

# Emergence and development of low-tech clusters: an empirical study of five Palestinian clusters

Emergence and development of low-tech cluster

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## Abstract

**Purpose** – This study aims to analyze the nature of challenges facing five low-tech Palestinian small and medium-sized enterprise (SME) clusters and to understand their dynamics. The study proposes a number of key policies necessary to foster start-ups and the growth of the current clusters.

**Design/methodology/approach** – Five low-tech Palestinian clusters were selected for investigation. Using multiple sources of evidence, the research questions are answered using a case study approach. Twelve semi-structured in-depth interviews were conducted with representatives from the government, private sector and universities. Content analysis was used to analyze the data obtained from the interviews.

**Findings** – These five low-tech clusters in Palestine are located in a complex environment that imposes a mix of challenges which adversely affect their performance. The challenges facing Palestinian clusters are different in terms of their degree of complexity. The common challenges facing the Palestinian low-tech SME clusters are the fundamental lack of innovative stimulation policies or of incentives in the Palestinian ecosystem, lack of trust, unfair competition, limited access to finance, lack of access to promising markets and the limited collaboration between different parties. More focused policies are suggested to the Palestinian authorities.

**Practical implications** – Clusters represent a new and complementary way of understanding an economy, organizing economic development, enhancing competitiveness and innovation through sectoral specialization and cooperation and implementing public policies. In the overwhelming majority of Palestinian entities categorized as SMEs, clustering adds value to the firms from the point of view of productivity and by battling unemployment, which is rampant among Palestinian youth.

**Originality/value** – Even though the issue of clusters in SMEs has been well researched in developed countries, empirical studies are still lacking in this developing region. The attention given to policies in this article allows using the insights gained for cluster development in Palestine.

**Keywords** Clusters, SMEs, Challenges, Policies, Palestine

**Paper type** Research paper

## Introduction

The increasing globalization and the resulting mass of competition associated with greater technological complexity make innovation a key aspect for enterprises, revealing increasingly the importance of establishing cooperation networks and clusters (Garcia-Villaverde *et al.*, 2017; Hamidi and Zandiatashbar, 2019; Khan *et al.*, 2019; Kuksa *et al.*, 2019). A cluster is not only geographic band of enterprises, but also a localized network of specialized organizations including firms, knowledge-producing agents, bridging organizations and government agencies (Van den Berg *et al.*, 2001; Van Dijk, 2003).



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The review of the cluster literature reflects, although a host of studies have examined clusters in developed countries (Kamran *et al.*, 2017; Vanzettine *et al.*, 2017), that a lack of research that systematically addresses the dynamics and nature of cluster development in developing economies is still problematic, especially small and medium-sized enterprises (SMEs) (Van Dijk and Rabellotti, 1997; Schmitz and Nadvi, 1999; Park and Luo, 2001; Lin *et al.*, 2009; Pyke and Lund-Thomsen, 2016; Vanzettine *et al.*, 2017). Researchers have identified this research gap, subsequently calling for more research to investigate the transferability of current theories of clusters to developing countries (Ghauri and Santangelo, 2012; Vanzettine *et al.*, 2017). This further stresses the role of localization and contextualization in pushing forth cluster development. As such, contextual focus can help to establish a region's social, political and economic conditions (Sultan, 2014) that can either reduce or increase the level of complexity of cluster development progress in developing countries.

Cluster development in Palestine, which is divided into two geographically detached areas (West Bank and Gaza Strip), is a relatively new concept. The concept was introduced by none other than Micheal Porter himself during visit to Palestine and the region in 1998. The Palestinian private sector is dominated by SMEs, and most of them are working in traditional and low-tech sectors (Sultan, 2014). Thusly, the question to be posed is as follows: Does the concept of cluster development successfully work in the Palestinian context? This paper aims to study the emergence and development of five Palestinian low-tech clusters that are working in an unusual and harsh operating, oftentimes dysfunctional, environment. In addition, it also studies the mechanism for specific insights on how to analyze the regional clusters dynamics. Also to be studied are the challenges with respect to the importance of localization and the consideration of contextual factors facing these clusters, including the government policies needed to foster them, implications for scholars and practitioners, as well as future research streams.

### **Theoretical background**

This section discusses the cluster definitions, challenges and policy needed to foster clusters (see [Appendix](#)).

#### *Cluster definition and value creation approach*

The literature has recognized the importance of clustering for economic development (Van Dijk and Rabellotti, 1997; Schmitz and Nadvi, 1999). Several contributions in this field showed how clustering in the developing world is often related to (technological or sectoral) upgrading through insertion into broader production structures, also theorized as global commodity or value chains (Bair and Gereffi, 2001; Humphrey and Schmitz, 2002; Sturgeon *et al.*, 2008; Pyke and Lund-Thomsen, 2016).

A common definition of clusters is geographic concentrations of industries related by knowledge, skills, inputs, demand and/or other linkages (Porter, 2011; Pe'er and Keil, 2013). Clusters could include organizations of different sizes and types (Delgado *et al.*, 2015). Studies focusing on geographical agglomeration indicate that spatial organizational agglomeration can be the factor that shapes the evolution of organizations and influences the nature of competition among them (Porter, 2011; Tsang and Siu, 2016).

The organizational ecology literature supports the notion that geographically clustered firms may differ from firms outside the cluster regarding cost structures, competitive behaviour and performance over time (Tan, 2006; Baum and Mezias, 1992; Lomi, 1995). Clusters reveal a blending of both geographic proximity and industry-level or sectoral-level specialization (Fujita and Thisse, 1996; Porter, 2011; Delgado *et al.*, 2015). Inter-firm technological spillover or specialized labour and intermediate inputs are mechanisms to

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explain the dynamics of the cluster. Specialized labour markets, inputs, suppliers and knowledge spillovers lead to enhanced rates of innovation and productivity, all of which have been associated with geographical proximity and achieving external economies (Delgado *et al.*, 2015; Paula and Da Silva, 2019). Building on that explanation, cooperation and its importance as a means of enhancing competitiveness for clusters through collective efficiency, entrepreneurial skills and the dissemination of information are emphasized (Bijau, 2019).

Another manner by which a cluster is generally understood is to have a group of innovative actors in a specific industry, massed in key locations (Porter, 1998; Fang, 2015; Hamidi and Zandiatashbar, 2019). Co-location is associated with better access to specialized, high-productivity employees with lower search and training costs. At the supply input level, intermediate industries provide downstream firms with local access to specialized materials, finance, marketing and business services, as they themselves exploit greater internal economies of scale and benefit from reduced transport costs (Cooke and Morgan, 1994; Porter, 1998).

A common cultural background is important for clusters to develop (Knorringa and Nadvi, 2016). Ideally, clusters achieve economies of scale and scope similar to larger corporate entities. However, more than just access to resources, relying on institutions is a means for organizations to reduce uncertainty and increase the predictability and intelligibility of their actors to the audience. Other advantages associated with clusters are more favourable market conditions, such as the presence of customers requiring more attention and time based on their unique needs, greater rivalry and complementarities in products and technologies. Governance structures could develop at different geographical levels (Krugman, 1998), ranging from local to national, initiated by either the public or private sector. For developing economies without the benefit of large corporations, enterprises reap the advantages of clustering (Pyke and Sengenberger, 1992), as clusters, in this context, are similar to economies of scale which are prevalent in large companies (Martin and Sunley, 2003).

### *Cluster challenges*

Geography, particularly location, can be linked to success in industries such as real estate. For clusters, however, geography alone does not guarantee a firm's success (Porter, 2000; Tallman and Phene, 2007). Rather, the fundamental role of regional clusters is to facilitate the formation of local inter-organizational networks, which act as channels of knowledge and innovation diffusion (Balland *et al.*, 2012; Garcia-Villaverde *et al.*, 2017). Studies suggest that firms belonging to regional clusters are more likely to achieve superior innovation and economic performance (Capello and Faggian, 2005; Garcia-Villaverde *et al.*, 2017).

Quality locations and/or a legal framework also play a role (Tracey *et al.*, 2014; Turkina *et al.*, 2019). Paramount amongst the advantages is the sharing of information. This may stem from the homogeneous nature or nearness of firms, as this familiarity amongst the enterprises and entrepreneurs may be the initial step to establishing trade organizations. Local traders' interest in this type of cluster is directly attributable to the ability to buy cheaply and sell outside the cluster (Van Dijk and Sverrisson, 2003).

Clusters face various challenges that are critical to their competitiveness (Gereffi and Lee, 2016), such as lack of trust (Chen *et al.*, 2017; Vanzettine *et al.*, 2017), lack of specialized human resources (Pyke and Lund-Thomsen, 2016), lack of information that is critical to business, restrictive government rules and regulations, market access constraints, limited logistical facilities, poor R&D infrastructures (Richardson, 2013), inability to conform with new global standards (Lei and Huang, 2014) and weak links with supporting/related industries (Knorringa and Nadvi, 2016). Challenges that are considered to be at the cluster-level tend to require long-term solutions and concerted efforts to overcome them (Ponte and Sturgeon, 2014; Abdin and Rahman, 2015).

Hospers and Beugelsdijk (2002) criticized the fact that results of cluster studies are hardly transferable from one place to another, given different resources availability, economic structures, cultures and so forth. Burfitt and Macneill (2008) doubt the transferability of cluster initiatives from the implementation perspective, identifying managerial and political challenges in a multilevel and multi-organizational setting. Rather than reviewing cluster culture and initiatives, the primary focus should be allocated as to why certain cluster entities exist and how they function within that specific context.

#### *Cluster promotion policies*

Many studies of clusters in developing countries have focused on the supportive role of government and public agencies on clusters' performance (Richardson, 2013; Kamran *et al.*, 2017), indicating for example that when the social bonding in a given cluster is weak, government interventions are of greater significance. The role of classical factors of production (including land, labour and capital) is analysed by Kamran *et al.* (2017) and subsequently found that better infrastructure, availability of utility services and the accessibility to inexpensive bank loans and commercial finance helped businesses in developing countries flourish in geographic proximities. Richardson (2013) mentions that it would be great if the policymakers foresee the problems prior to developing the cluster and can take the necessary steps to address them.

However, it is well known that the institutional environments and business situations of developing countries are fundamentally different from those of the developed countries (Park and Luo, 2001; Lin *et al.*, 2009). Chen *et al.* (2016) explain that, in emerging economies, rules are often unclear and uncertain, because the formal institutions are still evolving.

The framework with respect to the promotion policies of clusters is evident from Table 1 (Van Dijk, 2003) and consists of five distinct categories: (1) policy-related incentives, (2) controlling prices and providing subsidies, (3) innovation promotion, (4) physical support and (5) stimulating cooperation amongst enterprises within the cluster itself. These policies have been recommended by Van Dijk for China and India (Van Dijk, 2003).

#### **Research setting, problem and questions**

Almost 99% of the industrial firms in Palestine are categorized as SMEs that solely compete on price, with very few of these enterprises have direct access to foreign markets (Sultan, 2014). A project of five low-tech clusters was launched in 2012 to enhance the competitiveness of SMEs working in five different regions. These clusters are presented in Table 2.

The five clusters consist of a small yet growing number of SMEs, mainly family-owned and family-operated. For the purpose of enhancing the competitiveness of these SMEs, the impetus is to form dynamic clusters which promote productivity, innovation and

| Category                  | Example                                                                                                                                                            |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Policy-related incentives | Fiscal policies, targeted education and training, marketing support, linking with private or public capital or suppliers and cluster marketing through advertising |
| Prices and subsidies      | Influencing land prices, the price of electricity and water or other services                                                                                      |
| Innovation promotion      | Involving research centres, stimulating incubator centres and promoting linkages with training and R&D institutions                                                |
| Physical support          | Providing space and infrastructure                                                                                                                                 |
| Stimulating cooperation   | Forming groups or associations, consulting these groups and promoting inter-firm relations                                                                         |

**Source(s):** Van Dijk (2003)

**Table 1.**  
Cluster promotion policies, different categories of instruments

competition in a number of ways, such as cost reduction due to sharing of resources, and creating critical mass by having a pool of specialized skills, expertise and value-added products (Sultan, 2014; Kuksa *et al.*, 2019). Sultan and Van Dijk (2017) sought answers as to which level of development the Palestinian clusters have attained. This resulted in the identification of five stages whereby clusters are distinguished, ranging from location clusters to fully fledged industrial districts. Table 3 applies this to five such Palestinian clusters.

The need and opportunity to create more dynamic clusters in Palestine has led to the following research questions being proposed:

*RQ1.* What are the main challenges facing Palestinian low-tech clusters?

*RQ2.* How can the dynamics of Palestinian low-tech clusters be promoted?

According to Porter, “poor countries lack well-developed clusters” (Porter, 1998), primarily attributed to structural deficiencies in their business environment. On the one hand, this can be phrased as “institutional voids”, or missing intermediaries and poor institutional infrastructure. On the other hand, in developing economies, industrial activity tends to concentrate in selected locations, especially select metropolitan cities and capitals, as a result of the lack of widespread infrastructure in peripheral areas (Giacomin, 2017; Prteliski *et al.*, 2020). Also contributing to this are significant differences in the dynamics according to the level of development within the cluster, the organizational setup, geographical distribution and their role within the global value chain. The scale at which cluster policies are designed also varies from country to country, depending on its political structure, size and available resources.

| Cluster          | Type        | Investment (USD million) | Number of firms | Number of employees | Contribution to GDP (%) | Location       |
|------------------|-------------|--------------------------|-----------------|---------------------|-------------------------|----------------|
| Leather and shoe | Industry    | 180                      | 85              | 1,275               | 0.5                     | Hebron         |
| Stone and marble | Industry    | 400                      | 50              | 1,000               | 2                       | Bethlehem      |
| Furniture        | Industry    | 100                      | 55              | 1,650               | 1                       | Salfit         |
| Tourism          | Service     | 380                      | 80              | 1,200               | 2                       | East Jerusalem |
| Palm and date    | Agriculture | 50                       | 12              | 400                 | 0.1                     | Gaza           |

**Table 2.**  
Five Palestinian low-tech clusters

| Stage                            | Main characteristic                                                     | In Palestine                                                               |
|----------------------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Locational cluster               | Nearness, leading to sharing information, etc.                          | The majority of the firms in the date and palm cluster                     |
| Market cluster                   | More market outlets, benefitting from traders “exporting” the product   | The majority of the furniture and the leather and shoe cluster             |
| Labour division cluster          | Development of inter-firm relations leading to specialization           | Minority of the five clusters                                              |
| Innovative cluster               | Innovation starts playing a role resulting in a dynamic development     | Majority of the stone and marble and the tourism and creative arts cluster |
| Full-fledged industrial district | Supportive local governments supporting the own dynamics of the cluster | No examples yet in Palestine                                               |

**Table 3.**  
From clusters to industrial districts, an evolutionary perspective

**Source(s):** Van Dijk and Sverrisson (2003) and Column 3 from Sultan and Van Dijk (2017)

### Research methodology

With respect to a situation, if not much is known or when more information is needed for developing a viable theoretical framework, the research will fall under the exploratory research umbrella (Sekaran and Bougie, 2016). In Palestine, the number of studies that examined clustering start-ups and growth are quite few and not comprehensive. Testing the proposition of a theory can be done in one of two ways: inductively or deductively. By choosing the relevant theory at the beginning of the research study, deduction was chosen as the research approach (Saunders *et al.*, 2017).

In order to answer the two research questions regarding why and how the low-tech Palestinian clusters emerge and develop, and how certain policies might foster these clusters, a case study method was applied. Yin (2017) stated that case study suits the types of “how” and “why” research questions. Yin further stated that case study is used to investigate a contemporary phenomenon within a real-life context, especially when the boundaries between phenomenon and context are not clearly defined.

A research strategy of in-depth interviewing was selected to gather data (Saunders *et al.*, 2017). The population and unit of study consist of establishments with experience gained from operating within at least one of the Palestinian low-tech clusters. Public sector officials with authority to develop the clusters were interviewed in accordance with the selected research strategy, as well as managers within the five clusters and managers of supporting establishments within the said clusters. Criteria for participant selection for the study were based on their knowledge and experience in managing firms within the cluster, their information on services available within the cluster and their experience with cluster inducement policy (Porter, 1998).

Table 4 presents the list of workplaces of the interviewees during the period from January to October 2019. Twelve semi-structured interviews were conducted with participants from universities and from the government and the private sectors. Each interview was reviewed in detail and linked to specific coding. Codes were then grouped according to two themes: challenges and policies. A process of mapping and linking codes was undertaken to ascertain how each related to the other. Results are presented and discussed in the next section.

To support the data collection, this study used sources of evidence related to documentation, interviews and direct observation (Creswell and Poth, 2017). Secondary sources of evidence are literature on the existence of clusters, project reports investigating the implementation of cluster policy and local news providing information on clusters. Data from each of the aforementioned sources were subsequently analysed in this study. The following section addresses the challenges facing the five Palestinian low-tech clusters and the needed policies to promote these clusters.

| Government                          | Private sector                                               | Universities/Research                              |
|-------------------------------------|--------------------------------------------------------------|----------------------------------------------------|
| Ministry of National Economy        | Palestinian Federation of Industries                         | Palestine Polytechnic University                   |
| Ministry of Agriculture             | Cluster managers                                             | An-Najah University                                |
| Ministry of Tourism and Antiquities | Federation of Chambers of Commerce, Industry and Agriculture | Al Quds University                                 |
|                                     | PALTRADE                                                     | Al Azhar University                                |
|                                     |                                                              | Palestine Economic Policy Research Institute (MAS) |
|                                     |                                                              | Number: 5                                          |
| Number: 3                           | Number: 4                                                    |                                                    |

**Table 4.**  
Population overview

## Findings

### *Main challenges facing the five Palestinian low-tech clusters*

The establishment of any cluster is based on the so-called hard factors like the location of natural resources, as well as human factors such as the interaction between the actors and the institutions. In our case, the hard factors are naturally available, while the soft factors such as trust and structural linkages are significantly more difficult to develop.

Even though the talk is about the same source of funds, the same clusters' management and the small area of land, there are significant differences in the development of the five clusters.

Principally speaking, the five clusters studied are facing a complex set of challenges and hurdles. Ultimately, the main challenges facing the five low-tech clusters could be categorized as market failure, government policy failure and system failure.

*Market failure.* Essentially, this stems from a lack of knowledge creation, lack of information, unfair competitive practices, imbalances between demand and supply factors, among other external obstacles. The five clusters are suffering from the high levels of competition from local products from large companies or imports.

'Cluster' members are suffering from the unfair competition, limited access to finance, limited access to information and limited access to markets.

The traditional production that is not in accordance with the demands of existing markets has made an inappropriate quality which is not compatible with market

Standards have become important.

*Government policy failure.* This is due to the dysfunctional nature of public policies and government services such as providing quality education, consumer protection and clearly defined technical standards. Although the Palestinian government has set up associations and unions, the role of national and local governments in supporting the clusters is quite limited.

There is a lack of incentive policies and incentive packages to clusters.

The Government is talking about the support of many clusters without providing the needed resources.

*System failure.* This results from a lack of coordinated efforts amongst entities spanning government, education and the private sector. Regrettably, civil society organizations, political parties, labour unions and trade associations are considered to be factors of imbalance for the government's hegemony. Lack of trust has therefore become the norm and presents a grave dilemma, often hindering the establishment of larger companies. The consequences in terms of social capital and generated business are failed cooperation, mistrust and disintegration. Hence, as a key measure to potentially reduce transaction costs and business risks, building social capital becomes vital.

Attitudes, personal values, assumptions and beliefs of all key people who are involved in these clusters lead to the feeling of distrust between entities and cluster authorities, along with poor communication and common understanding before the cluster actors.

Collaboration between research centres, universities, private sector entities and public institutions is also prevalent in Palestine.

Most notable is the lack of assets needed for cluster emergence and development, most notably modern technology and research-based industries. On the one hand, managers of companies attributed the lack of research and development units to the high costs and the effect of franchise businesses prevailing in some engineering enterprises. On the other hand,

technological knowledge, for instance, is transferred easily from the parent firms in South Korea or Germany to Palestine. In this regard, dependency on imported technology is criticized due to the fact that it will continue to hinder the building of local capacities and the constructive use of national resources.

Palestinian SMEs lack the logistical capacities and capabilities.

We lack the creative design, research and development and innovation.

Considering these complex challenges, it seems that, in spite of excessive interest by developing countries to develop clusters, the effectiveness of clustering policies remains questionable (Tan, 2006). The findings confirmed that clusters do not exist in isolation but are rooted in communities (Sultan, 2014). As such, the analysis exposed three categories of challenges, which are imposed by the context and have adversely affected the development of the five clusters: market failure, government policy failure and system failure. It is therefore implied that careful consideration of these specific challenges can help businesses affiliated with a cluster to leverage the potential advantages of their geographic proximity.

### **Current policies to promote the five Palestinian low-tech clusters**

Although, the support for the clustering process was evident in the National Development Plan (2017–2022), regrettably these plans lack the implementation of policies needed to promote clusters. The Palestinian prime minister stated that:

The government will support particular areas of specialization in each of the regions in Palestine so that they can grow strategically into development clusters. In this way, we support economic development, preserve and protect the land for the people, and show our resilience and steadfastness.

So, what are the policies needed to foster the Palestinian clusters? This section discusses the policies as stated in table (1) by Van Dijk (2003), while considering the life cycles of clusters (Pronesti, 2019). According to Altenburg and Meyer-Stamer (1999) and Polozhentseva and Klevtsova (2015), policies related to cluster development must address inefficiency that poses obstacles to clusters and their eventual growth. At both firm and cluster levels, one key measure of success is enhanced performance, which yields higher and more pronounced levels of turnover and subsequent profits by accessing new markets through more sophisticated levels of business development services and coordination systems, allowing governmental interventions to be more effective.

*Policy-related incentives.* In order to provide an enabling business environment for clusters, changes are required for certain laws and regulations. This can be achieved by including a well-defined cluster policy under the auspices of existing national policies and strategies as well as incentives schemes for cluster members. Despite the presence of incentives laws such as the Intellectual Property Law, the Investment Promotion Law and the Public Procurement Law exist, they still require further modification, amendments and specific clauses to encourage businesses, especially SMEs, to work together in clusters.

The laws that applied come from many jurisdictions through history: “Customary Law . . . Ottoman Law . . . British Law . . . Jordanian Law . . . Egyptian Law . . . Israeli law and finally, the Palestinian National Authority’s law”.

*Prices and subsidies.* Marketing clusters receive no tangible support. Although the Palestine Trade Center (PALTRADE) encourages companies to export goods and services, it primarily targets large businesses rather than SMEs or cluster initiatives. This challenge exists also in the pursuit of access to finance, as banks are far more comfortable lending to larger enterprises as opposed to SMEs, due to a lack of loan guarantees and a stated higher risk to the banks. Collateralization is often the primary obstacle for Palestinian entities accessing



banks and related financial services, as the members are typically SMEs (Foghani *et al.*, 2017). Thus, a more effective financial system is needed, such as changing collateral laws, investing in financial literacy and financial inclusion and increasing the number of suppliers of finance and improving the credit assessment systems used for SMEs.

*Innovation promotion.* The results of interviews show that all SMEs are producing almost the same products, using the same production lines, and the same designs.

The national innovation system is relatively weak in Palestine.

Ideally, innovation and clustering should be natural partners, as mutual needs for research and enhancement of product offerings are present. Clusters allow SMEs to achieve critical mass through innovation and research, which result in better and more pronounced communication amongst cluster members, enabling them to support the said cluster and ultimately each other (Muhammad Auwal *et al.*, 2018; Khan *et al.*, 2019). Through these efforts, product and service innovation reach the market, thus allowing clusters to create enhanced competitiveness in marketplaces.

*Physical support.* There is currently no large-scale influence from the Palestinian public sector in terms of land prices, industrial zones, utilities such as electricity or water, or tax exemption, among others. The Palestinian government does not provide any preferential treatment in a direct manner to any cluster. Thus, as clusters are part of the national discussion, as evidenced by their presence on national agendas and development plans, this is believed to encourage donor and funding agencies to provide assistance and support for existing and new clusters.

*Stimulating cooperation.* There currently exists an environment where research institutions, incubators or accelerators and training centres are not collaborating effectively, resulting in clear deficiencies as well as redundancies amongst them. Research activity and cluster activities are limited, which is quite telling. Field research showed that firms in clusters recognize a lack of a functioning knowledge infrastructure which is counterproductive to cluster development. Therefore, interviews stated a need for better and more effective communication between education and private sector entities.

Sharing information, ideas and collaboration requires trust and without this element, the cluster becomes dysfunctional.

Higher education institutions have the capacity to provide knowledge in fields of interest that can be disseminated and integrated into the clusters and their firms. This leads to the experience of joint efforts towards educational courses from higher education institutions that offer degrees or certification in fields relevant to the clusters themselves, such as at Palestine Polytechnic University and An-Najah National University.

## Discussion

In terms of challenges and policies, we find that some of the challenges are very specific to Palestine, while most cluster development policies are either non-existent or not properly implemented. This research paper confirms what was stated in the theoretical section about the importance of clusters for economic development (Pe'er and Keil, 2013; Njos and Jakobsen, 2016). However, in the Palestinian context, there are a number of specific constraints making cluster development more complicated (Sultan, 2014). Specifically, within Palestine, the West Bank is landlocked and is dependent on Israel for access to the Mediterranean Sea. The current political environment and low level of development of the studied clusters make reliance of the clusters on export markets more difficult. Also technology diffusion is slow, and the local innovation capacity is limited due to the weak innovation ecosystem and the mistrust between all stakeholders.

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In this specific situation, few of the expected dynamic effects of clustering can be found. As such, what proposals should a given cluster initiative focus on is a question that should evolve from the cluster dialogues and analyses, thereby forcing cluster members to assume ownership of such of those initiatives. To improve the development of the five clusters, there is a need for improving the upstream and downstream value chain of each cluster by SMEs, building trust and reinforcing social capital among the cluster stakeholder groups and coordination among actors. As well, there is need for promoting joint activities in the field of training, marketing and production and in establishing relations between Palestinian universities and research centres and these clusters.

### **Conclusion**

Data collection comprised in-depth semi-structured interviews, and hence, the current research provides an overall picture and understanding of the cluster phenomenon in the Palestinian context as cases of analysis. This paper aims to assess the challenges facing five Palestinian clusters and identify potential policies to promote these clusters. After approximately 8–10 years of their emergence, parts of these clusters remain immature and encounter many difficulties. The main challenges facing the five low-tech clusters are categorized as market failure, government policy failure and system failure. Hard factors such as location and natural resources are there, while soft factors such as trust and structural linkages are significantly more difficult to develop.

Policies related to cluster development were proposed to tackle inefficiency that poses obstacles to clusters and their eventual growth. The paper recommends the following policies: incentives, prices and subsidies, innovation promotion, physical support and stimulating cooperation. Strategic alliances, competition and collaboration must be based on resource sharing and integration. The cluster members should establish collaborative principles, which facilitate mutual efforts in innovation and R&D and, in turn, enhance their competitiveness.

### **Theoretical and managerial implications**

#### *Theoretical implications*

From a theoretical point of view, the importance of cultural factors of more favourable market conditions in the current cluster and the cluster as an opportunity to promote the shared interests is confirmed (Hospers and Beugelsdijk, 2002; Burfitt and Macneill, 2008). However, the lack of competitiveness given the bigger neighbours and the availability of cheap Chinese products makes it difficult for Palestine to fully benefit from the existing clusters for its economic development and for employment creation.

#### *Managerial implications*

This study has the following key managerial implications.

##### *Firms' managers.*

- (1) Clustering can positively enhance corporate innovation performance. This finding suggests that the enhancement of corporate sustainable development and competitiveness should rely on clustering resources and relationships to increase competitive advantage.
- (2) Firms should cooperate with supply chain agents and foster industry–academia cooperation, in an attempt to upgrade knowledge and technical management capabilities.

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*Policymakers.*

- (1) The one-size-fits-all strategy is not fit-for-purpose to drive sustainable cluster development. More focus should be placed on eliminating hindering and other constraints.
- (2) The government and private companies should establish strategic cooperation platforms. Strategic alliances, competition and cooperation should work on the basis of the sharing and integration of resources. This facilitates joint efforts in innovation and R&D and improves competitiveness of companies.

Emergence and  
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## **Limitations and next steps**

### *Research limitations*

The limitations of the research are the following.

- (1) Research methodology: As with any qualitative study, there are limitations due to the small number of interviews (Saunders *et al.*, 2017).
- (2) Research scope: This research study was applied to specific sectors in a specific country, which limits the generalizability of the study in other contexts (Saunders *et al.*, 2017).
- (3) Context: Palestine, as a developing country, experiences a fragile and conflict environment. Therefore, there are limitations due to the bureaucracy, culture and unavailability of resources for and statistics on cluster development (Sultan, 2014).
- (4) Research topic: There are limitations referring to the topic of cluster itself such as the lack of empirical data on the role of trust and collaboration between key players, and there are difficulties in identifying the clusters' boundaries.

### *Next steps*

All of the clusters mentioned in this research paper initially developed with the support of the Palestinian government and donor's money. Thus, the support from the government and donors has been an important factor in their emergence. This raises questions about the role of government and donors in promoting clusters in developing countries and at what stage they should act. This research paper has highlighted some examples of external inducement of clusters, but more research is needed.

There is a particular shortage of research looking at the impacts of cluster policies over the longer term. Further research might therefore turn its attention to assess the impact of the abovementioned policies on the development and success of the five clusters as well as the start-up of new ones.

It was noted that cluster members inter-connect and build value networks, either formally or informally. In this research paper, there has been a concentration on the formal links between cluster members. However, further research may want to investigate the role of informal links and whether such links, if important, can be promoted through public policies.

## **References**

- Abdin, M. and Rahman, M. (2015), "Cluster development models: challenges and opportunities", *International Journal of Economics, Finance and Management Sciences*, Vol. 3 No. 4, pp. 358-366.
- Altenburg, T. and Meyer-Stamer, J. (1999), "How to promote clusters: policy experiences from Latin America", *World Development*, Vol. 27 No. 9, pp. 1693-1713.

- 
- Bair, J. and Gereffi, G. (2001), "Local clusters in global chains: the causes and consequences of export dynamism in Torreon's blue jeans industry", *World Development*, Vol. 29 No. 11, pp. 1885-1903.
- Balland, P.A., De Vaan, M. and Boschma, R. (2012), "The dynamics of interfirm networks along the industry life cycle: the case of the global video game industry, 1987–2007", *Journal of Economic Geography*, Vol. 13 No. 5, pp. 741-765.
- Baum, J.A. and Mezias, S.J. (1992), "Localized competition and organizational failure in the Manhattan hotel industry, 1898-1990", *Administrative Science Quarterly*, Vol. 37, pp. 580-604.
- Bijaoui, I. (2019), "The education and training open incubators (ETOs) anchored cluster the case of ISPALE, DRC", *American International Journal of Business Management (AIJBM)*, Vol. 2 No. 4, pp. 105-119.
- Burfitt, A. and Macneill, S. (2008), "The challenges of pursuing cluster policy in the congested state", *International Journal of Urban and Regional Research*, Vol. 32 No. 2, pp. 492-505.
- Capello, R. and Faggian, A. (2005), "Collective learning and relational capital in local innovation processes", *Regional Studies*, Vol. 39 No. 1, pp. 75-87.
- Chen, L., Zhou, Y., Zhou, D. and Xue, L. (2017), "Clustering enterprises into eco-industrial parks: can interfirm alliances help small and medium-sized enterprises?", *Journal of Cleaner Production*, Vol. 168, pp. 1070-1079.
- Cooke, P. and Morgan, K. (1994), "The regional innovation system in Baden–Wuerttemberg", *International Journal of Technology Management*, Vol. 9 Nos 3-4, pp. 394-429.
- Creswell, J.W. and Poth, C.N. (2017), *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*, Sage, Thousand Oaks, CA.
- Delgado, M., Porter, M.E. and Stern, S. (2015), "Defining clusters of related industries", *Journal of Economic Geography*, Vol. 16 No. 1, pp. 1-38.
- Fang, L. (2015), "Do clusters encourage innovation? A meta-analysis", *Journal of Planning Literature*, Vol. 30 No. 3, pp. 239-260.
- Foghani, S., Mahadi, B. and Omar, R. (2017), "Promoting clusters and networks for small and medium enterprises to economic development in the globalization era", *Sage Open*, Vol. 7 No. 1, doi: [10.1177/2158244017697152](https://doi.org/10.1177/2158244017697152).
- Fujita, M. and Thisse, J.F. (1996), "Economics of agglomeration", *Journal of the Japanese and International Economies*, Vol. 10 No. 4, pp. 339-378.
- Garcia-Villaverde, P., Elche, D. and Perez, A. (2017), "Determinants of radical innovation in clustered firms of the hospitality and tourism industry", *International Journal of Hospitality Management*, Vol. 61, pp. 45-58.
- Gereffi, G. and Lee, J. (2016), "Economic and social upgrading in global value chains and industrial clusters: why governance matters", *Journal of Business Ethics*, Vol. 133 No. 1, pp. 25-38.
- Ghuri, P.N. and Santangelo, G.D. (2012), "Multinationals and the changing rules of competition", *Management International Review*, Vol. 52 No. 2, pp. 145-154.
- Giacomin, V. (2017), *A Historical Approach to Clustering in Emerging Economies*, Harvard Business School, Boston, MA.
- Hamidi, S. and Zandiatashbar, A. (2019), "Does urban form matter for innovation productivity? A national multi-level study of the association between neighbourhood innovation capacity and urban sprawl", *Urban Studies*, Vol. 56 No. 8, pp. 1576-1594.
- Hospers, G.J. and Beugelsdijk, S. (2002), "Regional cluster policies: learning by comparing?", *Kyklos*, Vol. 55 No. 3, pp. 381-402.
- Humphrey, J. and Schmitz, H. (2002), "How does insertion in global value chains affect upgrading in industrial clusters?", *Regional Studies*, Vol. 36 No. 9, pp. 1017-1027.
- Kamran, S.M., Fan, H., Matiullah, B., Ali, G. and Hali, S.M. (2017), "Ethnic communities: a factor of industrial clustering", *International Journal of Social Economics*, Vol. 44 No. 10, pp. 1290-1306.

- 
- Khan, K.U., Xuehe, Z., Atlas, F. and Khan, F. (2019), "The impact of dominant logic and competitive intensity on SMEs performance: a case from China", *Journal of Innovation & Knowledge*, Vol. 4 No. 1, pp. 1-11.
- Knorringa, P. and Nadvi, K. (2016), "Rising power clusters and the challenges of local and global standards", *Journal of Business Ethics*, Vol. 133 No. 1, pp. 55-72.
- Krugman, P. (1998), "What's new about the new economic geography?", *Oxford Review of Economic Policy*, Vol. 14 No. 2, pp. 7-17.
- Kuksa, I., Shtuler, I., Orlova-Kurilova, O., Hnatenko, I. and Rubezhanska, V. (2019), "Innovation cluster as a mechanism for ensuring the enterprises interaction in the innovation sphere", *Management Theory and Studies for Rural Business and Infrastructure Development*, Vol. 41 No. 4, pp. 487-500.
- Lei, H.S. and Huang, C.H. (2014), "Geographic clustering, network relationships and competitive advantage: two industrial clusters in Taiwan", *Management Decision*, Vol. 52 No. 5, pp. 852-871.
- Lin, Z., Peng, M.W., Yang, H. and Sun, S.L. (2009), "How do networks and learning drive M&As? An institutional comparison between China and the United States", *Strategic Management Journal*, Vol. 30 No. 10, pp. 1113-1132.
- Lomi, A. (1995), "The population ecology of organizational founding: location dependence and unobserved heterogeneity", *Administrative Science Quarterly*, Vol. 40 No. 1, pp. 111-144.
- Martin, R. and Sunley, P. (2003), "Deconstructing clusters: chaotic concept or policy panacea?", *Journal of Economic Geography*, Vol. 3 No. 1, pp. 5-35.
- Muhammad Auwal, A., Mohamed, Z., Nasir Shamsudin, M., Sharifuddin, J. and Ali, F. (2018), "External pressure influence on entrepreneurship performance of SMEs: a case study of Malaysian herbal industry", *Journal of Small Business & Entrepreneurship*, pp. 1-22.
- Njøs, R. and Jakobsen, S. (2016), "Cluster policy and regional development: scale, scope and renewal", *Regional Studies*, Vol. 3 No. 1, pp. 146-169.
- Park, S.H. and Luo, Y. (2001), "Guanxi and organizational dynamics: organizational networking in Chinese firms", *Strategic Management Journal*, Vol. 22 No. 5, pp. 455-477.
- Paula, F.D.O. and Da Silva, J.F. (2019), "The role of the appropriability mechanisms for the innovative success of Portuguese small and medium enterprises", *International Journal of Innovation Management*, Vol. 23 No. 04, doi: [10.1142/S1363919619500324](https://doi.org/10.1142/S1363919619500324).
- Petelski, N., Milesi, D. and Verre, V. (2020), "Strategies of innovation and appropriation. Sectoral analysis of Argentine manufacturing firms", *Journal of Evolutionary Studies in Business*, Vol. 5 No. 1, pp. 116-157.
- Pe'er, A. and Keil, T. (2013), "Are all startups affected similarly by clusters? Agglomeration, competition, firm heterogeneity and survival", *Journal of Business Venturing*, Vol. 28 No. 3, pp. 354-372.
- Polozhentseva, Y. and Klevtsova, M. (2015), "Instruments of development of cluster policy: stages, models, international practice", *Procedia Economics and Finance*, Vol. 27, pp. 529-537.
- Ponte, S. and Sturgeon, T. (2014), "Explaining governance in global value chains: a modular theory-building effort", *Review of International Political Economy*, Vol. 21 No. 1, pp. 195-223.
- Porter, M.E. (1998), "Clusters and the new economics of competition", *Harvard Business Review*, Vol. 76, No. 6, pp. 77-90.
- Porter, M.E. (2000), "Location, competition, and economic development: local clusters in a global economy", *Economic Development Quarterly*, Vol. 14 No. 1, pp. 15-34.
- Porter, M.E. (2011), *Competitive Advantage of Nations: Creating and Sustaining Superior Performance*, Simon and Schuster, New York, NY.
- Pronesti, G. (2019), *Life Cycle of Clusters in Designing Smart Specialization Policies*, Springer Nature, Switzerland.

- 
- Pyke, F. and Lund-Thomsen, P. (2016), "Social upgrading in developing country industrial clusters: a reflection on the literature", *Competition and Change*, Vol. 20 No. 1, pp. 53-68.
- Pyke, F. and Sengenberger, W. (Eds) (1992), *Industrial Districts and Local Economic Regeneration*, International Labour Organisation, Geneva.
- Richardson, C. (2013), "Knowledge-sharing through social interaction in a policy-driven industrial cluster", *Journal of Entrepreneurship and Public Policy*, Vol. 2 No. 2, pp. 160-177.
- Saunders, M.N., Lewis, P. and Thornhill, A. (2017), *Doing Research in Business and Management: An Essential Guide to Planning Your Project*, 2nd ed., Pearson, Harlow.
- Schmitz, H. and Nadvi, K. (1999), "Industrial clusters in developing countries-clustering and industrialization: introduction", *World Development*, Vol. 27 No. 9, pp. 1503-1514.
- Sekaran, U. and Bougie, R. (2016), *Research Methods for Business: A Skill-Building Approach*, Wiley, New York, NY.
- Sturgeon, T., Van Biesebroek, J. and Gereffi, G. (2008), "Value chains, networks and clusters: reframing the global automotive industry", *Journal of Economic Geography*, Vol. 8 No. 3, pp. 297-321.
- Sultan, S. (2014), "Enhancing the competitiveness of Palestinian SMEs through clustering", *EuroMed Journal of Business*, Vol. 9 No. 2, pp. 164-174.
- Sultan, S.S. and Van Dijk, M.P. (2017), "Palestinian clusters: from agglomeration to innovation", *European Scientific Journal*, Vol. 13 No. 13, p. 323.
- Tallman, S. and Phene, A. (2007), "Leveraging knowledge across geographic boundaries", *Organization Science*, Vol. 18 No. 2, pp. 252-260.
- Tan, J. (2006), "Growth of industry clusters and innovation: lessons from Beijing Zhongguancun Science Park", *Journal of Business Venturing*, Vol. 21 No. 6, pp. 827-850.
- Tracey, P., Heide, J. and Bell, S.J. (2014), "Bringing "place" back in: regional clusters, project governance, and new product outcomes", *Journal of Marketing*, Vol. 78 No. 6, pp. 1-16.
- Tsang, K.K.M. and Siu, K.W.M. (2016), "The 3Cs model of sustainable cultural and creative cluster: the case of Hong Kong", *City, Culture and Society*, Vol. 7 No. 4, pp. 209-219.
- Turkina, E., Oreshkin, B. and Kali, R. (2019), "Regional innovation clusters and firm innovation performance: an interactionist approach", *Regional Studies*, Vol. 53 No. 8, pp. 1193-1206.
- Van den Berg, L., Braun, E. and Van Winden, W. (2001), "Growth clusters in European cities: an integral approach", *Urban Studies*, Vol. 38 No. 1, pp. 185-205.
- Van Dijk, M.P. (2003), "Is Nanjing's concentration of IT companies an innovative cluster?", *Cooperation, Networks, and Institutions in Regional Innovation Systems*, pp. 175-193.
- Van Dijk, M.P. and Rabellotti, R. (1997), "Clusters and networks as sources of cooperation and technology diffusion for small enterprises in developing countries", *Enterprise Clusters and Networks in Developing Countries*, pp. 1-10.
- Van Dijk, M.P. and Sverrisson, Á. (2003), "Enterprise clusters in developing countries: mechanisms of transition and stagnation", *Entrepreneurship and Regional Development*, Vol. 15 No. 3, pp. 183-206.
- Vanzettine, N., Corsano, G. and Montagna, J.M. (2017), "A comparison between individual factories and industrial clusters location in the forest supply chain", *Forest Policy and Economics*, Vol. 83, pp. 88-98.
- Yin, R.K. (2017), *Case Study Research and Applications: Design and Methods*, Sage, Thousand Oaks, CA.

### Further Reading

- Piore, M.J. and Sabel, C.F. (1984), *The Second Industrial Divide: Possibilities for Prosperity*, Vol. 4, Basic Books, New York, NY.

## Appendix

## Emergence and development of low-tech cluster

| Cluster definition and value creation approach |                     |                                                                                                      |                                         |                                                                                                                                                                                                                                                          |
|------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year                                           | Author(s)           | Questions                                                                                            | Methods                                 | Key results                                                                                                                                                                                                                                              |
| 1992                                           | Baum and Mezias     | Examine the impact of localized competition in rates of failure                                      | Case study                              | Ecological approach can provide a more detailed understanding of the competitive dynamics                                                                                                                                                                |
| 1994                                           | Cooke and Morgan    | Analyse three elements of Germany's strongest regional economies                                     | Case study                              | Network of innovative economic activity between business and government is of key importance to the development process                                                                                                                                  |
| 1995                                           | Lomi                | Investigate the effects of location dependence on founding rates of rural cooperative banks in Italy | Pooled cross-sectional time series data | Ecological approach can provide a detailed understanding of the evolutionary dynamics of organizations                                                                                                                                                   |
| 1996                                           | Fujita and Thisse   | Why do economic activities agglomerate in a small number of places?                                  | Desk research                           | Identify a few general principles governing the organization of economic space                                                                                                                                                                           |
| 1997                                           | Dijk and Rabellotti | How to increase economic growth through small enterprise development?                                | Qualitative                             | Identifying factors leads to the success of small enterprise clusters and networks and discussing industrialization strategies and flexible specialization                                                                                               |
| 1998                                           | Porter              | What is cluster and why it is important for competition?                                             | Case study                              | Clusters offer a constructive way to change the nature of the dialogue between the public and private sectors. A cluster allows each member to benefit as if it had greater scale or as if it had joined with others without sacrificing its flexibility |
| 1999                                           | Schmitz and Nadvi   | Growth and export prospects of small manufacturers in developing countries                           | Desk research                           | Clustering helps small enterprises to overcome growth constraints and compete in distant markets, but there is also recognition that this is not an automatic outcome                                                                                    |
| 2001                                           | Bair and Gereffi    | Discuss the role of US buyers in promoting full-package apparel production                           | Case study                              | Emphasizing the relationship between producers and foreign buyers, this approach provides a useful way to bridge the global-local divide in the literature on industrial clusters in developing countries                                                |

(continued)

**Table A1.**  
Summary of previous studies

| Cluster definition and value creation approach |                        |                                                                                                                                              |               |                                                                                                                                                                                                                                                                                           |
|------------------------------------------------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year                                           | Author(s)              | Questions                                                                                                                                    | Methods       | Key results                                                                                                                                                                                                                                                                               |
| 2002                                           | Humphrey and Schmitz   | How does insertion in global value chains affect upgrading in industrial clusters?                                                           | Desk research | This paper argues that clusters are inserted into global value chains in different ways, and that this has consequences for enabling or disabling local-level upgrading efforts. It pays particular attention to the position of developing country firms selling to large, global buyers |
| 2003                                           | Martin and Sunley      | Deconstruct the cluster concept in order to reveal and highlight these issues                                                                | Desk research | The cluster concept should carry a public policy health warning                                                                                                                                                                                                                           |
| 2006                                           | Tan                    | Examine the origin and growth of industry cluster in a traditionally heavily regulated economy and region                                    | Case study    | The success of technology parks in promoting technology transfer and attracting clusters of highly innovative firms has motivated countries from around the world in an attempt to promote regional development                                                                           |
| 2008                                           | Sturgeon <i>et al.</i> | How does the global value chain (GVC) trend?                                                                                                 | Case study    | Underlines the need for an open, scalable approach to the study of global industries                                                                                                                                                                                                      |
| 2011                                           | Porter                 | Explain the sources of sustained prosperity in the modern economy                                                                            | Qualitative   | The roots of productivity lie in the national and regional environment for competition                                                                                                                                                                                                    |
| 2012                                           | Ghauri and Santangelo  | Look at the changing environments of international business and the new challenges faced by multinational enterprises from developed markets | Desk research | Addresses some of these challenges faced by international business research and analyses how firms both from developed and emerging markets are dealing with these new phenomena and challenges                                                                                           |
| 2013                                           | Pe'er and Keil         | Are all start-ups similarly affected by the survival benefits and drawbacks of locating in geographic clusters?                              | Desk research | The local levels of skilled labour, suppliers and purchasers have a beneficial influence, and local competition has a detrimental influence on start-up survival; these relationships are moderated by heterogeneity in firms' resources and capabilities                                 |

Table A1.

(continued)



Emergence and  
development of  
low-tech  
cluster

| Cluster definition and value creation approach |                       |                                                                                                    |                                      |                                                                                                                                                                                    |
|------------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year                                           | Author(s)             | Questions                                                                                          | Methods                              | Key results                                                                                                                                                                        |
| 2014                                           | Sultan                | How clusters can enhance the competitiveness of SMEs?                                              | Quantitative and qualitative methods | Positive relationship between cluster and SMEs' performance in the Palestinian food-processing sector                                                                              |
| 2015                                           | Delgado <i>et al.</i> | Comparisons of clusters across regions and support of policymakers in defining regional strategies | 2009 data for US industries          | Proposed set outperforms other methods in capturing a wide range of inter-industry linkages, including the grouping of industries within the same three-digit NAICS.               |
| 2015                                           | Fang                  | Address cluster–innovation relationship                                                            | Meta-analysis                        | The cluster–innovation relationships are state-contingent and provide guidance on evaluating whether a cluster strategy can encourage innovation in a specific region              |
| 2016                                           | Pyke and Lund-Thomsen | What is the role of social upgrading in developing country industrial clusters?                    | Desk research                        | The state's policies and regulations might enable or constrain cluster actors to behave in ways that affect social upgrading or downgrading                                        |
| 2016                                           | Tsang and Siu         | Identify the factors in developing a sustainable cluster in a densely populated city               | Case study                           | The one-size-fit-all strategy could not guarantee the sustainable development of the cluster                                                                                       |
| 2016                                           | Njos and Jakobsen     | Constellations of specialized clusters may hamper the long-term innovation ability of regions      | Desk research                        | Present three theory-based strategies for cluster evolution and link these to regional development and innovation by assessing their impact on regional path renewal               |
| 2016                                           | Knorringa and Nadvi   | Explore the intersection between three processes associated with globalization                     | Case study                           | A greater focus on the formal and informal institutional contexts, termed the “social contract”, in explaining divergent experiences and practices observed across these countries |

(continued)

Table A1.

| Cluster definition and value creation approach |                          |                                                                                                                        |                                                |                                                                                                                                                                                                                                            |
|------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year                                           | Author(s)                | Questions                                                                                                              | Methods                                        | Key results                                                                                                                                                                                                                                |
| 2017                                           | Kamran <i>et al.</i>     | Factors behind the clustering of the motorcycle industry, a low-tech and low-investment industry                       | Survey for 250 firms and interviews of experts | Conjectured a new viable factor for industrial clustering, “ethnic community,” as it acts as a catalyst to diffuse knowledge, experience and skills within the industrial cluster                                                          |
| 2017                                           | Vanzettine <i>et al.</i> | Analyse facilities integration, discounts on investment and production costs                                           | Mathematical model                             | Costs reduction when resources and services are shared by plants within a cluster                                                                                                                                                          |
| 2019                                           | Hamidi and Zandiatashbar | How urban sprawl affects innovation productivity?                                                                      | Multilevel modelling                           | Innovative firms tend to locate more in census tracts that are less compact but offer spatial proximity to firms in related business sectors. The regional compactness positively and significantly affects the number of innovative firms |
| 2019                                           | Khan <i>et al.</i> ,     | Are there significant relationships between the competitive environment and dynamic capabilities and firm performance? | Econometric model                              | There are significant relationship between competitive environment and dynamic capabilities on firm’s performance                                                                                                                          |
| 2019                                           | Paula and Da Silva       | To what extent does product innovation concert into financial performance                                              | Empirical method                               | For extractive sectors (mining and quarrying), formal mechanisms (e.g. patents) are better to protect product innovation and informal mechanisms are more effective to protect process innovation                                          |
| <i>Cluster Challenges</i>                      |                          |                                                                                                                        |                                                |                                                                                                                                                                                                                                            |
| 2000                                           | Porter                   | Economic geography during an era of global competition involves a paradox                                              | Qualitative                                    | Clusters represent a new way of thinking about national, state and local economies, and they necessitate new roles for companies, government and other institutions in enhancing competitiveness                                           |
| 2002                                           | Hospers and Beugelsdijk  | What lessons can be drawn from comparing success stories of regional clustering?                                       | Desk research                                  | Best practices should be seen as inspiration sources rather than as recipes for successful regional economic development                                                                                                                   |

Table A1.

(continued)

| Cluster definition and value creation approach |                         |                                                                                                                       |                                                     |                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year                                           | Author(s)               | Questions                                                                                                             | Methods                                             | Key results                                                                                                                                                                                                                                                                                        |
| 2003                                           | Van Dijk and Sverrisson | The dynamics of clustered enterprise development in developing countries                                              | Desk research                                       | The implications for development policy are outlined, and it is emphasized that support must be tailored to the actual state of existing clusters                                                                                                                                                  |
| 2005                                           | Capello and Faggian     | Verify the existence and importance of relational capital on the innovation activity of firms                         | Quantitative approach, using econometric techniques | Relational capital will play a different role in different regional, sectoral and firm's contexts                                                                                                                                                                                                  |
| 2007                                           | Tallman and Phene       | Examine knowledge flows within and across geographic boundaries of clusters and nations in the biotechnology industry | Mathematical model                                  | Geographic proximity does not matter in some instances, while in others it has a decidedly nonlinear effect                                                                                                                                                                                        |
| 2008                                           | Burfitt and Macneill    | Examine the extent of weaknesses in the theoretical and methodological underpinnings of the cluster                   | Qualitative                                         | Irrespective of whether cluster policy is the appropriate choice as an economic development tool in any particular regional or economic circumstance, its selection always necessitates prior consideration of the institutional capacity needed to meet the governance challenges that it creates |
| 2012                                           | Balland <i>et al.</i>   | The formation of network ties between firms along the life cycle of a creative industry                               | Case study                                          | Video game firms tend to prefer to partner over short distances and with more cognitively similar firms as the industry evolves                                                                                                                                                                    |
| 2014                                           | Tracey <i>et al.</i>    | Examine new product outcomes in the context of regional clusters                                                      | Desk research                                       | New product outcomes result from complex interactions between a cluster's macro-level configuration and its micro-level governance processes                                                                                                                                                       |
| 2014                                           | Ponte and Sturgeon      | The evolution and current status of global value chain (GVC) governance theory                                        | Desk research                                       | The proposed modular framework is built on three scalar dimensions: micro level, a meso level and a macro level                                                                                                                                                                                    |
| 2014                                           | Lei and Huang           | Contradicted perspectives on relationship between geographic cluster and competitive advantage                        | Case study                                          | Firms within the same cluster that have established idiosyncratic network resources have stronger competitive advantages than firms that have not                                                                                                                                                  |

(continued)

Table A1.

| Cluster definition and value creation approach |                                 |                                                                                                              |                       |                                                                                                                                                                                                                                           |
|------------------------------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year                                           | Author(s)                       | Questions                                                                                                    | Methods               | Key results                                                                                                                                                                                                                               |
| 2015                                           | Abdin and Rahman                | Analyse most of the available cluster development models and offer                                           | Desk research         | Proposed a new model titled J. M Model for Cluster Development. This model would be pro-poor, flexible and equally effective in any least developed country and developed economies as well                                               |
| 2016                                           | Gereffi and Lee                 | How industrial clusters are shaped by their ties to the international economy?                               | Desk research         | The new form of "synergistic governance" is illustrated with evidence from recent studies of GVCs and industrial clusters                                                                                                                 |
| 2016                                           | Pyke and Lund-Thomsen           | Examine the role of social upgrading in developing country industrial clusters                               | Desk research         | State's policies and regulations might enable or constrain cluster actors to behave in ways that affect social upgrading or downgrading                                                                                                   |
| 2017                                           | Garcia-Villaverde <i>et al.</i> | Examine if social capital may be influenced by managers' perception of market dynamism                       | A survey of 215 firms | The negative effect of structural social capital on radical innovation worsens when market dynamism perception is higher                                                                                                                  |
| 2017                                           | Chen <i>et al.</i>              | The challenge to relocate SMEs into industrial parks                                                         | Case study            | Inter-firm alliances are an essential policy implementation tool that has the potential to help local government in promoting the relocation of enterprises into eco-industrial parks and to improve industrial environmental performance |
| 2018                                           | Muhammad Auwal <i>et al.</i>    | To what extent does the external pressure influence the entrepreneurial activities within business dynamics? | Survey                | SMEs that seek competitive advantage should resolve their challenges by responding positively to environmental pressure through sustainability                                                                                            |
| 2019                                           | Turkina <i>et al.</i>           | How is firm innovation affected by location in an innovation cluster?                                        | Empirical analysis    | Location of clusters offers benefits and at the same time poses certain constraints                                                                                                                                                       |
| <i>Cluster Promotion Policies</i>              |                                 |                                                                                                              |                       |                                                                                                                                                                                                                                           |
| 1998                                           | Krugman                         | Debate on industrial clusters in developing countries                                                        | Desk research         | Clusters lead to growth and competitiveness of small manufacturers in developing countries                                                                                                                                                |

Table A1.

(continued)

Emergence and development of low-tech cluster

| Year | Author(s)              | Questions                                                                                                                                          | Methods               | Key results                                                                                                                                                                                                                                |
|------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2001 | Park and Luo           | The utilization of guanxi, which is an important cultural and social element in China, and the impact of guanxi on firm performance                | A Survey of 128 firms | Guanxi leads to higher firm performance, but is limited to increased sales growth, and has little impact on profit growth. Guanxi benefits market expansion and competitive positioning of firms, but does not enhance internal operations |
| 2003 | Van Dijk               | Whether the IT companies in Nanjing (China) can be considered an “innovative cluster”                                                              | Case study            | Offers recommendations for stimulating development of clusters; more efforts by local government will be needed to develop an innovative <i>milieu</i> in Nanjing                                                                          |
| 2009 | Lin <i>et al.</i>      | What drives mergers and acquisitions in different institutional environments?                                                                      | Case study            | Learning and network factors vary sharply across countries with different market-based institutions                                                                                                                                        |
| 2013 | Richardson             | Whether knowledge-flows through social interaction occur within the context of a policy-driven cluster?                                            | Case study            | Social interaction leading to knowledge diffusion within the cluster may be lacking                                                                                                                                                        |
| 2019 | Kuksa <i>et al.</i>    | How to assess the effectiveness of the enterprises interaction in the innovation cluster?                                                          | Econometric method    | In adjusting the existing strategy to the acting clusters of enterprises and in developing measures aimed at increasing the effectiveness of their interaction                                                                             |
| 2020 | Prtelski <i>et al.</i> | How is the appropriation strategy of firms formed, and what factors explain the use of the mechanisms that firms use to protect their innovations? | Econometric method    | The cluster of high innovative activity shows a greater incidence of the use of secrecy and patents, while the cluster of low innovative activity presents a greater use of complementary assets and first mover                           |

Table A1.

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