Abstract

This paper analyses the evolution of the concept of industrial clusters and its impact on development of entrepreneurship in micro small and medium enterprises sector, a cog in economic development of a nation, through mushrooming the literature of related studies. Clusters are the outcome of the economies of agglomerations. Clusters provide benefits such as easy access to market and skilled labour, knowledge spill overs, flexible specialisation, and reduction of transaction cost which one can exploit to be an entrepreneur. A wide variety of definition and methodological approaches for identifying clusters are proposed by relevant literature on industrial clusters. This paper will stress upon primarily to highlight the analysis of past and present approaches of industrial cluster concept and then it tries to make relationship between clusters and entrepreneurship based on available literature. This paper is to be organised into four sections. Section I is introductory in nature, section II outlines the evolution of industrial clusters concept, the impact of clusters on entrepreneurship will be highlighted in the section III and section IV will remain for making conclusions.
Section I

1.1 Introduction

Now-a-days industrial cluster has emerged as a strategic mechanism for the promotion of entrepreneurship development in MSMEs in worldwide. There is evidence that MSMEs have been contributing significantly to the economy worldwide but this sector has been facing challenges to make itself a globally competitive. Cluster approach has the capacity in creation of favourable framework conditions of economic activity to the MSMEs towards improving their performances and competitiveness. The difficulties faced by most of the SMEs such as lack of finance, technology, market due to their small size and isolation can be minimized through the benefits of geographical proximity, which cluster provides by opening up the door of collective efficiency. In the word of Porter, clusters makes an influence on competition by increasing local productivity, by driving the pace and direction of innovation and by stimulating the formation of businesses. These benefits may attract new one to make entry in the businesses as an entrepreneur in one side and one can use these benefits for up scaling their small units and combat the challenges of the globalised economy in other side. 

Clusters are the outcome of the economies of agglomeration. Clustering is a process of strengthening regional competitiveness and innovation within the business of MSMEs by which it promotes socio-economic development within the region as an alternative developmental economic instrument to the micro, small, and medium entrepreneurs. There is evidence that the benefits of industrial clusters attracted most of the researchers, academicians, etc to make research into clustering not only in developed countries but in developing countries too. The inspiration to research into clustering in developing countries is made from the success stories of the industrial districts / clusters in developed countries. In the word of Porter, clusters dominate the today’s economic map of the world. He opined that clusters are striking features of virtually every national, state, even, metropolitan economy. Enright (2001) opined that industrial district and clusters are widespread in many different countries and industries. The examples of globally recognised clusters are film industry in Hollywood in USA and Bollywood in Mumbai, Wine industry in California, information technology in Silicon Valley, Boston and Bangalore, ceramic tile and footwear industries in Italy, automobiles and engineering industries in southern Germany etc. One will find positive impact of clusters in fostering entrepreneurship which was observed in the study made by various academicians namely; Rocha and Sternberg (2005), Delgado, Porter and Stern(2010) etc.

1.2 Objectives of the Study

Recognising the importance of clusters in promotion of economic development of a region by stimulating the entrepreneurial activities, the objectives of this paper is to analyse the evolution of the concept of clusters in worldwide and the role of clusters in development of entrepreneurship in micro small and medium enterprises sector through mushrooming the available literature of related contemporary studies and researches.

1.3 Methodology

This paper is a literature review in nature, mainly based on the contribution of the different economists, academicians, geographers in the relevant field. This paper is designed in consultation
with the published articles, theories, books and journals. Contribution of different academicians, economists and their valuable opinion in this regard are taken into consideration. Based on the available literature of related studies this paper is organised in four sections. Section I which is already discussed as introductory in nature. The section II outlines the evolution of industrial clusters concept. In the section III stress will be made to highlight the impact of clusters on entrepreneurship and section IV will remain for making conclusions.

Section II

2.1: Evolution of Cluster Concept

The origin of industrial cluster concept has evolved from the idea of the classical and neoclassical theory of different economists, geographers; namely, Location Theory of Johann Henrich Von Thunen (1826), Agglomeration Theory, Marshall’s Industrial District Theory, Industrial Complex Theory of Alfred Weber(1909), and the significant contribution of Michael Porter relating to industrial cluster theory in his world famous book ‘The Competitive Advantage of Nations’ in 1990 is considered renaissance in shaping the today’s industrial cluster theory. The studies of the classical economists in the period of nineteenth century in regard to the spatial economics and the localization of industries paved the way for the concept of industrial clusters.

2.2: Location theory

An integral part of spatial economics is concerned with the geographic location of economic activity which mainly focused on where and why specific economic activities are located. It is based on the argument of optimum location of industry/firm for achieving the maximisation of profit. Modern Location economies began with Johann Henrich Von Thunen, a German Economist who developed first the spatial economy, representing the theoretical step in studying of the spatial aspects from economy in his work ‘The Isolated State’ in 1826. Von Thunen in his conceptual model stressed upon three factors such as the production, markets and transportation cost. In the era of globalization, these factors still act as powerful factors for the location of global production.

General theory of industrial location developed by Alfred Weber, a German economist, in 1909 in his book entitled “Theory of the location of Industries” taking into account the several spatial factors for finding the optimal location and minimal cost for manufacturing plants. According to him transport cost differential, labour cost differential and agglomeration economies and diseconomies are the three fundamental location forces. Weber’s Least Cost theory emphasized that industry choose the place for location where it can maximise its earning as profit by minimising its costs.

Marshall in his famous book “Principles of Economics” first referred the concept of ‘Industrial District’ which was based on the importance of external economies, for understanding the development of agglomerated clusters of small and medium sizes firms. The two dominant features of Marshallian’s industrial district are high degrees of vertical and horizontal specialization and heavily dependence on market mechanism for exchange. The concentration of Small and medium firms, specialising in different stages of the same production process, in the same locality, for enjoying the same economies of scale that only large companies normally get, is called an ‘Industrial District’. The benefit of external economies which is emerged from the close proximity of actors, in the process of economic activity was the main focal point of Marshallian’s concept. His concept suggests that all firms and businesses belong to the same industry sector and proximity of firms in the same industry increases the innovation abilities of that locality. The result of which is that every
one of that industrial district involved benefits from spill over of specialised knowledge. Such localisation economies which are external to the firm are internal to the industry, being a function of the scale of the industry at the localization.

The external economies which foster special cluster formation according to Marshall are three types: (i) economies resulting from access to a common labour market and shared public goods, such as infrastructure, (ii) economies from saved transportation and transaction costs (iii) economies from spill over. That is why Marshall opined in his book ‘Principles of Economics' (Book 4, chapter x) that “When an industry has thus chosen a locality for itself, it is likely to stay there long; so great are the advantages which people following the same skilled trade get from near neighbourhood to one another. The mysteries of the trade become no mysteries, but are as it were in the air”. Marshall viewed that various causes led to the localisation of industries, among these, the physical conditions such as climate and availability of raw materials is considered as chief cause of localisation.

Marshall’s concept of industrial district is pioneer one, on the basis of which various cluster theories were reframed and highlighted the different roles and functions of industrial clusters. The economic conditions that foster the development of industrial district in Great Britain recurred in roughly in the same manner in Italy in the period of 1954-1975. Marshallian concepts have been followed to explain the success of small firms in the Italy which were described as Marshallian industrial district. Becattini (1989; 1991) argued that industrial district could be regarded as a “Creative milieu”.

However Becattini (1990b, p38) viewed that mere agglomeration of firms is not enough for denoting an industrial district but other conditions such as attitudes and values of local population are also important in determination of positive performance. His view highlighted that industrial districts are socio-economic systems joining together a community of people with common values, culture and economy (market). The social relations between clusters member was not considered in Marshall’s model as per observation of Becattini (2001) and Sforzi (2002). According to them social relations among community members played important role in the success of clusters in the rural areas of Italy, the Emilia-Romagna region.

The theorist of Industrial Complex Analysis explains the emergence of large assembly of industrial plants and related industries and their installation in certain locales in countries around the world. Walter Israd (1956) developed the theory of Industrial Complex Analysis to make a systematic and comprehensive attempt at a general theory of location where he opined that the determinants of production activities are the successive influences of scale economies, localisation economies, and urbanization economies. According to him localisation economies obtain when plants of similar or related character (generally within a given industry) come together on a particular location. Such economies stem from the exploitation of a common resource pool, joint utilization of specialised facilities and infrastructure. In the word of Israd Industrial Complex is “a set of activities occurring at a given location and belonging to a group (sub-system) of activities which are subject to improve of production (technological), marketing or other inter-relations”. Locational inter-dependence is the glue that binds the complex together as per opinion of Israd.

Marshall’s concept was also reinterpreted by recent economic geographers (Krugman’1991a, b; Fujita et al., 1999 and Thisse, 2002). The source of industry agglomeration according to Krugman (1991b) is demand linkages among firms. Porter’s (1990) theory of industrial cluster concept today is widely accepted worldwide. He introduced the concept of cluster in his book “The Competitive Advantage of Nation” where he showed how cluster not only reduce transaction cost and boost efficiency but improve incentives and create collective assets in the form of information, specialised
institutions and reputation among others. He used the Diamond shaped diagram which is based on four main pillars namely; factors conditions, demand conditions, related and supporting industries; firm strategy structure and rivalry, as the determinants of national advantage. The root of cluster concept lies with the agglomeration theory which has appeared from the study of concerned literatures. There is no unanimously accepted definition of industrial clusters but one will find that different scholars and practitioners have conceptualised clusters differently from the definitional point of view. Industrial cluster concept divided conceptually in three categories (Chen, 2005).

Table 2.2.1: Industrial cluster concept divided conceptually in three categories

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<th>Category I</th>
<th>Category II</th>
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<td>Industrial cluster based on the theoretical principles of localization economies.</td>
<td>Industrial cluster definitions derived mainly based on inter-industry relationships found in input-output tables</td>
<td>Industrial cluster concepts which encompass the widest spectrum of arguments explaining why establishments group in geographic proximity, including economies of localization and urbanization, internal return to scale, value chain linkage, and technology innovation among others</td>
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According to Rosenfeld, (1997) “A cluster is concentrations of firms that are able to produce synergy because of their geographical proximity and interdependence, even though their scale of employment may not be pronounced or prominent.” Swann and Prevezer (1996) defined cluster as “groups of firms within one industry based in one geographic area”. Morosini (2004) defined cluster as “socioeconomic entity characterised by a social community of people and a population of economic agents localised in close proximity in a specific geographic region”. Hill and Brennan (2000) noted industrial cluster as “concentration of competitive firms or establishments in the same industry.” Brenner (2004) defined a local industrial cluster as “an industrial agglomeration that caused by local self augmenting processes”.

According to Feser (1998) Economic clusters are not just related and supporting industries, but rather related and supporting institutions that are more competitive by virtue of their relationships. Cooke and Huggins (2002) opined that clusters are geographically proximate firms in vertical and horizontal relationships, involving a localised enterprise support infrastructure with shared developmental vision for business growth, based on competition and cooperation in a specific market field. Roelandt and den Hertag (1999) Clusters can be characterised “as network of producers of strongly interdependent firms (including specialised suppliers), linked each other in a value adding
production chain”. Member firms of an industrial cluster locate in close proximity to each other is called a regional cluster (Enright). According to Krugman (1991) clusters are not seen as fixed flows of goods and services, but rather as dynamic arrangements based on knowledge creation, increasing returns and innovation in abroad sense. Krugman (1991) opined clusters as co-location of firms due to increasing return to scale, lower costs of moving goods across space, etc. Porter (1998) defined cluster as “Geographic concentration of interconnected companies and institutions in the particular field”. He redefined the cluster concept in the year 2000 “as a geographically proximity group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities and defining it boundaries that can range from a single city or state to a country or even a group of neighbouring countries”.

The analyses of Krugman and Porter’s add to the economic relations and flows of goods the process of innovations that takes place inside the cluster through the transfer of information, know-how and experience.

UNIDO defines Clusters as concentration of Micro, small and medium enterprises on a given geographical location that produce same or similar type of products or services and face common opportunities and threats.

Government of India has introduced the cluster development programme by accepting the recommendation of Abid Hussain committee in 1997 for support to small and medium enterprises. Clusters according to the clusters related schemes adopted by MSME Govt. of India.

i) Micro and Small enterprises – Cluster Development Programme (MSE-CDP):- a cluster is a group of enterprises located within an identifiable and as far as practicable contiguous area and producing same/similar products/services.

ii) Scheme of Fund for Regeneration of Traditional Industries (SFURTI): “Traditional Industry Cluster” in the context of SFURTI refers to a geographical concentration of around 500 beneficiary families of artisans / micro enterprises, suppliers of raw materials, traders, service providers, etc. located within one or two revenue sub-divisions in one or more contiguous District(s).

iii) Babasaheb Ambedkar Hasta Shilpa Yojana (AHVY):- Agglomerations are having 100 artisans. The cluster has been defined as an area which has a minimum of 25 families practicing handicrafts as a major source of economic activity.

It is highlighted from the above discussions that there is a debate among the academician in the definitional point of view of industrial clusters but the root of industrial clusters lies with the agglomeration theory. The essence of industrial clusters is to provide economic advantages is the common phenomenon of every definition.

Section III

3. Clusters And Entrepreneurship Development

Before making relationship between clusters and entrepreneurship it is necessary to understand about the entrepreneurship. One will find vast body of literature on entrepreneurship focusing on the view point of different discipline contributed by the experts of different fields namely, economics (for example Kirzner,1973, Schumpeter,1934), Management (for example Drucker,1985,), Social science (for example Swedbegr,1993) Anthropology (for example Fraser,1937) etc and as such there lies ambiguity in the definitional point of view of entrepreneurship but from the starting of civilisation entrepreneurs have been acting through the system of barter and exchange. The word ‘entrepreneur’
derived from the French word ‘entreprendre’ the meaning of which is ‘to undertake’ was acknowledged at first by Richard Cantillon in eighteenth century, as a key economic factor who, bearing risk and uncertainty, equilibrates supply and demand in the economy. ‘Innovation’ is the hallmark of entrepreneurship according to Schumpeter. Innovation occurs when entrepreneur introduces a new product, new production method, opens up a new market, finds out new source of supply of raw materials, introduces new organization in any industry and that is why entrepreneurship in the eye of Schumpeter is a ‘force of creative destruction’. Drucker (1985) opined in the similar line viewing that ‘entrepreneurship is an act of innovation’. Entrepreneurs continuously seek opportunities to minimise costs (Marshall, 1964). This opportunity recognition is also viewed by Kirzner (1985). It is also viewed that entrepreneurs are the agents who act for value creation (Jean Baptiste Say,1815,1996) and venture creation (Smith, 1967) and Gartner (1985) defined entrepreneurship as creation of new businesses. Though different views on definitional aspect of entrepreneurship are highlighted but there is no doubt that root of entrepreneurship lies with the creation of business by exploiting available opportunities.

The viewpoint of this paper is that how clusters stimulate in enhancing the creation of new enterprise in the MSMEs sector, as economic growth is highly correlated with entrepreneurship in micro small and medium enterprises sector, due to worldwide its recognition as engine of the growth. It is also a fact that clusters facilitate in enhancing the economic growth of a region by stimulating the economic activities. Industrialisation offers more economic activities, especially in the case of developing country, MSMEs play a vital role to remove the regional disparities and strengthen the regional economy by using the local resources i.e. Physical as well as human resources.

In fostering entrepreneurship clusters create three important mechanisms, namely, established relationships, legitimation and complementary linkages which increase the perceptions of opportunities, facilitate the transfer of necessary resources to exploit these opportunities and encourage the motivation and decision to start a new business due to the higher probability of role models within clusters (Rocha and Sternberg, 2005). Clusters open up the door of collective efficiency which is the growth path of small scale industry (Schmitz, 1995) that individual firm can rarely gain (Chawla, 2011). Medhe (2012) observed the positive growth rate in the clusters of micro and small furniture manufacturing firm, working in informal economy in Tanzania which has occurred due to collective mechanisms promoted by clusters.

Potter (2009) argued that clusters stimulate entrepreneurship and innovation because as clusters facilitate localised positive externalities in labour market pooling, input-output linkages and knowledge spillovers in a study of the Minalogic cluster of Grenoble-Isere (France) a globally renowned cluster specialising in research, development and product design in the sectors of micro- and nanotechnologies and embedded software. Rocha (2002) opined that clusters contribute to entrepreneurship with the interaction between the geographical, inter-firm network and inter-organizational network dimensions.

According to Porter, (2000) Clusters create an appropriate environment for new starts up for a variety of reason. The inducement to entry often is greater within the cluster due to better information about opportunities. Individuals working in or near the cluster more easily perceive new gaps in products, services or suppliers to fill. Entrepreneurs working within a cluster can easily perceive unsatisfied needs in their geographical area. The needed assets, skills, inputs and staff are
readily available at the cluster location. One can establish a new enterprise by using these available opportunities. Porter also argued that clusters provide lower entry barrier and can reduce the perceived risk of entry which fosters the creation of new firms.

Baptista (1996) argued that technological innovation is the heart of the dynamic process of cluster growth, accessed by new firm entry and incumbents’ growth. Arthur (1990) argued that strong clusters tend to attract more firms, and regions with strong innovative record have an advantage in achieving more innovation; they are self-fulfilling and path-dependent. Innovative activity and output are positively correlated with new firm entry and productivity growth (Swann et al, 1998).

Pe’er and Vertinsky (2006) observed that clustered firms had higher survival rates than non-clustered firms in their study of new entrepreneurial entrants in the Canadian manufacturing sectors from 1984 to 1998. Wennberg and Lindqvist (2010) argued that clusters do provide economic benefits for newly started entrepreneurial firms in studying the effects of clusters on the survival and performances of new entrepreneurial firms in Sweden.

Saxena, (2009) in his study opined that clustering approach in SME may reduce the internal competition by establishing mutual trust among them. The unique opportunity provided within the microcosm of a cluster to the individual – SMES collocated is that they can explore, analyze, understand and experiment with strategies to counter internal competition. Clusters facilitate one to learn shifting mechanism for moving from a ‘piece based competition’ to a ‘pricing based competition’ and ‘price based competition’ to ‘product based competition’. Chawla, (2011) focused that cluster related policy, support and developmental interventions have a significant impact on the functioning of local industrial milieu and as well as on macro level. Cluster approach is the answer of the micro and small enterprises to the large scale sector of the country and the world. The better performances of micro enterprises in wooden clusters in Zimbabwe in compared to isolated enterprises was found by Kamoyo et.al(2014) and there appears positive growth effects in clustered firms due to economies of scale but due to lack of capacity building entrepreneurs in clusters could not be able to exploit the gains accrue from clustering in competitive financial advantage and training.

It is observed from the above discussion of available literatures that cluster approach attracted many researchers due to its capacity in regard to the promotion of entrepreneurial activities which considers the growth path of economic development.

### 4. Conclusion

It appears from the above study that unanimously accepted definition of an industrial cluster is yet to be found but group of firms, businesses are co-locating in a same geographical proximity to enjoy agglomeration economies found to be a common phenomenon. Under such circumstances it will be appropriate to say that the two main pillars of cluster concept are traditional location theory and agglomeration theory on which it is built upon. Today’s modern shape of clusters is to be found in the Porters contribution but his theory is stemmed from Marshall’s industrial district concept theory and based on Marshallian’s concept of industrial district and considering non economic factors, many academician reinterpreted and rediscovered the definition of industrial cluster. What Porter calls an industrial clusters the economic geographer named it the industrial district, industrial complex and so on. But whatever name it is, the role of it in respect of economic development remains same.
The positive correlation between the clusters and entrepreneurship is found in developed countries such as in USA,(Delgado, porter and Stern,2010) Germany (Rocha and Sternberg,2005) UK (Potter, 2009). Most of the clusters in developing and under developed countries found to exist in early stage of industrialisation which produce for local market, using low and simple technologies mainly based on labour intensive and these micro enterprises belong to unorganised sector but generate employment and income for the poor which stimulates the informal economy of that region. Such type of clusters were reported by Dawson (1992) Kumasi cluster in Ghana, micro enterprise clusters in Kenya referred by McCormick (1999),Agra shoe cluster in India mentioned by Knorringa(1999)garment cluster in Lima, Peru(Visser,1999) which are few examples of employment generation capacity of microenterprise clusters. The presence of good number of export oriented clusters in MSMEs in developing countries such as Tirupur in India for Garment, Sialkot in Pakistan for surgical instruments, Ludhiana, India for woollen knitwear, Pala valley, India for leather tanning and their stimulating capacity for economic development attracted the policy makers, government to bring most of the MSMEs under the umbrella of cluster approach. The benefits accrue from clustering foster entrepreneurship by helping newly started firms,(Wennberg and Lindqvist,2010).

The above analysis highlighted the recognition of clusters in stimulating the high tech as well as low tech MSMEs not only in developed countries but in developing countries too. As most of the MSMEs in developing countries belong to informal sector, depending on inherent skill and knowledge (education level is quite low) follow the Low- Road Approach and cannot keep pace with the competitive market, cluster policy along with proper initiation of the respective agencies in regard to provide training and credit facilities to the entrepreneur may bring new dawn to the entrepreneurship of MSME sector.

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