted by email 1,025 companies pertaining to 61 industry segments from which decided to participate 65 firms leading to a participation rate of 6,31%. The 65 companies pertain to 16 industries/divisions (from 20 industries in total) and to 26 industry segments/NACE codes (from 98 industry segments in total). The sampling procedure is depicted in Figure 1.

3.2 Variables

We analyzed the empirical data at two levels of analysis: general level and detailed level. At the general level, we have analyzed the relationship between ‘Clusters’ and ‘Firm Performance’ (productivity and innovation related performances). At the detailed level, we decomposed the ‘Cluster’ variables into more specific and hopefully accurate variables regarding the cluster presence in the local economy and firm participation in such initiatives. We implemented the same procedure for the dependent variables. At the detailed level, we decomposed the variables which measure the firm performance in more specific and hopefully accurate measures of firm performance. Thus, at the general level, the independent variable in our study is ‘Cluster’, and at the detailed level the independent variables are ‘Access’, ‘Collaboration’ and ‘Commitment’. We measured all the independent variables on a 7-point Likert scale ranging from 1 to 7 with the following meaning: “1 = Totally/Strongly Disagree and 7 = Totally/Strongly Agree”. We kindly asked the managers to appreciate the extent to which the statement in the questionnaire fit the situation in their company, according to the scale mentioned above. (See also Table 1 and Appendix A.)

We considered the following dependent variables. At the general level, ‘Productivity Related Performances’ and ‘Innovation Related Performances’ and at the detailed level ‘Firm Traditional Performance’, ‘Profits’, ‘Labor Productivity’, ‘Organizational Growth’, respectively ‘Innovation’, ‘Diversification’, ‘Expansion’. We kindly asked the managers to appreciate the *competitive position* of their company, for the various measures of firm performance, in comparison with other 1) national and 2) international firms (from Central and Eastern Europe) in the same industry, on a 7-point Likert scale ranging from 1 to 7 with the following meaning “1 = Strong Competitive Disadvantage to 7 = Strong Competitive Advantage”.

4. DATA ANALYSIS AND RESULTS

We start the data analysis with providing the descriptive statistics and correlation matrix between our variables of interest. It is important to mention from the beginning that the relationships investigated next are zero order correlations no other variables, which also might interfere in the relationship, being considered. First, at the general level of analysis, as one can observe in the Table 2, the presence of related industries and complementors in the local economy (CLUSTER) is associated only with superior productivity related performances (PRP) reported by companies in comparison with other companies in the same industry, both in Romania ($r = 0.229$; $p < 0.05$) and in Central and Eastern Europe as well ($r = 0.222$; $p < 0.1$). The presence of related industries and complementors has no effect on innovation related performances (IRP).

Table 1. Variable Measurement

Variable	Type	Number of items	Measurement	Cronbach Alpha	References
Presence of related industries and complementors in the local economy (CLUSTER)	IV	10	Likert 7-point	0.872	Delgado et al. (2012); Furman, Porter & Stern, 2002; Porter, 1990; 1998 Porter & Stern, 2001
Access to specialized factors of production (ACCESS)	IV	4	Likert 7-point	0.917	
Close collaboration with local partners (COLLAB)	IV	5	Likert 7-point	0.751	
Close collaboration with local complementors (COMPLEMENTORS)	IV	3	Likert 7-point	0.684	
Commitment in the local economy (COMMIT)	IV	1	Likert 7-point	-	
Productivity Related Performances (PRP_RO)	DV	6	Likert 7-point	0.870	David, 2007/2013; Hitt et al., 2007; O'Reilly & Tushman (2013); Tushman & O'Reilly (1996).
Innovation Related Performances (IRP_RO)	DV	6	Likert 7-point	0.824	
Productivity Related Performances (PRP_UE)	DV	6	Likert 7-point	0.912	
Innovation Related Performances (IRP_UE)	DV	6	Likert 7-point	0.890	
Firm Traditional Performance (FTP)	DV	3	Likert 7-point	0.703	
Profits (Pr)	DV	1	Likert 7-point	-	
Labor Productivity (W _L)	DV	1	Likert 7-point	-	
Organizational Growth (OG)	DV	2	Likert 7-point	0.706	
Pure Innovation (INNOVATION)	DV	3	Likert 7-point	0.889	
Diversification (DIVERSIFICATION)	DV	1	Likert 7-point	-	
National/International Expansion (EXPANSION)	DV	2	Likert 7-point	0.616	

Note. IV – Independent Variable; DV – Dependent Variable

Source: authors' own elaboration

Next, we wanted to investigate which elements in the local clusters influence which type of firm performance. In the Table 3, one can observe that the access to specialized factors of production in the local economy (ACCESS) has a weak but still significant effect only on PRP_RO ($r = 0.173$; $p < 0.1$), and no effect on the other dimensions of firm performance. The development of close collaborations with local partners (COLLAB) has a weak but significant impact on PRP_RO ($r = 0.239$; $p < 0.05$), IRP_RO ($r = 0.206$; $p < 0.1$) and PRP_UE ($r = 0.203$; $p < 0.1$). On the other hand, the development of close partnerships within the local economy has no impact on superior performances reported by companies in comparison with other companies in the same industry but operating in Central and Eastern Europe. At this detailed level of analysis, it also seems that the involvement of companies in the local economy in the creating shared value paradigm (contributing to the growth and development of local partners as well) was associated only with superior productivity related performances reported by companies in comparison with other companies in Central and Eastern Europe ($r = 0.225$; $p < 0.1$).

Next, at the third level of analysis, 'at molecular level', we can observe some specific significant relationships depending on the effect of Access, Collaboration and Commitment on each individual measure of firm performance. (Depicted in the Table 4.)

Table 2. Descriptive statistics and correlation matrix I

Variable	Min	Max	Mean	S.D.	CLUSTER	PRP_RO	IRP_RO	PRP_UE	IRP_UE
CLUSTER	14	61	38.76	11.70	1.00	0.229*	0.065	0.222 ⁺	0.072
PRP_RO	15	42	28.06	6.25		1.00	0.604**	0.640**	0.451**
IRP_RO	12	40	28.33	7.14			1.00	0.467**	0.698**
PRP_UE	6	37	25.52	7.78				1.00	0.655**
IRP_UE	6	42	26.79	8.22					1.00

Note. ** p < 0.01; * p < 0.05; ⁺ p < 0.1 Sig. (1-tailed)

Source: authors' own elaboration

Table 3. Descriptive statistics and correlation matrix II

Variable	Min	Max	S.D.	ACCESS	COLLAB	COMMIT	PRP_RO	IRP_RO	PRP_UE	IRP_UE
ACCESS				1.00	0.632**	0.211**	0.173 ⁺	-0.065	0.095	-0.014
COLLAB					1.00	0.362**	0.239*	0.206 ⁺	0.203 ⁺	0.102
COMMIT						1.00	0.097	-0.040	0.225 ⁺	-0.062
PRP_RO							1.00	0.604**	0.640**	0.451
IRP_RO								1.00	0.467**	0.698**
PRP_UE									1.00	0.665**
IRP_UE										1.00

Note. ** p < 0.01; * p < 0.05; ⁺ p < 0.1 Sig. (1-tailed)

Source: authors' own elaboration

Table 4. Detailed patterns

Performance related to productivity dimension.		Performance related to innovation dimension.	
Relationship	r	Relationship	r
CLUSTER □ FTD	0.185 ⁺	CLUSTER □ INNOVATION	ins
CLUSTER □ ORGANIZATIONAL GROWTH	0.289*	CLUSTER □ DIVERSIFICATION	0.172 ⁺
CLUSTER □ PROFITS	ins	CLUSTER □ EXPANSION	ins
CLUSTER □ W _L	ins		
ACCESS □ FTP	ins	ACCESS □ INNOVATION	ins
ACCESS □ ORGANIZATIONAL GROWTH	0.213*	ACCESS □ DIVERSIFICATION	ins
ACCESS □ PROFITS	ins	ACCESS □ EXPANSION	ins
ACCESS □ W _L	0.185 ⁺		
COLLABORATION □ FTD	0.204 ⁺	COLLABORATION □ INNOVATION	ins
COLLABORATION □ ORGANIZATIONAL GROWTH	0.290*	COLLABORATION □ DIVERSIFICATION	ins
COLLABORATION □ PROFITS	ins	COLLABORATION □ EXPANSION	ins
COLLABORATION □ W _L	ins		
CSV □ ALL MEASURES OF FIRM'S PERF			ins

Note. ** p < 0.01; * p < 0.05; ⁺ p < 0.1 Sig. (1-tailed); ins = insignificant

Source: authors' own elaboration

As one can observe in the analysis above, many aspects of cluster presence and participation has only a weak but still significant effect on firm performance and many other aspects have no effect on various measures of firm performance. This evidence provides perhaps some contradicting evidence regarding the benefits the firms might extract from the presence of related industries and complementors in the local economy in the form of superior performances, in comparison with other companies in the same industry. A stronger effect on firm performance has the close collaboration developed by manufacturing firms with local partners. It is important to mention that not all the collaborations with local partners produce a stronger significant effect on firm performance but only the specific close collaboration between the manufacturing firms and the local complementors (universities, financial institutions, and local authorities). When we investigated the relationship between COMPLEMENTORS and PRP_RO we have obtained ($r = 0.296$, $p < 0.01$) and for the COMPLEMENTORS and IRP_RO we have obtained ($r = 0.274$, $p < 0.05$), which are generally accepted and considered strong enough to be significant in social sciences.

In this context, it is important also to mention some specific patterns regarding the relationship between the different type of local complementors and the relationship with the different type of performance, whether productivity or innovation related performances. The development of close collaborations with what type of local complementors influences what type of firm performance? First, the companies which reported better scores for collaborations developed with universities and research institutions also reported significant and better scores for innovation related performances: INNOVATION ($r = 0.301$, $p < 0.05$), DIVERSIFICATION ($r = 0.238$, $p < 0.05$), EXPANSION ($r = 0.166$, $p < 0.1$). Close collaborations with local universities it seem that has no impact on firm's productivity related performances. Second, the companies which reported higher scores for collaborations developed with financial institutions also reported significant and higher scores for productivity related performances: FTP ($r = 0.176$, $p < 0.1$), Pr ($r = 0.169$, $p < 0.1$) and ORG GROWTH ($r = 0.346$, $p < 0.01$). On the other hand, the development of close collaborations with local financial institutions it seems that has no impact on firm's innovation related performances. And third, close collaborations with local authorities display a significant and positive effect on both productivity and innovation related performances. For example, companies which reported higher scores for the development of close collaborations with local authorities also reported superior scores for INNOVATION ($r = 0.227$, $p < 0.05$), DIVERSIFICATION ($r = 0.289$, $p < 0.05$), FTP ($r = 0.278$, $p < 0.05$) and (WL) ($r = 0.201$, $p < 0.1$). Finally, we mention a last specific pattern, but which is quite significant. One of the stronger associations we observed in this paper is the relationship between the development of close collaborations with competitors and DIVERSIFICATION ($r = 0.317$, $p < 0.01$). Manufacturing companies in our sample reported superior portfolio diversification with new business activities when they developed selectively collaborations with some competitors in their industry.

Finally, since all the relationships presented above are quite weak but significant, we conducted the following experiment. We investigated all the relationships also in the following three situations: 1) we considered only the answers provided by top management and middle management; 2) we considered only the answers provided by top managers and experienced middle managers (at least 10 years of managerial experience); 3) we considered only the answers provided by top management. In all three situations, there were small changes but no important changes depending on the nature or the intensity of the relationships. Perhaps, we have not detected important changes since the managers pertaining to the middle management and top management represent 84% from respondents in our sample. Thus, we observed that the answers of low-level managers did not alter significantly the results of our investigation.

5. MANAGERIAL IMPLICATIONS

The findings from our study have several implications for companies. First, as the data in our study suggest some companies even if they do not encounter specialized factors of production or even if they have not developed close collaborations with their local partners, they still reported superior performances in comparison with other companies in the same industry. It seems that the presence of related industries and complementors in the local economy has only a relatively weak effect on achieving superior productivity related performances and no effect on innovation related performances. Of course, that will be better for companies – for example to have their suppliers of components with good quality and at good prices in their location – but as the data in our study suggest the presence of related industries and complementors in the local economy is not the main factor which determine the superior performances in comparison with other companies in the same industry. Companies need to develop their own strategies (direct investments/organic growth, M&As, strategic alliances and networks etc.) which permit them to obtain the necessary factors of production and collaborators to obtain competitive advantage wherever they are located rather than to rely only on existent local conditions.

Second, the empirical data in our study suggest that well developed collaborations with complementors (universities, financial institutions and local authorities all put together) seem to be a good determinant for both productivity (revenues, profits, productivity, organizational growth) and innovation related performances (operations/product improvement, NPD, diversification). Specifically, close collaboration with local authorities – particularly regarding business and industry needs – seems to be a determinant of competitive advantage over other companies in the same industry. Perhaps, the close collaboration with local authorities to regulate the business environment acts as a mediator/moderator for creating a local business environment which permit superior performances. Well-developed and close collaborations with local authorities seem to be associated with superior productivity and innovation related performances. Managers also need to know that if they goals of the organization are related to superior productivity performances (revenues, profits, productivity, organizational growth) they need to develop close collaborations with financial institutions in the local economy. We found that close collaborations with local financial institutions was associated with superior productivity related performances. On the other hand, if the managers strive to innovate to obtain superior innovative related performances (operations/product improvement, NPD, diversification) they need to develop close collaborations with local universities and research institutions. Close collaborations with local universities and research institutions were associated with superior innovation related performances.

Third, the findings from our study suggest that if the goal of the company is diversification (entering new businesses diversifying the existent portfolio with new domains of activities) managers should also look for the development of some selective partnerships with some of their competitors. For all the dimensions of firm performance in our study, the data in our study suggest that the development of collaborations with some competitors was associated only, but significant, with superior portfolio diversification with new activities.

6. CONCLUSIONS

In this paper we have investigated a modern topic of discussion in regional economics and strategic management literature. Relying on inside the firm empirical evidence provided directly by experienced managers (35 executives/top managers and 19 middle managers) we investigated the relationship between the presence of related industries and complementors in the local economy and firm performance. The companies in our sample are all medium and large size companies. As reported in the descriptive statistics presented above, the average score for the productivity related

performances, for example, is 28 with minimum being 15 and maximum 42. Which means, that some of the companies investigated by us are high performing companies, and some of them are more modest performing. According to the theoretical framework developed in this paper, no matter the industry in which the investigated companies operate, if the companies encounter proper local conditions – *access* to specialized factors of production, have developed close *collaborations* with local partners, they are *committed* to the development of local partners – normally these companies should obtain superior performances – productivity and innovation related performances, in comparison with other companies in the same industry. On the other hand, the companies which encounter lower-level local conditions for their industry should obtain more modest performances. But as we showed in this paper this is not always the case. Relying on empirical evidence obtained from inside the firm, provided directly by experienced managers, there are companies in our sample which obtain superior performances/reported a superior competitive position in their industry but which also reported: 1) low scores for the access and presence of specialized factors of production in the local economy; 2) low scores for collaborations with local partners (suppliers, universities, financial institutions, local authorities, and competitors) and 3) they do not or less contribute to the development of local partners in a creating shared value paradigm.

After data analysis, what we think is happening in the local economies in Romania is that many companies in our sample by one, they supply with factors of production where they exist (if in the local economy they do not exist) and by two, they prefer acting alone or do not collaborate in the local economy or might prefer to collaborate with partners outside the local economy. It seems that these aspects do not impede the companies in our sample to overcome other companies in the same industry in terms of productivity and innovation related performances. From other perspective, even if in the location do exist specialized factors of production perhaps the companies prefer national/international partners and supply with raw materials from abroad, for two main reasons: 1) perhaps the national or international partners provide them with better quality and better price factors of production or 2) the companies simple might collaborate with existent partners/suppliers of factors of production based on existent relationships formed already years ago.

In sum, as we showed in this paper it seems that there is not such a strong correlation between the presence of related industries and complementors in the local economy and firm performance as one might expect. There exists a significant relationship between the presence of related industries and complementors in the location and firm performance, but the relationship is quite weak. (Only for productivity related performances and no relation for the innovation dimension.) In short, it seems that the presence of related industries and complementors in the local economy have not much to do with firm superior performances or at least do not explain in a greater degree the differences in performances between companies.

Other important aspect that we should mention is that the cluster theory and results which we discussed in the literature review part and which we adopted for statistical testing are derived mostly from companies operating in other regional contexts such as Western Europe and/or United States local or regional economies. The companies investigated in the cited studies are in many cases global players and many of them are world leaders in their industries. The companies investigated by us in our study even though they are all medium and large size firms, reported superior performances but only in comparison with other companies in the same industry in Romania and in Central and Eastern Europe. Perhaps – as Porter (1998) also mentioned – the cluster aspects developed by us (and implemented for statistical testing) are associated with superior performances (productivity and innovation) but only in the advanced economies. We think that developing the regional aspects mentioned in this paper might help the companies to improve their performances and make a step forward in catching the industry leaders at the international level.

On the other hand, the empirical data in our study bring support to the company centric/focused strategies. According to our data, the superior performances depend on what happens inside the firm

and on what does the firm, including the development of its strategic alliances. We should keep in mind and do not get confused between the concepts of strategic alliances/networks (non-spatial) and clusters (spatial). The data in our study bring support to the involvement of companies in strategic alliances, strategic partnerships, and strategic networks, non-spatial developed. As mentioned above, since the companies in our study are all medium and large firms perhaps, they have developed already from years their strategic alliances – not necessarily spatially bounded – to access the necessary factors of production even if in the local economy they do not exist. At the same time, perhaps many companies prefer an acquisition of a local partner since many manufacturing companies in our sample have enough resources to do so. Or simply supply with factors of production where they exist without the absence of specialized factors of production in the local economy impeding them to overcome their competitors in their industry at the national and Central and Eastern European level. In addition, many companies in our sample are subsidiaries of powerful multinational companies. Perhaps, they have already developed international/global strategic alliances and networks from which they supply with their necessary factors of production and do not depend necessarily on their presence in the local economy (e.g. a subsidiary of a multinational company which operates as a factory in a location in Romania).

Finally, we conclude with presenting again the main findings: 1) the presence of related industries and complementors in the local economy has a weak but significant effect on superior productivity related performances (revenues, profits, labor productivity, customer satisfaction, organizational growth) and no effect on superior innovation related performances (new product development, products and processes/operations improvement, diversification, market expansion); 2) the access to specialized factors of production in the local economy has a weak but significant effect on superior productivity related performances; 3) the participation and development of close collaborations with local partners have a weak but significant effect on both superior productivity and innovation related performances; 4) close collaborations with local complementors (universities, financial institutions, and local authorities) have a stronger and significant effect in achieving both, superior productivity and innovation related performances; 5) close collaborations with universities and research institutes have a positive effect in achieving superior innovation related performances, while close collaborations with financial institutions have a positive effect on achieving superior productivity related performances.

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APPENDIX. VARIABLES AND ITEMS

A. GENERAL LEVEL ANALYSIS

Presence of related industries and complementors in the local economy (CLUSTER) (CL1 + CL2 +...+CL10)

- CL1. In the local economy there are suppliers/complementors which provide us with specialized factors of production.
 CL2. We supply with factors of production from competitive local suppliers (time, quality).
 CL3. Our local suppliers/complementors continuously update and improve the factors of production according to our industry needs.
 CL4. We acquire from the local economy specialized factors of production for our industry.
 CL5. We have developed close collaborations with our local suppliers/complementors of factors of production.
 CL6. We prefer to contribute to the development of local suppliers rather than working only with suppliers from outside our region/country.
 CL7. We have developed close collaborations with local universities and/or research institutions to obtain the necessary resources for our industry development.
 CL8. We have developed close collaborations with local financial institutions to obtain the necessary resources for our industry development.
 CL9. We have developed close collaborations with local authorities for our industry development.
 CL10. We have developed close collaboration also with some of our competitors for our industry development.

Productivity Related Performances (PRP_RO; PRP_UE) - in comparison to other companies in the same industry in Romania and in Central and Eastern Europe (PRP_RO_1 + PRP_RO_2 + ... + PRP_RO_6)

- | | |
|------------------------------|---|
| PRP_RO_1. Revenues | PRP_RO_4. Median salary in organization |
| PRP_RO_2. Profits | PRP_RO_5. Employees growth |
| PRP_RO_3. Labor Productivity | PRP_RO_6. Customer satisfaction |

Innovation Related Performances (IRP_RO; IRP_UE) - in comparison to other companies in the same industry in Romania and in Central and Eastern Europe (IRP_RO_1 + IRP_RO_2 + ... + IRP_RO6)

- | | |
|--|--|
| IRP_RO_1. Processes and operations improvement | IRP_RO_4. Entering new domains of activity |
| IRP_RO_2. Product improvement | IRP_RO_5. Local or regional expansion |
| IRP_RO_3. Introduction of new products | IRP_RO_6. International expansion |

B. DETAILED LEVEL ANALYSIS

Access to specialized factors of production in the local economy (ACCESS)

CL1 + CL2 + CL3 + CL4

Close collaboration with local partners (COLLABORATION)

CL5 + CL7 + CL8 + CL9 + CL10

Commitment in the local economy in a creating shared value paradigm (CSV)

CL6

Firm Traditional Performance (FTP)

PRP_RO_1 + PRP_RO_3 + PRP_RO_6

Profits (Pr)

PRP_RO_2

Productivity (W_L)

PRP_RO_3

Organizational Growth (ORG GROW)

PRP_RO_4 + PRP_RO_5

Pure Innovation (INNOVATION)

IRP_RO_1 + IRP_RO_2 + IRP_RO_3

Diversification (DIVERSIFICATION)

IRP_RO_4

Expansion (EXPANSION)

IRP_RO_5 + IRP_RO_6