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LIMITATIONS OF INDUSTRIAL CLUSTERING IN DEVELOPING COUNTRIES: A LITERATURE REVIEW

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Abstract

In recent decades, industrial clusters have gained popularity as a vital economic development strategy to boost competitiveness, innovation and growth in a globalized economy for advanced and developing countries. However, the socio-economic impacts of clustering in developing countries are generally below expectations. Therefore, the question that can be asked is *"why industrial clustering does not bring the same results to all developing countries as in advanced countries?"*. We have identified six features that limit the contribution of clusters to the development and competitiveness of developing countries, namely: the dominance of SMEs, specialization in low value-added activities, inadequate macroeconomic environment, strong external dependence, lack of social responsibility and the decreasing role of the socio-cultural environment. These factors show that the contextual differences between the two groups of countries are not inconsequential with regard to the clustering experience and that policy makers in developing countries need to redouble their efforts to improve the business context and provide the existing clusters with the necessary conditions of success.

Keywords: Clustering, Clusters, Industrial Districts, Developing Countries.

Introduction

Since the end of the Second World War, development gaps divide the World into two groups of heterogeneous countries. On the one hand, there are advanced countries marked by accelerated economic development, high standards of living, technological progress, satisfaction of human basic needs and a favourable business environment. On the other side, we find developing countries immersed in corruption, misery, famine, wars and economic fragility. Theoretically, the study of the origins of these discrepancies and the conditions of the catch-up has been the subject of development theories. Practically, many programs and recommendations were issued by international organizations (e.g. IMF, WB, WTO etc.) to reduce the disparities in terms of industrialization of the economy, employment, income and living standards between the two blocks of countries. The failure of the first programs imposed by the international institutions, on the one hand, and the success of clusters and industrial districts in Europe and North America, on the other hand, served as justification to redirect the efforts towards the industrialization of DCs by the networking of actors (Altenburg & Meyer-Stamer, 1999) through the promotion and dissemination of the clustering philosophy (McCormick, 1998) which breaks up with "*the conception of firms operating in isolation*" (Oyelaran-Oyeyinka & Lal, 2006, p. 259).In this context, the UNIDO launched numerous networking initiatives for SMEs and other actors (research institutions, etc.) in developing countries (Ceglie & Dini, 1999; UNIDO, 2013). The UNIDO's support and incentives to private and public actors to work together led to the creation of many territorialized networks in many countries, including Jamaica, Nicaragua, Honduras, Mexico, Morocco, Algeria, Madagascar, etc. This effort had a positive impact on the performance of the companies involved in these networks. For example, the Honduran Emasim metallurgical network, made up of 11 companies, led to an increase in the

sales (+ 200%), the total number of employees (+ 15%) and the fixed assets after their networking (+ 98%) of the clustered companies (Ceglie & Dini, 1999).

Also, the USAID contributes significantly to the dissemination of clustering initiatives in DCs. The US program implemented 26 clustering projects through 2003 with a total investment of $ 60 million (Wares & Hadley, 2008). The first project was funded in Lebanon in 1998. Since then, a growing number of countries were supported by USAID.Despite the fact that the theoretical bases and objectives of the clustering approach are the same in both advanced countries and DCs, the results, however, are not the same. In fact, the socio-impacts of clustering in the DCs are, in general, below the expectations. This suggests that the difference between the two contexts will not be without impact on the clustering experience and its socio-economic impacts. Therefore our goal is to highlight the main characteristics and limitations of clusters in DCs. To do this, the present work is based on a review of the theoretical and empirical works dealing with the question of clusters and focused on the special case of DCs. The present paper is divided into two sections. The first section gives a brief overview of the theoretical bases, evolution and advantages of clustering. Thereafter, the second section discusses the state of clustering in DCs with an emphasizing on its characteristics and limitations.

1. Theoretical foundations of industrial clustering

For more than fifty years, questions about the causes of territorial growth and development inequalities found their privileged place in economic research through the branch of the regional and urban economics. In addition to the interest of economists, these questions have attracted the attention of geographers, sociologists, politicians and other researchers from various disciplines. This great enthusiasm for territorial issues reflects the awareness of the impact of space on the improvement or deterioration of economic conditions in terms of growth, development, employment, innovation, productivity, business performance, etc.The influence of the territory on the activity of companies was first highlighted by Marshall (1890) in his "Principles of Economics" in 1890 through the concept of "industrial districts". In seeking to explain the causes of economic flourishing of some English cities, Marshall concludes that geographical proximity of companies producing the same product or located at different stages of the production process of the final product leads to "Industrial atmosphere" conducive to division of labor, specialization, innovation, cost savings and increased business performance. The industrial atmosphere refers in Marshallian language to the three external economies produced by co-location on the same geographical area, that is, in an industrial district, namely:

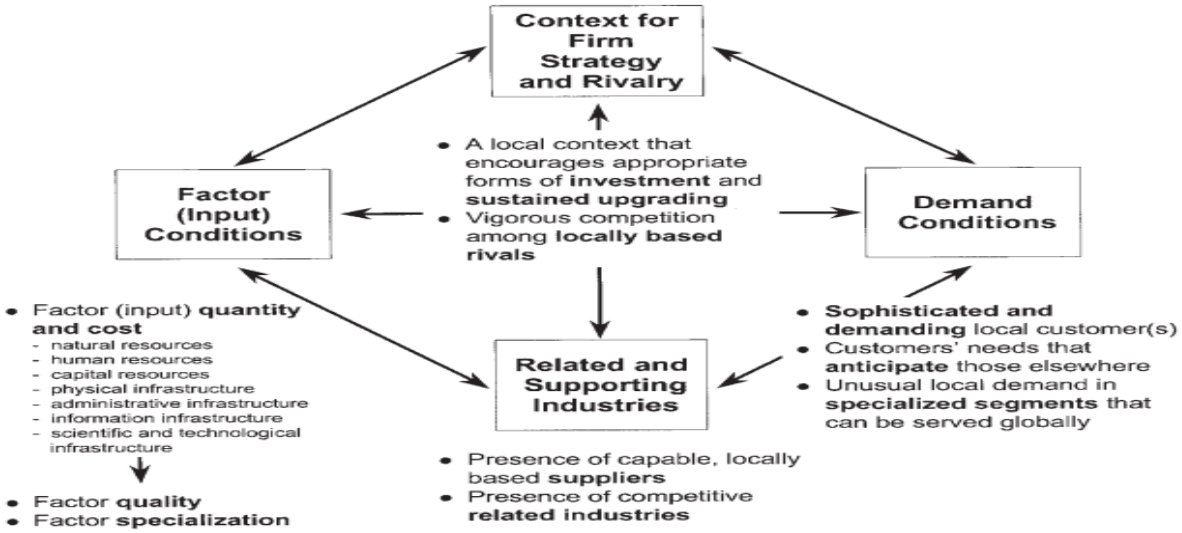
- Access to a skilled labor pool;
- Access to specific resources and inputs;
- Knowledge and technology spillovers between companies.

After almost half a century, the industrial district concept comes back with the great success of the Italian industrial districts (like the Emilia Romagna district) thanks to their flexible specialization (Piore & Sabel, 1984). They led to the revival of the "Third Italy", which includes the central and northern regions of Italy, which lagged behind in terms of economic development compared to the rest of the Italian regions, especially those in the south. Besides geographical proximity of thousands of SMEs located next to each other, the sharing of a common culture and standards was of crucial importance in this economic and territorial success (Brusco, 1982). It is for this reason that Italian economists apprehend the industrial district as a socio-economic entity (Becattini, 1990).In the 1990s, Porter, deeply fascinated by the success story of Silicon Valley, introduced in his book "The Competitive Advantage of Nations" the concept of industrial cluster that he defined as a "*geographical concentration of companies and interconnected institutions in a particular field and linked by common elements and complementarities*" (Porter, 2000, p.15-16). In other words, a cluster is a set of companies belonging to the same geographical area and to

the same field of activity which benefit from the agglomeration economies resulting from their co-location, their coopetition and their proximity to other companies located upstream and downstream of the value chain (suppliers and customers), research centers (public and private laboratories, universities, etc.) and many other institutions (banks, professional associations, chambers of commerce and 'industry…). As a result, the concept of a cluster is much broader than that of the industrial district both at the level of the actors that make it up and the possibilities of interactions allowed between these actors (Porter & Ketels, 2009). That said, the two concepts are sometimes used interchangeably to the extent that the goals of both are ultimately the same.

The fierce competition within the cluster does not exclude intense cooperation between the various actors through the exchange of information and the implementation of collaborative projects at all levels such as research, marketing, etc. (Huggins & Izushi, 2015). Also, the competitiveness of the cluster requires a high sophistication and a strong interaction between all the factors that constitute its immediate environment. The context within which a cluster operates is represented by the "Porter's Diamond" (Porter & Ketels, 2009) as shown in Figure 1 below.

Figure 1: Porter's Diamond



Source: Porter (2000, p. 20).

Clusters represent a source of many benefits for the companies that make it up and for the territories that shelter them. This implies that clustering is the most used means of economic development today (Ketels, 2006). To account for the positive benefits and externalities arising from clustering, Schmitz and Nadvi (1999) introduced the concept of "collective efficiency" which is divided into two categories (Caniëls & Romijn, 2003): - *Passive collective efficiency*: It refers to accidental advantages that can be explained by the simple geographical concentration of economic actors. In other words, it is spontaneous Marshallian external economies: access to abundant labor, reduced research costs, proximity to suppliers etc.

- *Active collective efficiency*: It refers to those benefits that result from a planned joint action of the actors and take the form of voluntary transfers of technologies through the implementation of innovative collaborative projects. This type of benefit reduces transaction costs and information asymmetry, builds trust, and eliminates opportunistic behavior.In fact, clusters offer significant productivity gains, an accelerated rate of innovation and a high level of entrepreneurship through the creation of new businesses (Porter, 2000), which has a positive impact on the labor market and income levels (Porter, 2003). Clustering is also a factor to attract the FDI (Yehoue, 2009), a tool for confronting intensified international

competition and adapting to the exigencies of the knowledge-based economy and a means of combating poverty (Fowler & Kleit, 2014). All the above advantages of industrial clustering are empirically verified for advanced countries that serve as models. But, what about clusters in DCs? To what extent do they offer the same benefits? And what are the obstacles they face?

2. State of clustering in DCs: Achievements and limitations

Although clustering started in advanced countries, particularly in Italy and the United States, its impact on economic growth, innovation, productivity, employment, entrepreneurship and exports have not left the DCs indifferent to this effective instrument of industrialization and development (Humphrey, 1995). Thus, a trend towards spatial agglomeration of activities in DCs has been observed since the beginning of the 1990s (Schmitz & Nadvi, 1999; Deichmann et al., 2008) so that Rabellotti (1997, p. 44) asserts that "*sectoral specialization and geographical concentration of small and medium-scale enterprises are rather common phenomena in developing countries*".

2.1. Development and clustering in DCs: some achievements

The early adoption of the clustering policy justifies the transition of some DCs, especially the Asian NICs, to the stage of emerging economies (Yang & Planque, 2010) with strong industrial potential (Rabellotti & Schmitz, 1999) and with a strong impact on international trade. Otsuka and Sonobe (2006, p.72) note that "*The successful imitation and assimilation of foreign technologies, the formation of geographically dense industrial clusters, and the advent of multifaceted innovations"* made the Asian emergent countries a model for the rest of DCs in terms of cluster-based industrial development. In fact, the Taiwanese clustering experience is by far the most successful. Hsu et al. (2014) reported this experience, based on Special Economic Zones (SEZ) creation, begun in 1966. As a result of its success, this policy brought Taiwan the first place in the "state of cluster development" index compiled by the Global Competitiveness Report for three consecutive years (2007, 2008 and 2009). Until 2012, there were about 536 enterprises in these Taiwanese clusters with an output of NTD 400 billion (about $ 13.5 billion). When we divide this output by the dedicated land surface, we are about an output of NTD 3.2 billion (about $ 0.1 billion) per hectare. The authors add that the Chinese policy makers have replicated this model of clustering and created their own SEZs to strengthen the competitiveness of their companies and regions.

Table 1: Examples of clusters in developing countries

Cluster	Country	Activities	Key indicators
Bangalore Cluster	India	Information technologies (Call centers, software design and computer maintenance)	- More than 1000 companies - Presence of international brands (HP, IBM, etc.) - More than 80,000 jobs in 500,000 ICT jobs in India
Sialkot Cluster	Pakistan	Production of surgical instruments	- More than 1720 companies - Production of more than 10,000 types of surgical instruments - Responsible for 20% of world exports in this area (almost $ 124 million) between 2000-2001
Guadalajara Electronics Cluster	Mexico	Production of computer products (computers, printers, storage tools, CDs, robotics, etc.).	- $ 16.1 billion in exports in 2008 - Over 78,000 jobs with an average annual growth rate of job creation of 10.4% between 2004-2008 - A major investment effort driven by major international brands such as IBM, HP, Intel and Siemens
Sinos Valley	Brazil	Footwear Manufacturing	- Presence of more than 693 companies in 2000-2001 - Supply of 101,533 direct and indirect jobs in

			2000-2001 - Export of 136 million pairs of shoes for the same period
Kamukunji Metalwork cluster	Kenya	Production of metal objects (kitchen utensils, trolleys, wheelbarrows, agricultural tools ...).	- Presence of more than 2,000 companies - Over 5,000 jobs - But, a high turn-over rate
Suame Manufacturing Cluster ***« Suame Magazine »***	Ghana	Repair of cars, supply of spare parts and manufacture of metal products	- Presence of more than 12,000 companies - Over 100,000 jobs in 2005 - Exporting services to neighboring countries (such as Ivory Coast, Mali and Togo)

Thus, the improvement recorded in the poverty indices and income growth in DCs in recent years is due, in part, to the emerging Asian economies (Klasen & Waibel, 2015). As a result, clustering is emerging as a strategic option for DCs in order to respond to the imperatives of globalization (Sengenberger, 2009; Phambuka-Nsimbi, 2008), to fight against poverty, precariousness and social exclusion (Chaudhry, 2005) and to address market failures and imperfections through the elimination of opportunistic behaviors and information asymmetry (Sonobe & al., 2012) and to enable efficient allocation of resources (Otsuka & Sonobe, 2006). That said, clusters within DCs do not lend to a homogeneous category (McCormick, 1998) so that generalizations drawn from available case studies "*need to be treated carefully*" (Nadvi & Schmitz, 1994, p.8). In this respect, Altenburg and Meyer-Stamer (1999) provide a classification of clusters based on the case of Latin America. They distinguish between three types of clusters which are different with respect to many criteria as shown in Table 2.

Table 2: Classification of clusters in Latin America

Types	Survival clusters of micro- and small-scale enterprises	More advanced and differentiated mass producers	Clusters of transnational corporations
Enterprises	SMEs	From petty producers to large Fordist industries	TNCs
Quality of goods	Low quality	Medium	High
Market	Local	Domestic	National and international
Productivity level	Low	Medium	High
Interfirm cooperation	Fragile social fabric	Low	Low
Specialization	Low	Low	Low

Source: Adapted from Altenburg and Meyer-Stamer (1999)

Indeed, few clusters show exceptional performances and contribute to the development of their territories and the competitiveness of national economies (UNIDO, 2010, Öz, 2004) whereas the majority of clusters lack dynamism and competitiveness (Albaladejo, 2001; Sonobe & al., 2012). For the latter case, the available theoretical and empirical studies provide many explanations. Some of them highlight the firms' internal characteristics (Sonobe & al., 2012) while others accuse the environment in which firms operate (Humphrey, 1995; Albaladejo, 2001).

2.2. Limitations and challenges

The available empirical literature points out six characteristics that limit the contribution of clusters to the development and competitiveness of developing countries, namely: the dominance of SMEs, specialization in low value-added activities, inadequate macroeconomic environment, strong external dependence, lack of social responsibility and decreasing role of the socio-cultural environment.

2.2.1. Domination of SMEs

The Italian districts, based on SMEs that offer flexible specialization, have enabled this category of companies to be valued by making them a player in the development and competitiveness of national economies after having been slowly considered as marginal economic entities that serve as a point of passage to the larger size (Posthuma, 2009: 572). Today, SMEs typically account for more than 90% of the total number of firms and between 30-50% of total employment worldwide (Parrilli, 2007). The importance of these entities is even more crucial in the case of DCs (Altenburg & Meyer-Stamer, 1999; Oyelaran-Oyeyinka & Lal, 2006). So that, Posthuma (2009: 574) argues that "*The productive structure in developing countries is characterized by micro, small, medium and family-owned enterprises, frequently in territorial agglomerations, making IDs in the appropriate model*". That said, clustering mitigates the weaknesses and disadvantages associated with the small size of SMEs in terms of market access, lack of internal economies of scale, costs of seeking skills etc. Humphrey (1995) notes that small size is a necessary condition, but insufficient to trigger clustering dynamics by raising two main differences between SMEs in the context of advanced countries (through the example of the Italian districts) and DCs:

- In the Italian districts, SMEs have significant technical skills and a certain sophistication in terms of production that allow them to innovate and perform better, which is rarely the case for SMEs in DCs. In fact, SMEs in this last case lack managerial and technological skills which are necessary to response to competitive pressures (Oyelaran-Oyeyinka & Lal, 2006). Consequently, they are not competitive (Altenburg & Meyer-Stamer, 1999).

- The Italian districts, by their force, act on the external influences induced by the market whereas those of the DCs are subjected to the external factors and powers.

That said, it is possible to find a few large companies in the clusters in the DCs, which are in fact SMEs which, as a result of export, grew in size (Schmitz & Nadvi, 1999). The emergence of large firms within clusters reduces the links between the different cluster members as a result of vertical integration processes (Schmitz & Musyck, 1994) and the large technological gap between the two kinds of enterprises (Altenburg & Meyer-Stamer, 1999).

2.2.2. Specialization in low added value and labor intensive activities

The low standard of living in DCs implies a high demand for low quality products (Yang & Planque, 2010), whereas the low skills (in terms of technology) of human capital imply the specialization of clusters in low value-added productions (Altenburg & Meyer-Stamer, 1999; Otsuka & Sonobe, 2006; Sonobe & Otsuka, 2014) despite the various economic reforms launched since the early 1980s by most DCs (Sekkat, 2010). The clusters specialized in niches with high value added activities are rare (e.g. Guadalajara Electronics Cluster and Bangalore Cluster). Thus, according to Ketels et al. (2006), more than half of the clustering initiatives in DCs are for the agricultural sector and for basic labor-intensive manufacturing activities. It is not surprising then that the share of industrial AV in the GDP of DCs remains very low (excluding the NICs). Indeed, it has barely increased by a few points in recent years due to the Chinese rise in particular. It went from 19.45% in 1995 to 22.24% in 2006 (Sekkat, 2010). The effects of low industrialization are clearly apparent in the external balances of DCs and the standard of living of their citizens. For this last point, Deichmann et al. (2008) show that there is a positive correlation between the development of industrial activities and the growth of per capita income while stipulating the opposite effect for agricultural activities, that is to say, the larger the share of agriculture, the lower the per capita income. Admittedly, the supply of employment and income to a large portion of the population is a great merit of labor-intensive activities, but this merit does not offset the many disadvantages already mentioned as the UNIDO (2010, p. 3) notes: "*A considerable number of Clusters in developing countries lag behind and remain trapped in the vicious circle of fierce competition, which contributes to stagnation and local poverty. Although they represent important niches of activity and provide many workers with a*

livelihood, they are unable to lift them out of poverty and to orient their local communities towards innovation and growth".

The private research institutions in advanced countries play a crucial in high specialization and innovation of enterprises. The creation and spillover of new ideas from those entities helps companies to update their methods and to produce new products and services and therefore to sustain their competitiveness. Such private research is quasi-absent in DCs and the public research institutions like universities are not enough creative and are isolated from the economic activity. So that, "Informal apprenticeship" emerges as a mechanism of learning and improvement inside clusters especially in craft clusters (Altenburg and Meyer-Stamer, 1999)

2.2.3. Macroeconomic context

The macroeconomic environment in which the majority of clusters operate in DCs limits, by its insufficiencies, the full development of clusters and the exploitation of their potentialities in an efficient way. The deficit in basic infrastructures (roads, electricity network, telecommunication etc.) is a recurring problem. For example Kamukunji cluster in Kenya is a case that illustrates the near absence of infrastructure. Indeed, the overwhelming majority of workshops in the cluster have no access to the electricity grid. The failure of both national and local governance undermines the attractiveness of regions and localities in DCs. The proliferation of corruption, the weakness of the institutional fabric (government bodies, professional associations, trade unions, etc.), the lack of coordination between national, regional and local institutions, the centralization of decision-making power in economic matters partly and the access to inform problem justify the failure of some clustering initiatives and the poor performance of others and therefore contribute to the blocking of growth and development dynamics in the DCs (Chaudhry, 2011). In fact, "*institutional weaknesses raise transaction costs and thereby constrain firms from taking advantage of market opportunities while market failures limit access to markets and innovation possibilities*" (Oyelaran-Oyeyinka & Lal, 2006, p. 258).

Also, the switch to free trade without leaving time to national enterprises to adjust their managerial practices and their products quality made them suffering because of loss of their market shares taken by competitive products imported from advanced countries (Albaladejo, 2001). Thus, Altenburg & Meyer-Stamer (1999, p. 1697) concludes that *"tariff reductions are jeopardizing the survival of many firms and perhaps entire clusters".* Even though protectionist policy is not a solution to make enterprises more innovative and competitive, there is no doubt it helped clustering development in DCs. For example, the Suame cluster in Ghana boomed in the 1980s with the government's protectionist policy of banning the import of vehicles from abroad (Waldman-Brown, Obeng, & Adu-Gyamfi, 2013) and with the submission of all state-owned vehicles for repair (Adeya, 2008).That does not mean that DCs governments do not deploy any efforts to upgrade the competitiveness of their enterprises. In fact, every country has programs and institutions created in order to assist enterprises to ameliorate their competitiveness. But the efficiency of these instruments is under question because the public and institutional support provided for enterprises in DCs in forms of training, funding and R&D is accessed especially by large-scale enterprises rather than SMEs that need it more (Oyelaran-Oyeyinka & Lal, 2006).

2.2.4. ***Importance of external influences***

The great dependence of the majority of DCs in advanced economies is reflected in the case of their clusters which are externally attached at several levels (Anderson, Schwaag, Sörvik, & Hansson, 2004). This dependence, although that it is risky, it brings some advantages.

- **Financial support:** the public finances fragility of the majority of DCs and of their SMEs makes the emergence and development of clusters difficult without external financial support. Many national and international institutions and donors provide support for clustering initiatives in these countries as highlighted before.

- **Role of TNCs and FDI**: the survival of several clusters depends on the existence of foreign outsourcers, particularly in the fields of textiles and information technologies (Kishimoto, 2004). And it is because of this same outsourcing that these clusters are less oriented towards R & D than towards manufacturing and sometimes the simple assembly of the components of the products of theirs outsourcers without any innovations (Altenburg & Meyer-Stamer, 1999, Hisamatsu, 2008). As a result, it is the FDI that determines the value of investment in clusters while being an important source of technology transfer and know-how as stressed by (De Beule, Van Den Bulcke and Zhang (2008, 220): "*TNCs can assist developing countries through the provision of capital, through the inflow of technology, through trade and linkages, through the inflow and upgrade of human resources and, finally, through their impact on the creation of efficient markets. All these effects derive essentially from the fact that TNCs provide resources that would not be otherwise available or even lacking in countries* ".

- **Foreign markets:** A decreasing number of clusters produce exclusively for the domestic market. This can be explained on the one hand by the narrowness of domestic markets to absorb the large production of clusters and on the other hand by the phenomenon of outsourcing just mentioned above. The share of exported production exceeds in some clusters more than 2/3. Cost-based competitiveness contributes enormously to this dynamic (Yang & Planque, 2010).

- **International experience:** Some clusters benefit from the experiences of former employees in large international companies returning to their home countries to start their own businesses (Otsuka & Sonobe, 2006; Kishimoto, 2004). This spin-off process allows the transfer of technical and managerial knowledge to clusters in DCs (Yang & Planque, 2010).

2.2.5. Lack of social responsibility

In general, clusters in DCs have very high employment levels (Chaudhry, 2005), as shown by the examples already mentioned. This is explained by the existence of an abundant but unskilled workforce. For example, Adeya (2008) notes that more than 2/3 of the employees in the Suame cluster in Ghana had not gone beyond primary school. This situation allows clusters in DCs to base their competitiveness before all on low production costs; especially low wages (Schmitz & Musyck, 1994) in order to be competitive in exports (Schmitz, 1999). In fact, while the average hourly wage reaches, for example, $ 17 / hour in Italy and $ 22 / hour in Germany, it is only between $ 0.5 and $ 0.6 / hour in DCs such as China, Indonesia, Pakistan and India (Öz, 2004).

Aside from wages, working conditions in clusters in DCs are too degraded compared to what happens in European or American clusters (Posthuma, 2009). The deterioration of social conditions (quality of work, increase of wages, training of the workforce, employment of children, job insecurity, absence of trade unions, etc.) and environmental factors characterizing clusters in DCs mitigates the potential contribution mitigate their contribution to sustainable economic development. In this context, Waldman-Brown et al. (2013, p.3), for example, highlight the absence of any safety measure in the Suame Magazine and the multiplicity of burn accidents and respiratory poisoning of employees: "*Many artisans unwittingly burn*

their trash in the vicinity of flammable substances; From January to May of 2012, the Suame Fire Department reported four fires in the industrial cluster. Additional hazards to craftsmen include the inhalation of toxic fumes while spray-painting vehicles without proper masks, and the lack of eye-protection during welding". The critical situation of social conditions in clusters requires public intervention (labor regulation, fiscal policy, etc.) (Pyke & Lund-Thomsen, 2016) to stimulate corporate social responsibility and reconcile the lucrative objectives of clusters with the requirements of sustainable development so that Puppim Oliveira (2008, 15) stresses that "*The role of public policy is to support initiatives that look for long-term sustainable development*".

Socio-cultural environment

The socio-cultural environment is one of the leading forces of industrial clustering success especially in Europe. It refers the common norms, values, behaviors and culture rooted in history, shared by the "*community of people*" belonging to the cluster and that encourage trust, cooperation and sharing of knowledge and information. Fortunately, the socio-cultural aspect is, in general, a good feature of clusters in DCs (Rabellotti, 1997) as reported by many empirical cases studies. For example, Tavara's (1993) study showed that the dynamism of the Peruvian shoe district of El Provenir was facilitated by the cooperative arrangements and trust prevailing between grouped producers. On his side, Kinyanjui (2008) highlighted the crucial role of producer-shared mutual trust within Kamukunji Metalwork Kenya because it facilitates knowledge spillovers and accelerates learning processes.

But this socio-cultural environment is changing over time so that social ties can be weakened. Consequently, the concern then is not anymore how these social networks can facilitate the clustering success but how they can "*survive as the cluster's economic structure changes*" (Nadvi & Schmitz, 1994, p.93). In this direction, Wilson (1992, p. 63) studied knitwear clusters in Mexican rural towns and found that social networks and trusty relationships which served as engine for collective efficiency of these clusters in the early years receded because of growing differentiation that led clustered workshops to "*a breakdown of collective interests and their possibilities of working together for mutual benefit*". Meyer-Stamer (1998, p. 1495) explained the emergence of "*noncooperative business culture*" in the industrial clusters of the Brazilian state of Santa Catarina by the excessive vertical integration process that allow enterprises to internalize as much as possible of activities. Altenburg & Meyer-Stamer (1999, p. 1697) reported "*a lack of trust between entrepreneurs and the low willingness to cooperate resulting from it*" because of fierce competition between enterprises due to excess of supply. McCormick (1998) studied Nairobi Garment clusters and found weak firm linkages that are explained by lack of trust and string level of imitation among competitors. Schmitz (2000) studied the cooperation level and mechanism of four clusters in four different countries and conclude that "*co-operation tends to be selective*" which means that not all clustered enterprises are willing to cooperate with others.

Conclusion

The great success of Third Italy and Silicon Valley has resulted in a great craze for clustering which has become the tool par excellence of industrialization and competitiveness. The collective action that it induces yields companies more than it costs them in terms of synergies and externalities. The logic on which it is based marks the transition from a traditional industrial policy focused on the targeting of a few key sectors towards a policy aimed at promoting all sectors that offer a critical mass of companies that are more or less geographically concentrated. Also, the logic of regional planning based on the principle of territorial equity is sacrificed in favor of the logic of clustering based on efficiency and territorial competitiveness.In DCs and despite the spread of the cluster approach, the benefits and opportunities of clustering are not exploited properly. The persistence of multiple shortcomings such as lack of governance, weak institutions, restricted entrepreneurial culture, narrow funding channels, non-compliance with labor laws, specialization in low value-added products etc. reduce the utility and

contribution of clusters. For this, the public authorities in DCs are called upon to increase efforts aimed at triggering and monitoring clustering initiatives through the correction of these deficiencies, the provision of financial and fiscal incentives, the creation of research centers, the establishment of introduction of training programs to meet the needs of companies, the reinforcement of infrastructures, stimulation of a greater connection of local clusters vis-à-vis international clusters and the provision of support for research institutions.

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