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Entrepreneurial Clusters in China and Mexico –implications for Competitiveness

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Clusters empresariales en China y Méjico: Implicaciones para la Competitividad
Clusters empresariais na China e no México –implicações na Competitividade

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This research examines the common elements that we can find in the outcomes at a national level resulting from clusters. There are 7 common elements of cluster impact, namely: (1) agglomeration economies; (2) knowledge spillovers; (3) increases in productivity and efficiency; (4) positive impact in the operation; (5) economic impact; (6) sociopolitical impact; and, last but not least, (7) impacts on competitiveness. This paper uses radars to compare the cases of the People's Republic of China (PRC) and Mexico. From theses radars we can infer insights for decision makers. For instance, we recommend a cluster policy for Mexico.

Esta investigación examina los elementos comunes que podemos encontrar en los resultados a nivel nacional derivados de los clusters. Existen 7 elementos comunes de impacto del clúster, en concreto: (1) economías de aglomeración; (2) fugas de conocimiento; (3) aumentos de productividad y eficiencia; (4) impacto positivo en la operación; (5) impacto económico; (6) impacto sociopolítico; y, por último, pero no menos importante, (7) los impactos sobre la competitividad. Este documento utiliza radares para comparar los casos de la República Popular China (RPC) y Méjico. A partir de estos radares, podemos inferir nuevas perspectivas para las autoridades responsables de la toma de decisiones; por ejemplo, recomendamos una política de clusters para Méjico.

Esta investigação estuda os elementos comuns que podemos encontrar nos resultados a nível nacional resultantes de clusters. Existem 7 elementos comuns no impacto dos clusters, nomeadamente: (1) economias de aglomeração; (2) transferências de conhecimento; (3) aumento da produtividade e eficiência; (4) impacto positivo nas operações; (5) impacto económico; (6) impacto sociopolítico; e, por último, mas não menos importante, (7) impactos na competitividade. Este estudo utiliza radares para comparar os casos da República Popular da China (RPC) e do México. A partir destes radares, podemos inferir conclusões para os responsáveis pela tomada de decisões. Por exemplo, recomendamos uma política de clusters para o México.

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1. Introduction

Clusters and industrial specialization have been of interest to researchers since the 19th century. In the last decades we have witnessed business and industrial clusters utilized as a tool to enhance competitiveness at the regional and national level. In this paper we seek to identify the different paths of the creation and outcome of clusters in the People's Republic of China (PRC) and Mexico. The driving questions are what the positive effects of a cluster policy are, and what implications they have for policy makers and business people.

We consider clusters a tool that potentiates and provides fuel to a nation's economic growth by linking the agents responsible for productivity and wealth creation. Thus, in order to disclose the effects that the clusters have had in the emerging economies of both the PRC and Mexico, in this research, we took the following steps. The first step was to define business and industrial clusters (presented in the next section). Once that information was compiled, the common elements of the definitions were grouped into categories. Specifically, six dimensions and parameters were set for the advantages of an industrial cluster: (1) agglomeration economies; (2) knowledge spillovers; (3) increases in productivity and efficiency; (4) positive impact in the operation; (5) economic impact; and (6) sociopolitical impact. Those six elements plus (7) impact on competitiveness were embodied in the dimensions of radars created to compare the cases of the PRC and Mexico.

This study is useful for decision makers. First, for the policy makers, it allows a full identification of the advantages of having an explicit cluster policy. Public entities may affect the system by setting up an environment for productive business performance through the creation and enforcement of rules governing the operations of enterprises in the local economy. Second, for business people, it will guide them to determine the important variables in the instauration of a business aggregation that will be helpful in creating wealth. For instance, it is important to have clusters (agglomerations of firms) in a region and make organizing efforts a priority, so that these efforts can be translated into economic development, since clustering offers such benefits.

This paper is divided into five sections. In the first section we have a literature review regarding industrial and business clusters. In this section we analyze the definition of clusters, and highlight the common elements, disadvantages, and advantages found in the literature related to clusters. The second section presents a profile of the industrial clusters in both the Chinese and Mexican cases and compares the policies used to implement clusters in the two countries. The third section shows the methodology used to construct radars that allow us to compare the impacts of the clusters. The fourth section makes a comparison between China and Mexico in the seven cluster advantages dimensions. The last section presents some concluding remarks.

Key words
Business Clusters, China, Mexico, Cluster Policy

Palabras clave
Clusters empresariales, China, Méjico, Política de clusters

Palavras-chave
Clusters Empresariais, China, México, Política de Clusters

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2. Business and Industrial Clusters: Literature Review

From the Ricardian concept of comparative advantage and national and regional specialization, theory demonstrates that certain geographic locations specialize in particular sectors, thus gaining competitiveness (Porter, 1990). Marshall contributed to greater firm productivity by tying the phenomenon of agglomeration of specialized economic activity with Krugman's New Economic Geography (Krugman, 1998) Indeed, the cluster approaches are based on the idea of externalities (illustrated by Marshall's work on the 'Industrial district'; Marshall (1920)), on the competitiveness issue (illustrated by Porter's theory of cluster growth; Porter, 2000a), and on a territorial perspective (illustrated by the GREMI approach; Porter, 2000b).

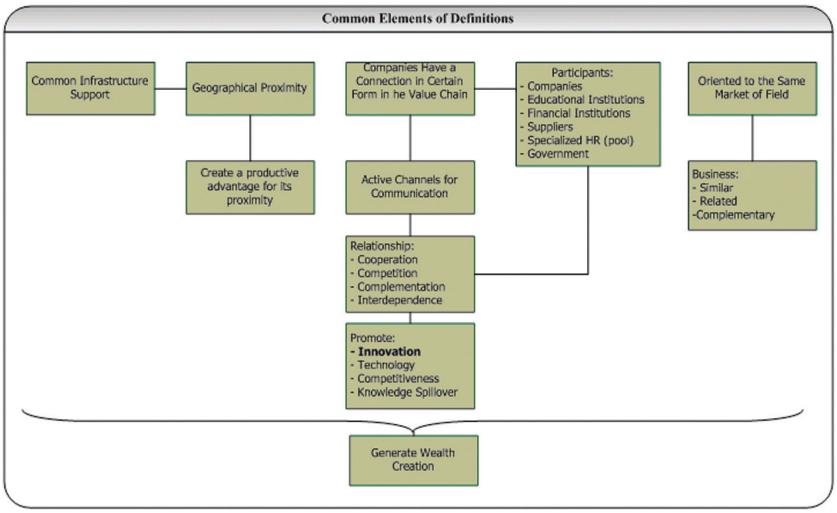
2.1. Definitions of Business Clusters

Clustering has been happening spontaneously throughout time. However, there is not yet a common universal understanding of what a cluster is, nor a common theoretical framework to explain the phenomenon. The diversity of academic approaches to clusters results in different definitions and terms being used by academics and policy makers (associations, business networks, industrial districts, milieu, etc.

All the concepts, from a microeconomic perspective, regarding business and industrial clusters, identified in this paper as entrepreneurial clusters, have elements in common. For some, clusters are a question of localization, proximity, or specialization [Chakravorty, Koo and Lall (2003), Cortright (2006), ITDWB (2009), Kerala Government (2004), Ketels, Lindqvist and Sölvell (2006), Lundvall (2003), Malberg and Power (2006), Maskell and Kebir (2006), Rosenfeld (1996, 2002), and Sonobe and Otsuka (2006)]. For others they are the result of strategies (from institutions) on producers, mainly to promote exports [Cooke and Huggins (2003), ECPG (2010), Ellison and Glaeser (1994), Isbasoiu (2007), Ketels (2003), Porter (1998), Rosenfeld (1997), and SBEDP (2001)].

Clustering occurs at a larger scale (full global value-chain) and can change and take a variety of forms [OECD (1999), and UNIDO (2001)]. Figure 1 summarizes the common elements in the previous definitions of clusters.

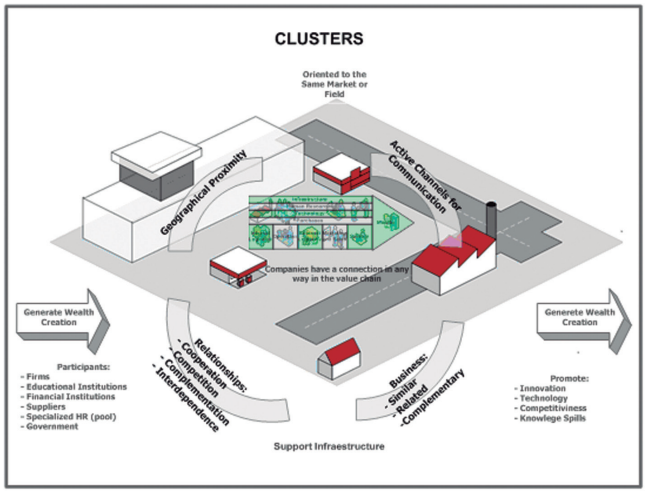
Figure 1: Common elements in the definitions of business clusters



Source: Own creation.

Nevertheless, before any analysis of clusters we need to have a general definition of a business cluster. In general, a business cluster, also known as an industrial cluster is a group representing the geographic concentration of interconnected businesses in an industry that shares inputs related to production, a specialized workforce, distribution and communication channels, and partnership networks. These can be characterized as production networks of strongly interdependent firms (including specialized suppliers), agencies of knowledge production (universities, research institutes, engineering firms), intermediary institutions (brokers, consultants), and also distribution channels and consumers, linked to one another in an added value chain in the production process (see these interrelations in Figure 2).

Figure 1: Common elements in the definitions of business clusters



Source: Own creation.

2.2. Classification of clusters

There exist different types of clusters, depending on each author's definitions. For example, according to the Kerala government (Kerala Government, 2004) clusters can be classified depending on their value chain or workforce. We understand the value chain to imply the common clusters of businesses that buy and sell among themselves. On the other hand, the workforce is based on occupational categories, and the biggest pool of potential employers is the similar occupations.

Another author (Ketels, 2003) classifies clusters according to the type of products or/and services they offer, their geographical location, their specialization in a particular stage of the value chain, and their stage of development. Under geographic location, the different locations play different roles; for example, the New York Financial cluster, the Hollywood media cluster, the Silicon Valley of Information Technology cluster, and the automobiles clusters in Detroit and southern Germany. Under specialization in a particular stage of their value chain, we have the following examples: the short production in Portugal, China's manufacturing, and the design of shoes in Italy. We understand stage of development to include the environment quality of external business and the progress of cooperation in the environment.
A cluster's dimensions can be defined by its industrial connections, geographic extension, life cycle, and the linkages among its participants (Cortright, 2006). The industrial connections refer to buyer-supplier relationships and the value chain. A denser nearby network of suppliers and buyers is an advantage. The geographic extent makes reference to metropolitan, regional, and smaller clusters (some blocks).

1. By the development phase or evolution

When categorized by development phase, a cluster can be a potential cluster, latent cluster, or working cluster (Isbasoiu, 2007). For a potential cluster, there are some good opportunities and some key elements are ready in place. A latent cluster is in an area with a high number of firms but a low level of interaction due to a lack of trust, low cooperation, and high transaction costs. In a working cluster, the industrial district is well developed. When categorized by development stage, a cluster can be a survival cluster, advanced mass production cluster, or cluster of transnational corporations (Altenburg and Meyer-Stamer, 1999; Schmitz and Nadvi, 1999). The competitive potential of survival clusters is limited. They exist due to unfavorable macroeconomic conditions than caused by entrepreneurial competition and dynamism. Clusters of transnational corporations are made up of technically advanced foreign firms that locate in particular areas to draw on regional agglomeration economies, but have limited links to local firms and institutions. In an advanced mass production cluster, the firms produce for local markets but increasingly face global competitive pressures.

Additionally, when categorized by development phase a cluster can be an incipient or mature cluster (Schmitz and Nadvi, 1999). An incipient cluster is in the early stage of industrial development, and is usually located in a poor area, producing for local markets with simple technology and labor skills. A mature cluster consists of more advanced firms in terms of technology and skills; they produce for the global markets and are vulnerable to global pressures (Isbasoiu, 2007). According to the cluster life cycle, clusters can be emerging, established, mature, declining, or imaginary. The emerging clusters usually consist of many new firms, with rapid growth and frequent changes in firms and products. The established clusters

involve a few larger firms, with slower growth and fewer changes. In a declining cluster, the rate of employment is stagnant, and there are many closures and few changes. The imaginary cluster life cycle occurs when businesses try to create an industry cluster. Participants may or may not know that they are part of the cluster.

2. By Inter-firm Relationships and industrial organization

In terms of the relationship between firms and industrial organizations, clusters can be Marshallian, Italianates, hub and spoke, satellite platforms, or State-anchored clusters (Markusen, 1996). Marshallian industrial districts are groups of roughly equal firms that compete with one another and engage in small transactions but do not intentionally cooperate. Italianate industrial districts consist of firms that are roughly equal but both compete and cooperate. The hub and spoke (distribution and connection centers) districts are dominated by a single large firm that creates a substantial market for local suppliers and generally sets the conditions for their relations. Satellite platform districts are collections of branch facilities that are usually larger, autarkic, tapping low-cost labor, or getting closer to markets. State-anchored districts are those that owe their existence to government spending, such as military activities or government research laboratories (Cortright, 2006).

Gordon and McCann (2000) identify three different cluster types (or cluster processes): pure agglomeration, industrial complex, and social network. In the pure agglomeration model there is a spatial concentration of firms but an absence of formal structures or strong long-term relations between them. In the industrial complex model there are sets of identifiable and stable relations among firms that are in part manifested in their spatial behavior. In the social network model there exist trust-based behavior and transitive private relationships.

3. By analysis level or geographical extension

By level of analysis, clusters can be national level, industrials, or company level (Roetlandt, 1999). National level (or macro level) refers to a network of industrial groups as a whole. At the industrial level (or meso level), the networks inter or intra industrials are founded in different phases of the production chain with similar final products. At the firm level (or micro level), the specialized suppliers are around the central business and there is union among firms.

4. By stages of development or conformation

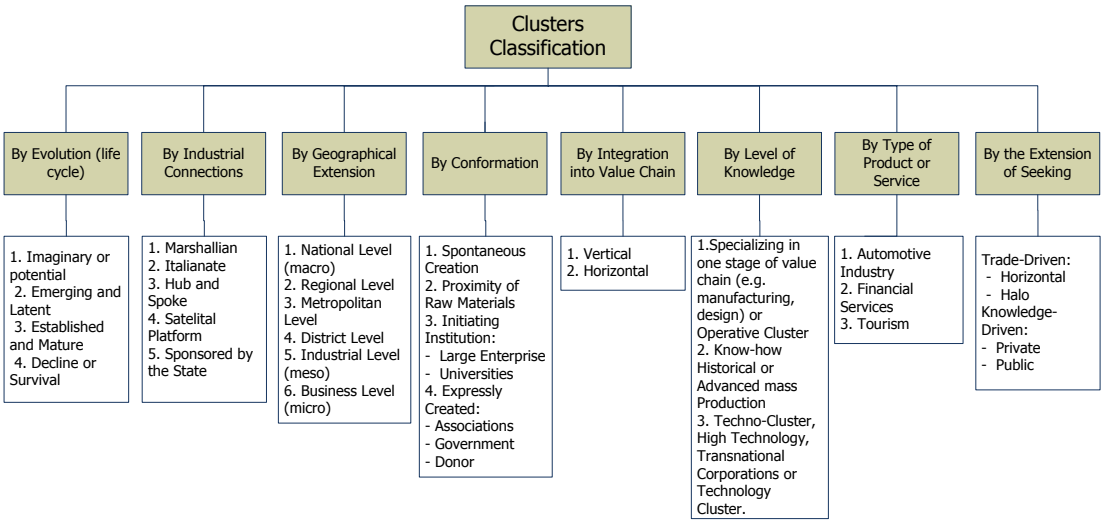
Depending on the stage of development, clusters can be classified as spontaneous creations or strategic creations (Ketels, 2003). A spontaneous creation can take many years to consolidate, because the principal raw material is close. It refers to institutes as companies and universities that attract investment. On the other hand, a strategic creation of cluster has a quick development of the tripartite union: business, government, and financial donors.

5. By integration into the value chain

According to their integration, clusters can be vertical or horizontal (Isbasoiu, 2007). Vertical integration refers to industries united by the buyer-seller relationship. Horizontal integration happens when there are industries that share common markets, technology, labor force skills, and sources.

Depending on the value chain, clusters can be classified as technology clusters (development of technology) or operational clusters (production manager) (Amano, 2006).

Figure 3: Classification of Clusters



Source: Own creation.

6. By level of knowledge

Based on knowledge, a cluster can be a techno-cluster or a historic know-how-based cluster (Isbasoiu, 2007). The techno-cluster is oriented toward high technology and is well adapted to the knowledge economy. The historic know-how clusters are based on traditional activities that maintain their advantage in the know-how (operation's experience) over the years.

7. By type of product or service

By type of product or service that they provide, we can find as examples the automotive, financial services, tourism, and many other industries.

8. By the extension of seeking

Following Johnston (2003), clusters can be classified by their development phases as trade-driven clusters or knowledge-driven clusters. In a trade-driven cluster, the business opportunities of clusters can be horizontal or halo. Horizontal business opportunities are in the same end-product market, and cooperate in the pre competitive activities such as R&D, collective marketing, and purchasing. Halo opportunities involve a powerful and demanding purchaser who attracts many suppliers. In a knowledge-driven cluster, the chance to learn comes from public and private sources. Private sources are interested in knowledge that many firms have. Public sources are interested in organization knowledge about the public sector. That classification was expanded because in both trade-driven clusters and knowledge-driven clusters, the cluster can be (a) local/regional, (b) international, or (c) virtual.

Figure 3 summarizes the classification of clusters by evolution, industrial connections, geographical extension, conformation, integration into value chain, level of knowledge, type of product or service, and the extension of seeking.

2.3. Beneficial impacts of clusters

Three distinctive groups of impacts are identified, focusing respectively on local spillovers, the region and its development, and competitiveness. As economies evolve and gain in complexity, there is wide recognition of the advantages derived from locating firms near similar sectors that include supply sources, as they tend to cooperate and increase productivity. Thus, clusters stimulate and allow innovation, productivity, and efficiency; they also have a beneficial impact, facilitate trade, and naturally generate an economic agglomeration. Clusters have an economic impact and are an economic policy tool, among other advantages.

1. Agglomeration economies

The effects of agglomeration economies caused by clusters include the following: concentration and labor specialized markets; specialization and work division to get scale economies; possibilities of outsourcing; specialization of suppliers; facility to transfer technology, share information, and knowledge; and cheaper transaction costs (OECD, 2001).

We can distinguish these agglomeration economies for the operation and technology clusters (Amano, 2006). The advantages of agglomeration economies for the operation clusters include low transportation costs, shorter transportation time between the respective stages of the value chain, economies of scale in the production, quick production launch, prompt imitation of innovation, monitoring of the quality of suppliers, and low inventory costs. The advantages of agglomeration economies for the technology clusters include an early recognition of new technology and market opportunities, the creation of new technology through many start-ups and technology spillovers, the creation of new products, access to venture capital, and the specialized pool of human resources.

2. Knowledge spillovers

Related to the first aspect – stimulating and allowing to innovate – the existence of a cluster generates an increase in the perceived opportunities for innovation, in that there is creation of knowledge between the suppliers and institutions, facility of experimentation, and knowledge spillovers (Ketels, 2003). Indeed, there is a general shift in explanatory emphasis from considerations of static cost efficiency towards more dynamic interpretations that highlight the creation and use of knowledge as their pivotal theoretical element.

3. Productivity and efficiency

Clusters generate higher level of productivity and efficiency, more specialized assets, efficient access to resources, facility to coordination, fast diffusion of better practices, and comparisons of visible and fast performance that companies can use to improve (Ketels, 2003). The existence of clusters to improve the national advantage of certain sectors and SME competitiveness in an industry also causes a region to become more attractive, with more development and better economic performance, and intensifies the industry-research collaboration (Johnston 2003).

4. Positive impact in operational performance

In terms of operational impact, the existence of clusters generates more emphasis on increasing added value, contributing to an increase in exports, greater support for innovation, development of the supply chain, an increase in jobs, improvement in the business environ-

ment, attraction of new business and investments, reduction in production costs, facilitation of the search of funds, and commercialization of academic research (Ketels, Lindqvist and Sölvell, 2006).

5. Economic impacts

The economic benefits that may accrue to firms when clustering or co-locating are known as the existence argument of clusters. In terms of economic impact, some benefits of clusters are increased cooperation, increased economic importance of the region, a wider range of market economy, an improvement in innovative capacity, an increase in the number of local firms, an increase in the use of local suppliers and sales, more levels in the value chain, and increased competitiveness (Ketels, Lindqvist and Sölvell, 2006).

Clusters as economic policy tools are a part of a new approach to economic development policies. There is a resources alignment, relating technology, skills, information, marketing, and market necessities. Thanks to clusters, new roles are assigned to the private sector, government, and associations, uniting enterprises of all sizes, creating a dialogue forum, identifying common opportunities, and generating a guide to socioeconomic order policies (Ketels, 2003).

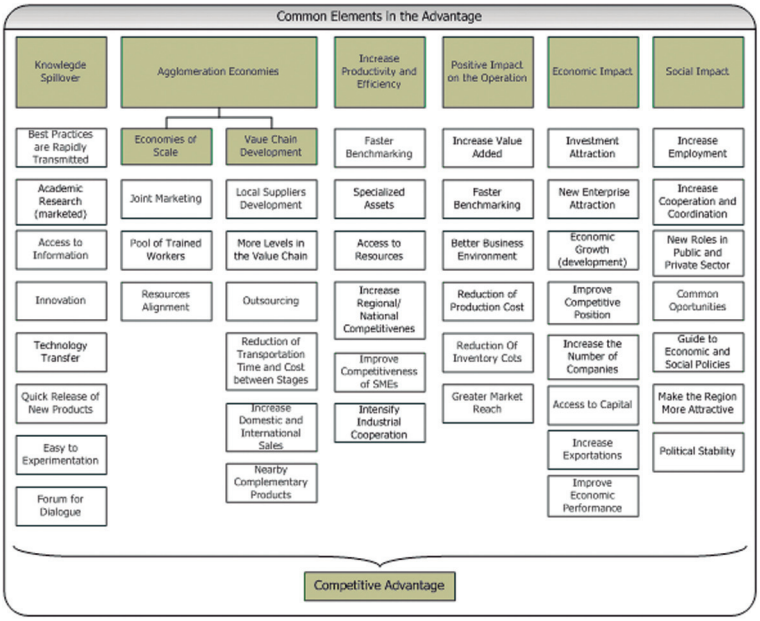
6. Other benefits to society

Social benefits also are part of the existence argument of clusters. Other advantages generated by the clusters include: the publicity impact; a high demand for raw material (which attract suppliers); the easy access to different markets, technology, and business partners; the opportunity to receive subcontracting; marketing, purchases, entertainment, and joint testing; closer complementary products; localized economies that reduce costs; and access to a generous potential of employers and a larger pool of labor (Kerala Government, 2004).

7. Summary of the positive impacts

Figure 4 summarizes the seven impacts of the clusters: (1) Knowledge spillovers, (2) Agglomeration economies, (3) Increases in productivity and efficiency, (4) Positive impact in the operation, (5) Economic impact, (6) Sociopolitical Impact, and (7) Competitiveness.

Figure 4: Common elements in the beneficial impacts (advantages) derived from clusters



Source: Own creation.

2.4. Negative impacts of clusters

Maskell and Kebir (2006) argue that the profundity of the notion of 'clusters' is conditional on the coherence of two fundamental issues associated with the concept: the extension argument and the exhaustion argument. The extension argument is related to the diseconomies encountered when clustering exceeds certain geographical and sectoral thresholds. The exhaustion argument refers to the possible erosion of economies and onset of diseconomies over the lifecycle of the cluster.

Duranton (2007) identifies two main inefficiencies associated with clusters: the failure of coordination and the uncompensated externalities in production. The first one, coordination failures, happens because clusters tend to be 'too big'. One way to solve this problem is to restrict the size of existing clusters or to create new ones. The second inefficiency is about external effects at the root of the agglomeration/clustering that also make production inefficient in clusters. It is necessary to fix those inefficiencies in production.

According to Meyer-Stamer and Harmes-Liedtke (2005), another disadvantage of clusters is that inputs and labor costs are less competitive over time due to the strong competition. Moreover, there is a dependency in a geographical zone on industries belonging to the cluster. So if the cluster is badly affected by something, then the region also suffers that negative impact.

There is the possibility that newcomers to the cluster will be non-competitive, and that they will not have the benefits obtained by the pioneers such as cost reduction, specialized infrastructure, and institutional support (Barkley, 2001). If there is no previous study or well-designed plan of action, the entrepreneurs can lose interest and withdraw their participation, and thus this action discourages possible actors to get into the cluster project (Morales, 2007). Therefore, clusters may discourage investment in innovation. Incorrect spatial and commercial planning can cause the affiliates of the cluster to lose industrial feasibility and damage its components. The lack of studies and projects can make the planning of an economic cluster less attractive, constraining the quantity of entrepreneurial nuclei that belong to it.

3. Cluster policies in China and Mexico

Industrial policy is interested in economic structure, which is in turn concerned with production models in different sectors, implying that it is related to adjustment measures, both directly and indirectly promoting and slowing at the micro or macro levels[1]. Normally, industrial policy will be linked to income, sectoral policies, and regulations (Katzenstein, 1985; Eaton and Grossman, 1986). Industrial policy usually involves coordinated efforts between the public and private sectors to develop new technologies and industries. For instance, governments provide financial support and capital to private sectors by direct subsidies, fiscal rebates, or credit of state-owned banks.

The aim of industrial policy is to influence (or foster) competitiveness and to reach economic policy objectives such as promoting employment, investment, growth, or balance with the foreign sector (Hernández, 2010). Industrial policy emphasizes cooperation between governments, banks, private firms, and workers to enhance the national economy. It is in this favorable economic environment that cluster policies are connected to industrial policy. The cluster policy is important to support national and regional economic development policies (Asheim, Cooke and Martin, 2008; Sölvell, Lindqvist, and Ketels, 2003).

This research compares the effects of business and industrial clusters in the People's Republic of China (PRC) and Mexico. Before presenting the cluster outcomes, we present the profile of each country regarding business clusters.

The cluster concept has been addressed and used in different ways to explain economic development processes. Clusters have gained popularity and nowadays are considered key drivers of economic development, innovation, and competitiveness. In the following paragraphs, we will discuss information concerning the clusters and their supporting institutions in the cases of China and Mexico.

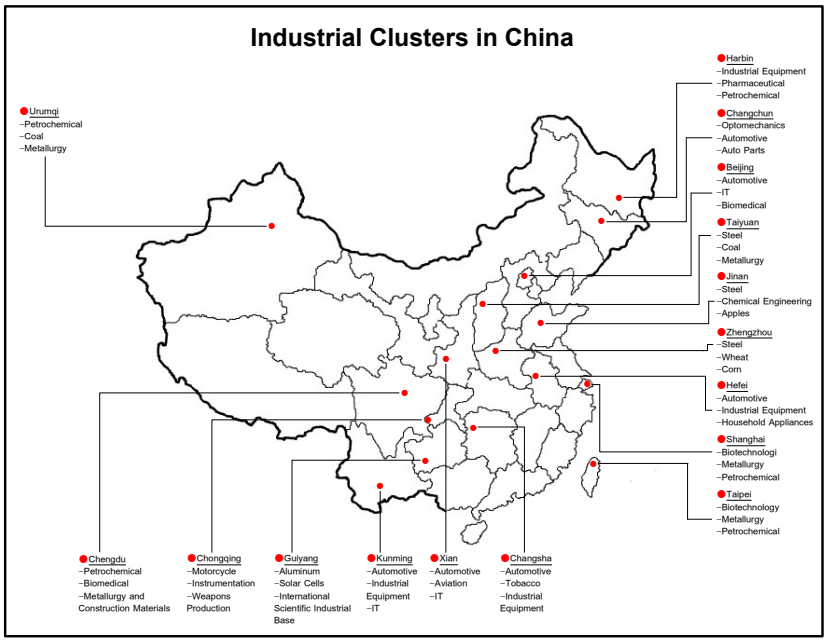
1. Historically, the term "industrial policy" has been associated with some degree of indicative or economic planning, though this is not the connotation in this research. Governmental involvement in business planning is suspiciously watched from the liberal side. Critics of industrial policy claim that governments can do nothing to improve things better than can the market forces related to choosing winners, and that such misguided efforts can worsen the state of things.

3.1. Cluster Policies in the People's Republic of China

Although it is possible to identify agglomerations of firms in the production of ceramic, porcelain, and silk many years ago[2], business clusters in modern China were officially started along with the beginning of economic reform in 1979, through the establishment of a strategic plan for the agglomeration of firms in which the government promoted the concept of "one village, one product" (Bellandi and Di Tomasso, 2005).

Using some parts of the province of Guangdong as evidence (Bellandi and Di Tomasso, 2005), and with government support, the production of several products started in small businesses. They evolved to form the country's current industrial base. Today many of these companies still exist, and some are still state-owned, although the majority belongs to private capital. All subsist and now operate under the aegis of the cluster. Figure 5 shows the most representative cities of China, where the government has identified business clusters along with their activities of specialization.

Figure 5: Industrial Clusters in the People's Republic of China



Source: Own creation.

The emergence of clusters in China has been more intense in cities in the delta regions of the Yangtze and Pearl Rivers, due to their privileged location for receiving goods and their proximity to Hong Kong and Macau, i.e. the potential investors of the time, whose development had begun years in advance (Enright, Scott, and Chang, 2005). The cluster in the

2. In China, industrial agglomerations have a long history. Jingdezhen has a ceramic and porcelain production group with a history more than 1,400 years old, while Shengze city of Wujiang of Suzhou in Jiangsu Province has been one of the most famous silk centers for hundreds of years.

Yangtze delta region covers seven cities of Jiangsu Province, the city of Shanghai, whose Special Management Zone does not belong to a province and reports directly to the central government, and 8 cities of Zhejiang Province (Li and Fung Research Centre, 2006a). The Pearl River Delta is located in Guangdong Province, which has twelve cities with business clusters and is the location of the oldest cluster initiatives from the 1980s (Li and Fung Research Centre, 2006b). Since then, in the north, the areas surrounding the capital city and the capital itself have also developed this type of business cluster (Li and Fung Research Centre, 2006c). Although the west of the country is less developed than the above areas, nowadays it is possible to find clusters in their initial stages that are beginning to participate fully in national production (Li and Fung Research Centre, 2010).

In its "statement to facilitate the development of industrial clusters", issued by the National Commission for Reform and Development (NDRC, 2007), the central government recognized that clusters contribute to industrial development and provide economic development. The statement sets out specific actions, with regard to clusters, that include: strengthening the planning process, creating awareness on the best use of resources, improving business leaders through specialization, encouraging innovation, promoting sustained growth, encouraging the creation of regional brands through patenting, developing service providers, and ensuring the coordinated location of businesses.

Provincial governments have also established specific guidelines that contribute to the development of clusters installed within their borders, and have organized annual fairs for submitting the marketing of their products.

The Guangdong provincial government (People's Government of Guangdong Province, 2007) is a pioneer in these kinds of policies, because it is the location of the first business clusters created under cluster initiatives. With economic growth and the need to expand, other provinces such as Shandong (People's Government of Shandong Province, 2008), Shaanxi (People's Government of Shaanxi Province, 2009), and the city of Chengdu in Sichuan Province (People's Government of Chengdu, 2009) have also established specific policies.

Based on their characteristics, the Li and Fung Research Centre (2006) identified five types of clusters in China: self-growth, export-oriented, high technology, resource-driven, and market-driven.

The first had its flowering in the early 1980s, consisted of small family businesses, and had as its main attribute an intensive use of labor. This type of cluster's products are low-tech and have few barriers to entry. Examples of such clusters can be found in the production of fireworks in the provinces of Jiangxi and Hunan, and the metal processing in the city of Zhongshan.

Export clusters arose through foreign investment in the use of low-cost land and labor, and were mainly in Pearl River Delta cities such as Shenzhen, Zhuhai, Zhongshan, Shunde, Nanhai, and Dongguan. They were dedicated to the industries of electronics and electrical products, textiles and clothing, footwear, plastics, financial services, and logistics.

Beijing, located in the north, has a successful high-tech cluster. Being in an environment of companies and research centers, it has become the nation's largest center of research and

development in information technology, and is found around Beijing and Tsinghua Universities, two of the best in China.

Resource-driven clusters are formed by companies that depend on the availability of natural resources, such as forestry, mining, or quarrying. In this way, China has developed furniture and jewelry companies to continue their process of specialization and increase the quality of their products in general. Clusters of this classification can be found mainly in the provinces of Hunan and Jiangsu.

In the market-driven type of clusters, there can be found wholesale distributors operating in support of other clusters. Clusters can be classified as purely one type or another like those listed above, or as a mixture of the types.

The massive development that China has experienced over the last thirty years lies in these areas that have followed a plan organized by the government, with special attention to policies that promote growth, while making efforts to integrate participants and improve clusters. However, links between the cluster participants are still weak (Liu, 2008).

According to the Ministry of Science and Technology of the PRC (2008) the following important industrial areas (clusters) are distinguished:

Zhuongguancun (ZGC) in Beijing.

- Zhangjiang high-tech park in Shanghai.
- Pearl River Delta.
- Bonai Bay.
- Yangtze River.

So far, the country has had outstanding growth in the global economy, but is still at the absorption stage of technology in both equipment and knowledge to provide support to the competitiveness challenges it now faces.

3.2. Cluster Policies in Mexico

In Mexico, efforts to enhance national productivity are held at the state level. Through the identification of motor activities, some of the entities have been able to visualize and implement cluster initiatives, while others have naturally witnessed the growth of a sector in their territories, and in order to organize their efforts, they have also established initiatives. Several support institutions have joined the efforts of each state or have arisen as a result of planning the cluster initiative (OECD, 2009a, 2009b).

Companies are the main support for productivity, and must operate with a regional vision in conjunction with national efforts. In Mexico, national policies do not sufficiently stimulate competitiveness in all regions, so there is a lack of a coordinated approach to regional development policies and thus an uneven performance across the country. National policies have focused on poverty or infrastructure with greater emphasis, rather than on the development of competitiveness (OECD, 2009b).

The 2007—2012 National Development Plan mentioned the intent to achieve higher levels of competitiveness. Although the motivation for cluster development in the country is not explicitly expressed, there is a Department of Micro- and Small Enterprises (Mipymes) within the Ministry of Economy (SE) that has information related to the creation and development of business in clusters. In addition, the Mexican Institute for Competitiveness (IMCO) develops analyses on this subject and calculates an annual index. Many academic institutions have also established competitiveness departments to run research on clusters and provide business incubation services; some state governments have established support institutions for the same purpose. All these organizations participate in the process of creating clusters in Mexican states.

The following table summarizes a study prepared by TEC de Monterrey (ITESM-FEMSA, 2009) on the identification of motor activities and the possibility of being the source of a cluster in Mexico at the state level. Table 1 classifies the clusters listed as current, emergent, or future. The first column shows the sector of the economy in which the cluster specializes. The second column list the state(s) in which the cluster is currently located, while the third and fourth columns list the state(s) in which the cluster is emergent and will be located in the future, respectively.

Table 1. Clusters in Mexican States classified by status

Clusters*	CURRENT	EMERGENT	FUTURE
Medical, Optical and Measurement Equipment	Baja California	Baja California	Sonora
		Sonora	Nuevo León
			Tamaulipas
			Guanajuato
Electronic, Computer, Communication and Signaling Equipment	Aguascalientes	Baja California	Zacatecas
	Baja California	Puebla	Tabasco
	Jalisco		
Agricultural and greenhouse products	Michoacán	Zacatecas	Nuevo León
	Sinaloa	Michoacán	Durango
			Zacatecas
			Nayarit
			Guanajuato
			Hidalgo
			Colima
			Puebla
			Morelos
			Chiapas

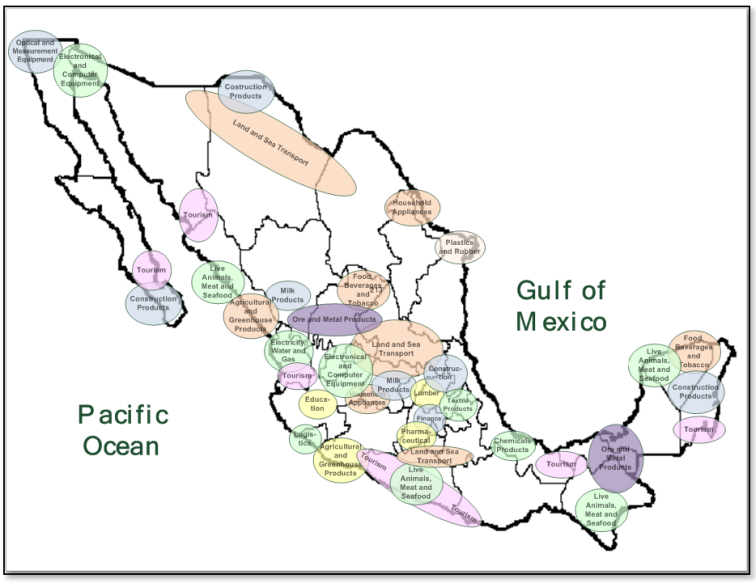
Clusters*	CURRENT	EMERGENT	FUTURE
Textiles and Clothing	Hidalgo	Yucatán	
	Tlaxcala		
Spatial Navigation Equipment		Sonora	Baja California
			Sonora
			Chihuahua
			Querétaro
Business' Support Services		Nuevo León	Aguascalientes
		Guanajuato	Distrito Federal
		Edo. de México	Guerrero
		Sinaloa	Quintana Roo
		Baja California Sur	
Medical and Hospital Services		Yucatán	San Luis Potosí
			Veracruz
			Jalisco
			Puebla
			Aguascalientes
Tourism Services	Baja California Sur	Veracruz	Durango
	Guerrero	Michoacán	Hidalgo
	Michoacán	Oaxaca	Puebla
	Morelos	Campeche	Chiapas
	Nayarit	Quintana Roo	Yucatán
	Oaxaca		
	Quintana Roo		
	Sinaloa		
	Sonora		
	Tabasco		
	Veracruz		
Obtaining and processing Non metallic ores and Fuel	Campeche		Campeche
	Chiapas		Chiapas
	Durango		Durango
	Zacatecas		Zacatecas
	San Luis Potosí		San Luis Potosí
	Tabasco		Tabasco
Lumber and Wood Products	Querétaro	Durango	Querétaro
		Querétaro	
		Oaxaca	
Educational Services	Jalisco	Aguascalientes	Jalisco
		Morelos	

*Economic clusters with Greater Impact in Mexico (More dynamic clusters with greater business opportunity in the medium term. They are not a reflection of the traditional activities of each state).

Source: Portal Ciudadano del Gobierno Federal, 2009.

Figure 6 shows a map of the Mexican states and their economic activity related to business clusters.

Figure 6: Entrepreneurial Clusters in Mexico



Source: Portal Ciudadano del Gobierno Federal, 2009.

Half of the clusters are closer to the center of the country. Companies naturally selected proximity to Mexico's capital city. The states of Nuevo León, Coahuila, and Chihuahua have a manufacturing history of many years, and the city of Tijuana in the state of Baja California has developed thanks to the U.S. border and the advantage of abundant labor for companies that were located there in order to export to the northern neighbor.

Clusters have emerged through an initiative in at least eight states (Neri, 2008). These states are Nuevo León, Querétaro, Coahuila, Baja California, Aguascalientes, Jalisco, Chihuahua, and Guanajuato[3].

Nuevo León represents the state with the largest manufacturing share given the evolution of the sector through the years. It holds cluster initiatives in the automotive, appliance, electrical/electronic, metal-mechanical, steel, glass, cement, information technology, and software sectors (Neri, 2008). The state government also considers latent clusters in other sectors, such as non-metallic minerals, food and beverages, and chemical products. Besides paying the corresponding attention to the sectors in the implemented state development plan, the state has clearly identified the clusters and has established government support institutions

3. The order is carried out according to the state ranking in competitiveness in Mexico. ITESM (2010) is a study in which the 31 Mexican states and the District Federal (DF) are classified according to their competitiveness.

to encourage the operations of the value chain of each cluster, as well as to link them with the academic area of the state at all levels, all this while using domestic support. Nuevo León's strength relies on a high availability of capital, high rates of labor productivity, and an efficient government (Neri, 2008; ITESM-FEMSA, 2009).

The state of Querétaro operates an information technology cluster dedicated to software development services and call centers (Neri, 2008). The state government has shown in their strategic plans the intention to improve competitiveness. National supporting institutions are used to motivate the agglomerations in the state. It holds a liaison body between cluster firms and the government. Likewise, it is responsible for planning and linkage with academia and other participants. It has established agreements with different universities to support research, as well. Its place in the competitiveness ranking is mainly because of the efficiency of the government (ITESM-FEMSA, 2009).

Coahuila has an important role in the automotive industry for domestic consumption. The state government uses national support policies. There is no specific institution that organizes the cluster, but the state government links the efforts of different participants. The state is competitive by maintaining a low debt risk, thus being a good container for foreign investment (Neri, 2008; ITESM-FEMSA, 2009).

Baja California holds an information technology cluster called IT@Baja (Neri, 2008), and the state government has carried out an analysis of the state's vocation and also identified the following as candidates to form a cluster: tourism, medical services, medicine, aerospace, electrical and electronics, automotive, electronic software, furniture, logistics, agribusiness, wine, biotechnology, fisheries and aquaculture, energy, and plastics (OECD, 2009a). To support them, it has implemented a "Strengthening and Creating Cluster Program" for planning and technology development. The North Border College (COLEF) supports research and has created a Joint Fund to support the implementation of a technological development system with investments from companies and the state government, as well as cooperation agreements with multinational companies in the sector concerned. The state is competitive through business dynamics presented as the partnership between business and government (OECD, 2009b; ITESM-FEMSA, 2009).

The state of Aguascalientes holds an electronics cluster initiative (Neri, 2008). The state government has identified it and has included it in the state development plan. It has created specific institutions that provide services to the supply chain in terms of consulting and finance. In addition, an exclusive agency to attend to issues between the companies and the government has also been created. It also promotes links with academia and research centers in the state. Currently, the state government encourages the development of other activities that are present in the state and are to be clustered in the near future. Such is the case for the food industry and its technology, trucking logistics, robotics and automation, and an integrated cluster of municipal products whose purpose is to promote the marketing of products made in the state. Its website displays information about these support institutions, which are in their infancy stage. In terms of competitiveness, the state is showing progress in business investment as its main strength over the last decade (ITESM-FEMSA, 2009).

Although Jalisco is a state with significant activity in the trade and service sector, it also has plenty of activity in the manufacturing sector through the operation of business groups

clustered in electronics, traditional sectors (shoes, tequila, jewelry, textile, and clothing design), aerospace, film, automotive, and electronics industries (Hernandez and Von Putlitz, 2009). These are supported by government institutions that provide consulting and loans to micro- and small enterprises. There is also a government body in charge of linking business and academia in terms of technological innovation and a center that supervises and provides support to the electronics supply chain, which is the state's largest cluster (Hernandez and Von Putlitz, 2009; OECD, 2009a; OECD, 2009b). The state is climbing the competitiveness scale from the year 2004 (ITESM-FEMSA, 2009).

The state of Chihuahua holds one of Mexico's first clusters, dating from the 1990s. Its evolution has been gradual, and it currently serves the national economy significantly in the agribusiness sector with a chain of production companies of livestock feed, breeding, milk production, and genetic engineering, and in the automotive and aerospace production of harnesses for aircraft and helicopters, turbines, airframes, and emergency slides. The state has a developed network of institutions supporting the cluster. High trade openness and government efficiency are among its strengths (Neri, 2008, ITESM-FEMSA, 2009).

Guanajuato is home to a significant production of footwear and leather products (ITESM-FEMSA, 2009), and automobiles have also been recently identified as a candidate to enter into a cluster initiative. To that end, the state government has promoted the involvement of academia and the productive sector by identifying demand for professionals as well as training. For this, it works with training centers for labor. In addition, the state government invests through support loans for micro- and small enterprises that integrate the supply chain of these sectors (Unger, 2009). The state has high levels of training among its workers.

Other Mexican states have business agglomerations that have formed over time but have not yet formalized into a cluster initiative. Their state governments establish lines of action that impact them through the use of national support, with no one institution directly in charge of their business operations as a cluster. However, these economic activities can be an important financial support or represent the vocation of the state (ITESM-FEMSA, 2009).

4. Methodology: Radars as means of comparing the impacts of clusters

So far, in order to reach our goal, we have taken the first step of the study, i.e., to set the bases of the research with a summary of various definitions proposed by different authors that help us delimit the meaning of a business cluster. We then analyze the definitions to categorize their common elements.

4.1. Dimensions of the Impacts of Clusters

We found that there are seven dimensions in the clusters' advantages that we were interested in comparing in the PRC and Mexican experience. Therefore, to know the positive effects

of clusters in the local economies, the dimensions of analysis are the following seven:

(1) Agglomeration economies,
(2) Knowledge spillovers,
(3) Increased productivity and efficiency,
(4) Positive impact in the operation,
(5) Economic impact,
(6) Sociopolitical Impact, and
(7) Competitiveness.

The next step is to seek indexes that were considered for the creation of each one of the dimension parameters.

Table 2: Variables (cluster's measurement)

	Variables to Measure	Measurement Unit	References
Business	Business Environment	Ranking on Ease of Doing Business (2009)	World Bank
		Number of Days to Start a Business (days) (2008)	World Bank
		Economic Incentive Regime (2009)	World Bank
	Investment Attraction	Foreign Direct Investment Coming into the Country (2008)	UNCTAD
	Innovation	Number of Patents Created in the Year (2008)	US Patent and Trademark Office
		Innovation Capacity (2009)	World Bank
	Knowledge	Public Expenditure on Education as Percentage of Total Government Spending (2007)	UNDP
		Social Knowledge Indicator KAM (2009)	World Bank
	Level of Entrepreneurship	Global Entrepreneurship Index (GEINDEX) (2009)	Friedrich Schiller University
Economic	Agglomeration Economies	Population Index of Cities with Highest Concentration of People (2010)	UNDP
		Secondary Sector GDP (Dollars) (2010)	CIA - The World Factbook
		Secondary Sector Population (People) (2010)	CIA - The World Factbook
		GDP Per Capita of Secondary Sector (2010)	CIA - The World Factbook
		Electricity Consumption 1,000 Millions kWh	CIA - The World Factbook
		Petroleum Consumption 1,000 Millions Barrels/Year	CIA - The World Factbook
		Natural Gas Consumption 1,000 Millions m3	CIA - The World Factbook
	Productivity	Productivity Levels in 2008 (GDP per Hour worked) (1990=100)	International Labour Organization
	Competitiveness	Global Competitiveness Index (2009)	World Economic Forum
	Solid Macroeconomy	GDP Growth 2008 (%)	International Monetary Fund
	Exports	Exports 2007 (% of GDP)	World Bank Group
		High Technology Exports 2007 (% of GDP)	World Bank Group
Society	Job Growths	Employment Rate (% of employed labor force) (2008)	International Labour Organization
		Human Development Index 2009	UNDP
		Percentage of GDP Dedicated to Education (2009)	Eurostat
		Political Instability Index (2009/10)	Economist Intelligence Unit

Source: Own creation.

Table 2 is related to the environment created in a market economy in the business, economic, and social areas. To measure the impact of the clusters, seven dimensions are considered. The first dimension involves the agglomeration economies measured by seven variables plus the level of entrepreneurship. The second relates to knowledge spillovers and is measured by two variables related to knowledge and two related to innovation. The third factor concerns increases in productivity and efficiency, measured by the index of productivity levels of the International Labor Organization. The fourth factor relates to positive impact in the operation and is measured by three variables of the business environment. The fifth factor involves economic impact, and includes the variables of investment attraction, solid macroeconomy, and exports. The sixth factor involves the sociopolitical Impact, measured by four variables of social and political factors. The seventh and final factor concerns competitiveness, and is measured by the Global Competitiveness Index of the World Economic Forum.

4.2. Measurement of the Dimensions of the Impacts of Clusters

Table 2 shows the variables used (and their sources) in the construction of the indexes that represents the eight dimensions of the beneficial impacts of clusters. Table 2 lists each of the seven dimensions studied with its respective variables.

The sample included 25 selected countries (Australia, Austria, Belgium, Brazil, Canada, Chile, China, Denmark, Germany, Finland, France, India, Ireland, Italy, Japan, Mexico, the Netherlands, Norway, Peru, Russia, South Korea, Spain, Sweden, the UK, and the USA).

Next we compile the information into a database. In some cases we found more than one index or ranking to describe each dimension of the clusters' impact, so we decided to create a composed index for each of the parameters corresponding to the seven dimensions.

Then we normalize the data with 100 as maximum, in order to create averages for each category or dimension. Given that some databases excluded some countries we have chosen, one of the challenges we faced was to find databases with information for each of the countries in our sample. Annex 2 shows the created standardized values (base 100) for the dimensions defined in Table 1. It also shows the original sources.

As soon as all the Indexes were normalized to a 100 base, we did simple averages of the variables included in each analyzed dimension. Annex 3 shows the parameters for the sample countries for each one of the seven dimensions of the cluster impacts.

The next step was to construct radars using the information for each one of the seven defined dimensions. We also included the maximum possible attainable value for each dimension.

5. Comparison of Clusters' impacts in the People's Republic of China and Mexico

Thus, to know the effects of clusters in the local economies, the analysis dimensions are the following seven: (1) Agglomeration economies, (2) Knowledge spillovers, (3) Increased productivity and efficiency, (4) Positive impact in the operation, (5) Economic impact, (6) Sociopolitical Impact, and (7) Competitiveness.

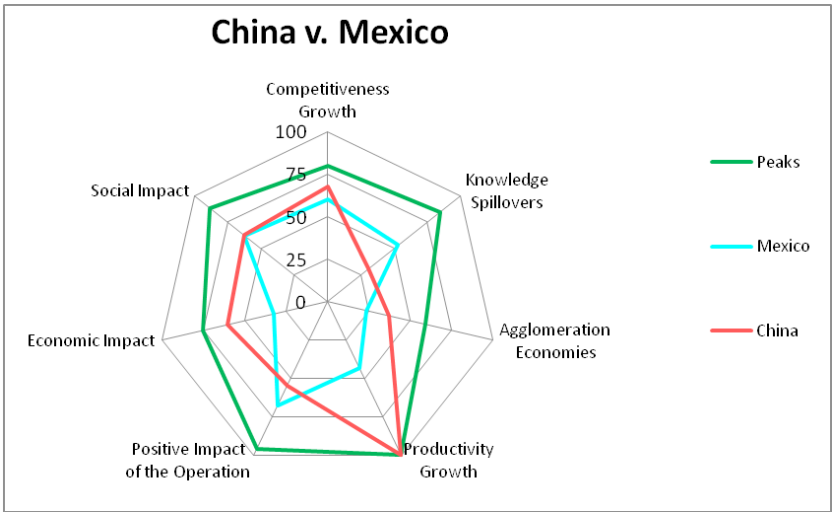
5.1. Radars of the impacts of Clusters

Figure 7 shows (in green) the peaks reached by the sample of countries analyzed. China is represented in red and Mexico's current situation in each dimension in light blue.

On the one hand, China is the top country (in this comparison) for the increase of productivity and efficiency. The PRC also achieves a great economic impact and competitiveness growth. However, China can improve in the agglomeration economies and in the knowledge spillovers. The positive impact in the operation may be improved too.

On the other hand, Mexico has a great need to improve in agglomeration economies, and should seek greater increases in productivity and efficiency and economic impact. Mexico performs well in knowledge spillovers. It is close to the maximum of this sample in social impact and positive impact of the operation.

Figure 7: Comparison of the impacts of the clusters in China and Mexico radars

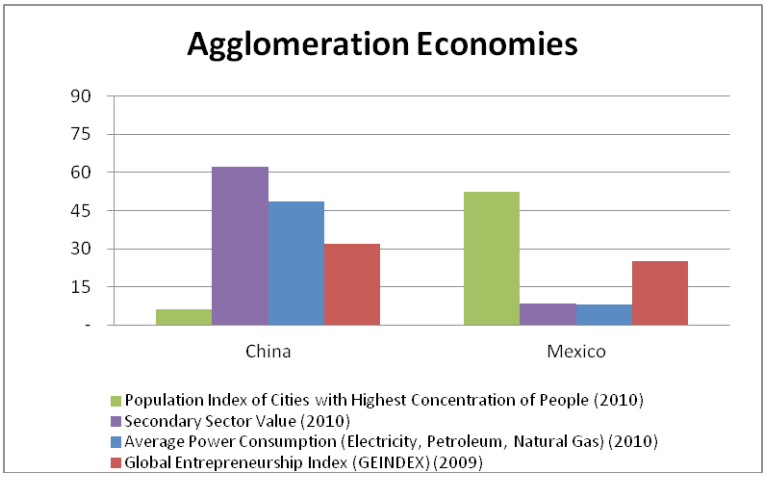


Source: Own creation.

5.2. Comparison of the clusters' impacts in China vs. Mexico

In the seven dimensions we compare, China is better than México in five: agglomeration economies, increased productivity and efficiency, economic impact, sociopolitical Impact, and competitiveness.

Figure 8: Agglomeration economies of the clusters in China and Mexico

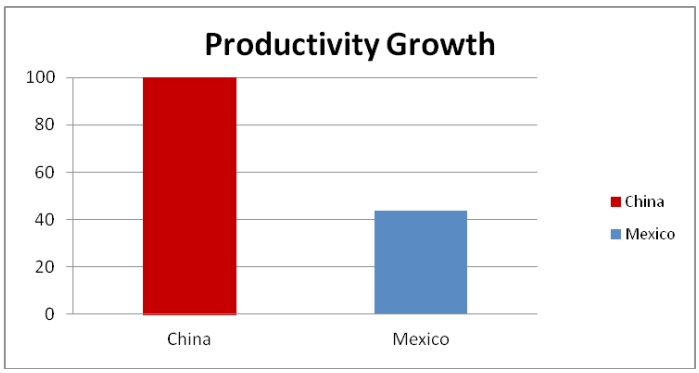


Source: Own creation.

Figure 8 shows the disaggregation of the agglomeration economies at the variable level. With the exception of population index of cities with the highest concentration in 2010 (due to the percent impact of Mexico City's population in Mexico's total population), the variables for agglomeration economies show that China is better when compared to Mexico.

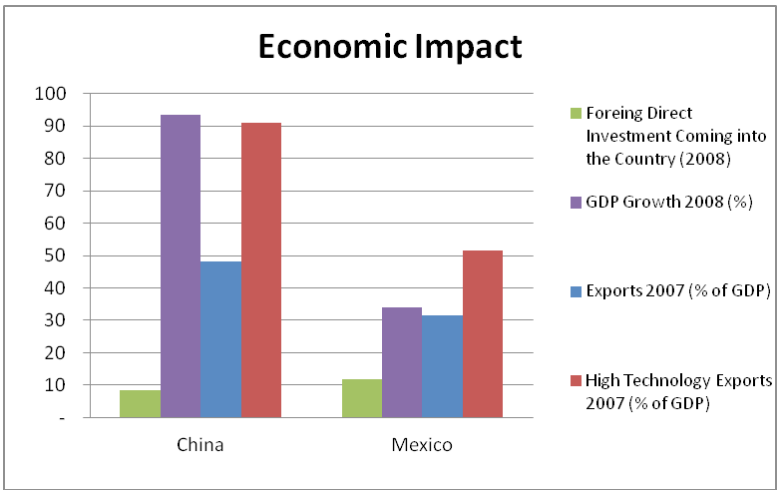
Figure 9 shows the productivity growth, in which index China is the top of the sample.

Figure 9: Impact of the clusters on productivity in China and Mexico



Source: Own creation.

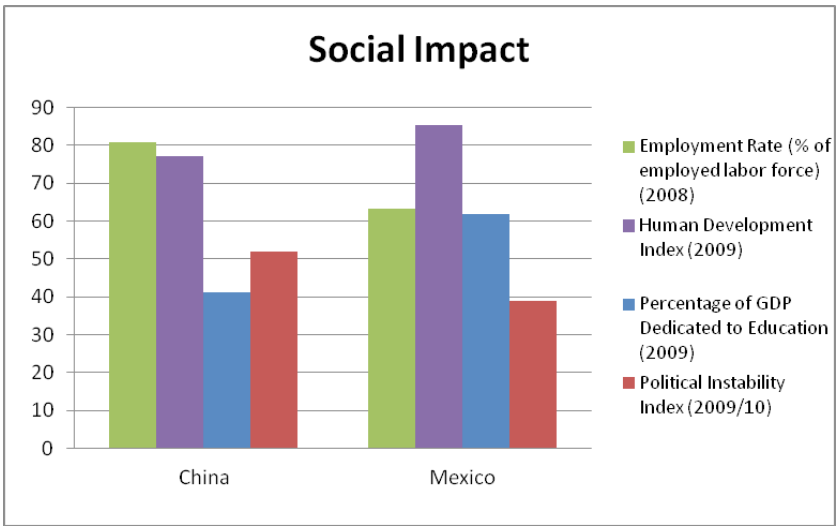
Figure 10: Economic impact of the clusters in China and Mexico



Source: Own creation.

Figure 10 shows the disaggregation of the economic impact of the clusters at the variable level. With the exception of FDI coming into the country, the variables for the economic impact of the clusters show that China has better outcomes, when compared to Mexico.

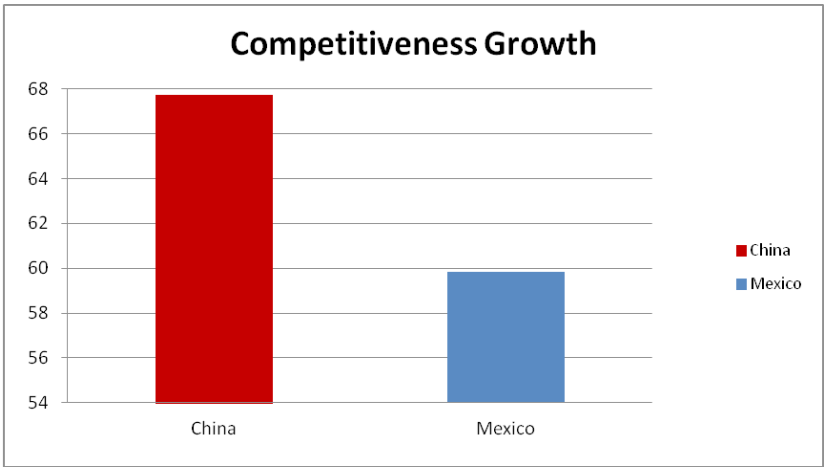
Figure 11: Sociopolitical Impact of the clusters in China and Mexico



Source: Own creation.

Figure 11 shows the outcomes in each variable of the sociopolitical impact for Mexico and China. China gets higher outcomes in the employment rate and the political stability index, and Mexico is superior in the human development index and the percentage dedicated to education. China has a higher index (62.78), but Mexico is very close. (62.35)

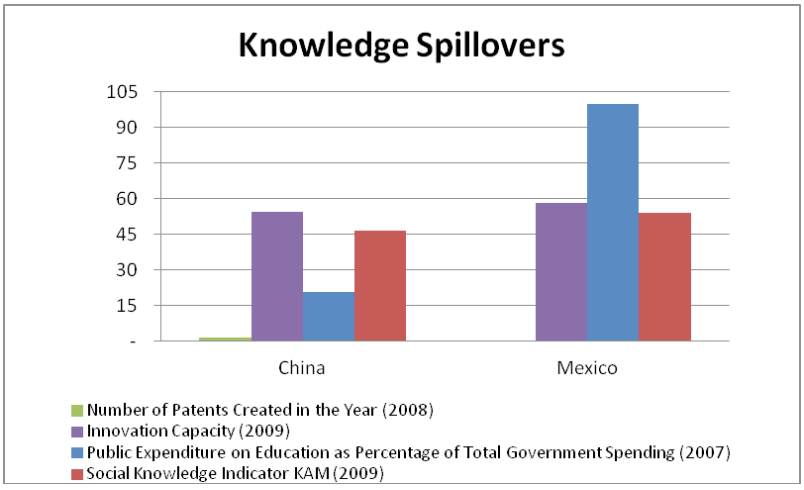
Figure 12: Positive impact of the clusters on competitiveness in China and Mexico



Source: Own creation.

Figure 12 shows that the impact of clusters on competitiveness favors China over Mexico. The following figures (Figure 13 and Figure 14) show that Mexico is better than China in knowledge spillovers and positive impact in the operation.

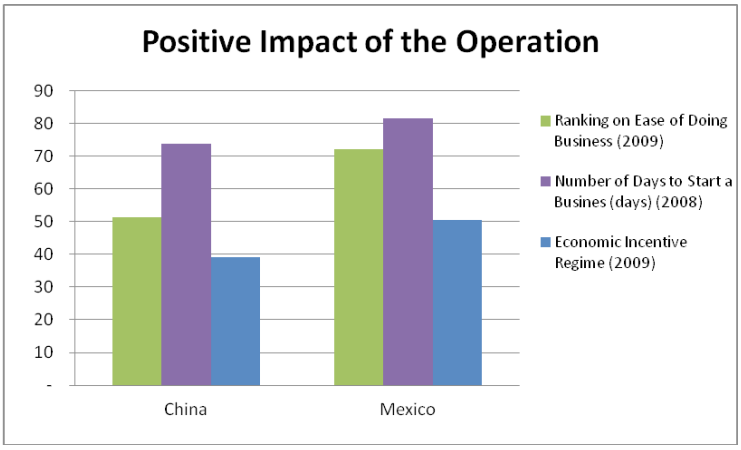
Figure 13: Knowledge spillovers of the clusters in China and Mexico



Source: Own creation.

From Figure 13, it is clear that, with the exception of the number of patents created in 2008, Mexico has better indicators for each variable composing the knowledge spillovers. Figure 14 shows better results in each variable of the positive impact for Mexico when compared to China.

Figure 14: Positive impact of the clusters in the operation in China and Mexico



Source: Own creation.

The abundant low-cost labor market has meant that the People's Republic of China has a competitive advantage that has enabled sustained growth for the past thirty years. That competitive advantage, however, is reaching its maximum. There are now more expensive cities that have enjoyed cluster growth and China has started looking for new low-cost advantages to the west, reinstating part of its operations in less developed regions. That is why there are business clusters in their infancy in the west.

China is in the second stage of its economic maturity, but it needs to prepare its professional labor to absorb knowledge and technology that will allow it to achieve quality and differentiation in production. Additionally, it needs to improve its financial market to support growth and improve the availability of technology through innovation, in order to create a new competitive advantage, now based on knowledge.

On the other hand, Mexico is at the front door of the third stage, but it needs to improve factors such as education and the rigidity of labor regulations, underpin its resources for the creation of technology, strengthen its economic independence, integrate clusters in order to operate smoothly, and also generate new initiatives in other states that are supported by the regions.

Both countries have their own very specific challenges, but they both strive to improve their competitiveness and quality of life for their inhabitants. There are deep differences in terms of competitive performance. What is constant is the importance of an institution or agency to design and oversee the entrepreneurial efforts toward the common goal of raising the quality of life for its inhabitants.

6. Concluding Remarks

The agglomeration of companies provides dynamism and growth to the economy, and if carried out as planned also brings together all participants in a cluster development. The benefits generated from external economies permeate through agglomerated companies and down to the inhabitants of the region, giving way to not only economic but also cultural growth.

In addition, the efforts of the governments of the People's Republic of China and Mexico to integrate clusters have followed different routes. China has implemented more stringent policies and practices changing the way of doing business, and the government has provided the environment for growth to happen. However, Chinese products have not yet reached a level of quality high enough to be recognized internationally as a valued brand. In Mexico, on the other hand, there are agglomerations that have emerged spontaneously and that operate in a moderately efficient way, mainly because the policies established by the government have not been strong enough to internalize the understanding of the benefits of the cluster. However, the government intends to encourage their growth through some supporting institutions established for that purpose. Universities also do their work, and in some states successful clusters exist.

One lesson that policy makers can learn from China is the benefit of a good deal of unilateral policy setting with the aim fixed on economic growth. Its population has raised living standards generally speaking, and the government has earned the trust of its inhabitants. On the other hand, Mexico and its plural participation seem not to agree on the path to improvement that must be followed. These situations are reflected in the overall competitiveness of both countries. With the loss of global competitiveness, the action of public policy should be more aggressive, consistent, and persistent, identifying activities that can be integrated to enhance the competitiveness of a region. In addition, Mexico should raise awareness among states that one path to productivity is the organized efforts of clusters, and should encourage regional manufactured products in order to raise standards through the creation and application of technology. In any case, the creation of an exclusive agency responsible for coordinating and monitoring efforts is necessary (OECD, 2009b).

Annex 1: Standardized data base for the creation of radars (the maximum is 100)

	Competitiveness Growth	Knowledge Spillovers				Agglomeration Economies					Productivity Growth
	Competitiveness	Innovation		Knowledge		Population		Macroeconomy	Energy	Level of Entrepreneurship	Productivity
	Global Competitiveness Index (2009)	Number of Patents Created in the Year (2008)	Innovation Capacity (2009)	Public Expenditure on Education as Percentage of Total Government Spending (2007)	Social Knowledge Indicator KAM (2009)	Population Index of Cities with Highest Concentration of People (2010)		Secondary Sector Value (2010)	Average Power Consumption (Electricity, Petroleum, Natural Gas) (2010)	Global Entrepreneurship Index (GEINDEX) (2009)	Productivity Levels in 2008 (GDP per Hour worked) (1990=100)
	Source: World Economic Forum	Source: US Patent and Trademark Office	Source: World Bank	Source: UNDP	Source: World Bank	Source: United Nations Population Division		Source: CIA - The World Factbook	Source: CIA - The World Factbook	Source: Friedrich Schiller University	Source: International Labour Organization
Australia	73.57	1.67	88.80	51.95	90.80	Sydney	53.48	17.03	4.97	67.00	56.45
Austria	73.29	0.60	90.00	42.58	87.80	Vienna	65.39	13.11	1.50	52.00	58.87
Belgium	72.71	0.66	89.30	47.27	87.70	Brussels	38.36	10.16	2.68	57.00	52.42
Brazil	60.43	0.13	61.90	56.64	61.10	Sao Paulo	27.73	11.70	8.83	20.00	52.02
Canada	76.14	4.38	94.40	48.83	90.80	Toronto	46.18	17.61	13.33	67.00	51.61
Chile	67.14	0.02	68.50	62.50	65.30	Santiago	79.42	6.17	1.11	45.00	58.47
China	67.71	1.58	54.40	20.66	46.60	Shanghai	6.03	62.27	48.70	32.00	100.00
Denmark	78.00	0.50	94.90	60.55	94.90	Copenhagen	45.97	14.19	0.82	75.00	50.00
Finland	77.57	1.06	96.70	48.83	93.90	Helsinki	49.53	11.65	1.34	56.00	61.69
France	73.29	4.08	86.60	41.41	86.40	Paris	45.45	13.93	9.50	55.00	53.63
Germany	76.71	11.50	89.40	37.89	89.20	Berlin	13.18	19.27	14.02	44.00	53.63
India	61.43	0.82	41.50	41.80	29.50	Delhi	14.07	14.88	12.85	26.00	0.00
Ireland	69.14	0.21	90.80	54.30	89.80	Dublin	56.15	18.58	0.77	64.00	65.32
Italy	61.57	1.75	80.00	35.94	81.80	Rome	18.94	13.60	9.48	48.00	47.98
Japan	76.71	43.46	92.20	37.11	86.30	Tokyo	100.00	22.72	20.63	45.00	56.45
Mexico	59.86	0.07	58.20	100.00	54.20	Mexico City	52.31	8.42	7.99	25.00	43.55
Netherlands	76.00	1.71	94.50	44.92	93.90	Amsterdam	17.60	17.08	5.22	60.00	53.23
Norway	73.86	0.35	90.60	65.23	92.50	Oslo	41.50	35.12	1.71	62.00	58.06
Peru	57.29	0	38.70	60.16	48.80	Lima	67.09	3.11	0.70	32.00	67.34
Russia	59.29	0.23	68.80	50.39	68.20	Moscow	23.78	11.01	34.93	24.00	43.00
South Korea	71.43	9.74	86.00	59.77	84.30	Seoul	56.22	12.02	9.11	49.00	91.13
Spain	65.57	0.39	81.40	42.97	81.80	Madrid	38.61	11.42	6.77	43.00	47.58
Sweden	78.71	1.37	97.60	50.39	95.70	Stockholm	32.18	10.57	1.81	73.00	57.26
United Kingdom	74.14	3.99	92.40	48.83	90.60	London	40.53	15.57	10.46	51.00	62.50
United States of America	79.86	100.00	94.70	53.52	90.20	New York	17.20	50.60	100.00	68.00	56.05

Source: Own creation.

Annex 1 (Continued)

	Positive Impact of the Operation			Economic Impact				Social Impact			
	Business Environment			Investment Attraction	Solid Macroeconomy	Exports		Job Growths	Human Development	Education	Political Stability
	Ranking on Ease of Doing Business (2009)	Number of Days to Start a Business (days) (2008)	Economic Incentive Regime (2009)	Foreign Direct Investment Coming into the Country (2008)	GDP Growth 2008 (%)	Exports 2007 (% of GDP)	High Technology Exports 2007 (% of GDP)	Employment Rate (% of employed labor force) (2008)	Human Development Index 2009	Percentage of GDP Dedicated to Education (2009)	Political Instability Index (2009/10)
	Source: Doing Business (World Bank, Intal Corporation. Financial and Macmilan)	Source: World Bank	Source: World Bank	Source: United Nations Conference on Trade and Development (2008)	Source: International Monetary Fund	Source: World Bank Group		Source: World Bank Group	Source: International Labour Organization	Source: UNDP	Source: Eurostat
Australia	95.08	98.68	86.60	23.05	41.87	23.60	42.42	75.90	97.00	68.97	64.00
Austria	84.70	81.58	93.10	20.63	39.49	66.29	33.33	73.80	95.50	68.97	64.00
Belgium	87.98	97.37	88.70	73.51	31.11	100.00	21.21	66.20	95.30	76.88	60.00
Brazil	29.51	0	43.10	21.21	63.02	15.73	36.36	74.90	81.30	66.54	46.00
Canada	95.63	96.71	94.50	18.54	26.80	42.70	42.42	79.40	96.60	62.96	72.00
Chile	73.22	82.24	87.60	57.77	48.16	52.81	21.21	60.20	87.80	43.42	49.00
China	51.37	73.68	39.00	8.39	93.55	48.31	90.91	80.80	77.20	41.12	52.00
Denmark	96.72	96.05	96.10	20.85	14.25	58.43	51.52	79.60	95.50	100.00	78.00
Finland	91.26	90.79	93.10	34.77	31.67	50.56	63.64	74.90	95.90	75.48	68.00
France	83.06	95.39	76.70	26.48	26.09	30.34	81.82	69.10	96.10	71.39	47.00
Germany	86.34	88.16	90.60	5.01	33.28	52.81	42.42	75.40	94.70	57.47	62.00
India	27.32	80.26	35.00	13.58	80.65	23.60	15.15	60.90	61.20	43.30	55.00
Ireland	96.17	91.45	92.60	50.72	0.00	92.13	84.85	72.60	96.50	62.71	54.00
Italy	57.38	93.42	66.20	4.99	15.51	32.58	21.21	63.90	95.10	54.79	50.00
Japan	91.80	84.87	78.10	3.04	18.11	15.73	57.58	72.60	96.00	44.06	62.00
Mexico	72.13	81.58	50.60	11.96	34.06	31.46	51.52	63.30	85.40	61.69	39.00
Netherlands	83.61	93.42	92.20	100.00	39.09	84.27	78.79	76.50	96.40	67.94	60.00
Norway	94.54	95.39	94.70	7.55	40.15	51.69	54.55	78.00	97.10	86.33	88.00
Peru	69.40	57.24	44.90	20.69	100.00	32.58	6.06	75.70	80.60	31.93	30.00
Russia	34.43	80.26	17.60	27.49	67.09	33.71	21.21	72.50	81.70	52.36	35.00
South Korea	89.62	88.82	60.00	3.93	40.86	47.19	100.00	65.00	93.70	53.77	49.00
Spain	66.12	69.08	86.00	19.61	30.23	29.21	15.15	71.50	95.50	55.56	45.00
Sweden	90.16	90.13	93.30	65.86	22.38	58.43	48.48	79.40	96.30	85.44	68.00
United Kingdom	97.27	91.45	92.40	30.70	29.35	29.21	57.58	76.30	94.70	71.01	54.00
United States of America	97.81	96.05	90.40	17.56	26.99	12.36	84.85	74.40	95.60	70.75	47.00

Source: Own creation.

NOTES: The following explanations are needed regarding the creation of the 100 base indexes:

• For the Index of Education of the World Bank: 100 is the maximum possible in the index, in this case that is 10.

• For the number of patents created in the year of the US Patent and Trademark Office: 100 is the maximum of patents registered by the countries included in the sample, which in this case was USA with 77,501 patents.

• For the Capacity of Innovation of the World Bank: 100 is the maximum possible, which for this index is 10.

• For the public expenditure in education as % of the GDP of the UNDP: the maximum investment in education inside the sample is Mexico with 25.6 %, which is taken as base 100.

• For the Indicator of the Social Knowledge of the World Bank: 100 is the maximum possible, which for this index is 10.

• For the Index of Global Competitiveness of the Economic World Forum: 100 is the maximum possible, which for this index is 7.

• For the Levels of Productivity of the International Labor Organization: 248, the maximum inside the sample for productivity, is the base 100. In this index there was no data for India, so the blank was filled with information taken from the Global Competitiveness Report. India got a score of 4.2 (in a scale from 0 to 7) in the Pay and Productivity variable in the Global Competitiveness Report. Scaling this number to the base 100, it would be 60.0 points.

• For the Ranking on easiness for doing business of the Doing business of the World Bank: The country ranked number 1 became 100, so the position we adopted the formula where the standardized index was [100-0.546(n-1)] where is n the position occupied by the country analyzed and 0.546 was the result of 100 divided by 183, which is the total number of ranked countries.

• For the Number of days to open business of the World Bank: We took the range [1-152], because 152 was the maximum number of days inside the sample (Brazil). One gave 100 to the minimal value and reduced a factor of 0.657 (100/152) for each additional day.

• For the Index of Economic Incentive and Institutional Regime of the World Bank: 100 is the maximum possible, which in this index is 10.

• For Global Entrepreneurship from the Friedrich's Global Index Schiller University: 100 is the maximum possible, which in this index is 1.

• For the UNCTD's Foreign Direct Investment inflows: the maximum level of foreign investment inside the sample is 70.98 % of the Netherlands, which is taken as the base 100.

• For the GDP Growth from the International Monetary Fund: the range of the sample was [9.837 to -3.036]. So we normalize the range where the minor growth rate equals 0 and the maximum is equal to 100.

• For the Exports of the World Bank: the maximum level of exports in the sample was 89%, belonging to Belgium. That became the base 100.

• For the Exports of high technology of the World Bank: the maximum level of exports of high technology in the sample is 33% for Belgium, so that is the base 100.

• For the Rate of employment of the International Labor Organization: the information was taken as it is, since this variable has a 100 base.

• For the UNDP's Index UNDP's Human Development: 100 is the maximum possible to be obtained in this index, this is 1.

• For the Index of Political Instability of the Economist Intelligence Unit: 100 is the maximum possible, which in this index is (10-x)*10.

• For the variable energy we had in mind the consumption of electricity, oil, and natural gas; all this information was compiled from the CIA - The World Factbook. Each indicator was standardized taking the maximum as 100, and later an average was extracted.

•The information that served for the construction of the variable Macroeconomics was obtained from the CIA - The World Factbook. Compiled information included GDP of the Secondary Sector, Population of the Secondary Sector and the GDP per capita of the Secondary Sector. All these were changed to base 100 later to be divided equally by other variables.

•As for the population, we take the most populated cities in every country, from the United Nations Population Division, and divided that population of the city by the population in the country. This index was changed to a base 100, with Japan heading this ranking.

Annex 2: Parameters for each of the seven dimensions of the impacts of clusters

	Competitiveness Growth	Knowledge Spillovers	Agglomeration Economies	Productivity Growth	Positive Impact of the Operation	Economic Impact	Social Impact
Peaks	79.86	84.60	58.95	100.00	96.29	75.54	88.28
Germany	76.71	57.00	22.62	53.63	88.37	33.38	72.39
Australia	73.57	58.31	35.62	56.45	93.46	32.74	76.47
Austria	73.29	55.24	33.00	58.87	86.46	39.94	75.57
Belgium	72.71	56.23	27.05	52.42	91.35	56.46	74.60
Brazil	60.43	44.94	17.07	52.02	24.20	34.08	67.18
Canada	76.14	59.60	36.03	51.61	95.61	32.62	77.74
Chile	67.14	49.08	32.92	58.47	81.02	44.99	60.11
China	67.71	30.81	37.25	100.00	54.68	60.29	62.78
South Korea	71.43	59.95	31.59	91.13	79.48	48.00	65.37
Denmark	78.00	62.71	34.00	50.00	96.29	36.26	88.28
Spain	65.57	51.64	24.95	47.58	73.73	23.55	66.89
Finland	77.57	60.12	29.63	61.69	91.72	45.16	78.57
France	73.29	54.62	30.97	53.63	85.05	41.18	70.90
Netherlands	76.00	58.76	24.97	53.23	89.74	75.54	75.21
India	61.43	28.40	16.95	0.00	47.53	33.24	55.10
Ireland	69.14	58.78	34.88	65.32	93.41	56.93	71.45
Italy	61.57	49.87	22.51	47.98	72.33	18.57	65.95
Japan	76.71	64.77	47.09	56.45	84.92	23.61	68.67
Mexico	59.86	53.12	23.43	43.55	68.10	32.25	62.35
Norway	73.86	62.17	35.08	58.06	94.88	38.48	87.36
Peru	57.29	36.91	25.73	67.34	57.18	39.83	54.56
Russia	59.29	46.90	23.43	43.00	44.10	37.37	60.39
Sweden	78.71	61.26	29.39	57.26	91.20	48.79	82.29
United Kingdom	74.14	58.96	29.39	62.50	93.71	36.71	74.00
United States of America	79.86	84.60	58.95	56.05	94.76	35.44	71.94

Source: Own creation.

References

Altenburg, Tilman and Jörg Meyer-Stamer (1999) "How to Promote Clusters: Policy Experiences from Latin America." World Development, Vol. 27, No. 9, pp. 1693-1713.

Amano, Tomofumi (2006). "Competitive Strategy of Global Firms and Industrial Clusters." [Versión electrónica], 38p., MMRC discussion paper No.99, Tokyo: Universidad de Tokyo. Retrieved on September 11, 2009. Available in: http://www.ut-mmrc.jp/

Asheim, B., Cooke, P. y Martin, R. (2008), "Clusters and Regional Development: Critical Reflections and Explorations". Economic Geography, 84: 109–112.

Bellandi, M. and Di Tomasso, M. (2005). "The Case of Specialized Towns in Guangdong, China", Taylor and Francis Group, Ltd, 2005.

Chakravorty, S., Koo, K. and Lall, S. (2003). "Metropolitan Industrial Clusters: Patterns and Processes". [Versión electrónica], 44 p., Washington, USA: The World Bank Development Research Group Infrastructure and Environment. Retrieved on September 12, 2009. Available in: http://econ.worldbank.org

CLAUT (2005). ¿Qué es CLAUT? [versión electrónica]. México: Cluster Automotriz de Nuevo León, A.C. Retrieved on November 5, 2009, in http://claut.com.mx/Acerca_de_CLAUT.php

Cooke P., Huggins R. (2003), "High-technology clustering in Cambridge (UK)", in A. Amin, S. Goglio and F. Sforzi (eds.), The institutions of local development.

Cortright, Joseph (2006). "Making Sense of Clusters: Regional Competitiveness and Economic development." [Versión Electrónica], 66p., Portland, USA: The Brookings Institution Metropolitan Policy Program. Retrieved on September 8, 2009. Available in: http://www.competitiveness.org/article/library/

David L. Barkley (2001). "Advantages and Disadvantages of Targeting Industry" Clemson, South Carolina: Clemson University. Retrieved on April 26, 2011. Available in: http://cherokee.agecon.clemson.edu/redrl_rpt3.pdf

Duranton, Gilles (2007). «Urban Evolutions: The Fast, the Slow, and the Still,» American Economic Review, vol. 97(1), pages 197-221, March.

Eaton J. and Grossman, G. M. (1986) "Optimal Trade and Industrial Policy under Oligopoly". The Quarterly Journal of Economics 101(2): 383-406

ECPG (2010). "European Cluster Policy Group. Final Recommendations— A call for policy action". ECPG_Final Report_weblow1.pdf. Retrieved on September 7, 2009. Available in: http://www.proinno-europe.eu/ecpg/newsroom/ecpg-final-recommendations

Ellison, Glenn and Edward L. Glaeser (1997). "Geographic concentration in US manufacturing industries: A dartboard approach". Journal of Political Economy 105 (5): 889-927.

Enright, M., Scott, E., and Chang, K. (2005), "Regional Powerhouse: The Greater Pearl River Delta and the Rise of China", John Wiley and Sons, 2005.

FUMEC (2008) Presentan oficialmente Cluster Automotriz Regional del Estado de México. México: Fundación México-Estados Unidos para la Ciencia. Retrieved on November 5, 2009, available in http://www.fumec.org.mx/v5/index.php?option=com_contentandview=articleandid=52%3Acluster-automotriz-edomexandcatid=39%3AautomotrizandItemid=68andlang=en

Giordano, Paolo, Francesco Lanzafame and Jörg Meyer-Stamer (2005) "Regional Integration and Territorial Development in Latin America". In: Giordano, Paolo, Francesco Lanzafame and Jörg Meyer-Stamer, Asymmetries in Regional Integration and Local Development. Washington: Inter-American Development Bank.

Gordon, I. R. and McCann, P. (2000). Industrial clusters: Complexes, agglomeration and/or social networks?" Urban Studies, Vol. 37, No. 3, 513-532, 2000.

Hernández, C. (2010). Política Económica Internacional. México: Astra Ediciones.

Hernandez, C. and Von Putlitz, I. (2009). Identificación de Oportunidades Estratégicas para el Desarrollo del Estado de Jalisco. Mexico: ITESM-FEMSA. Electronic version ISBN: 9-786077-51747-4.

InteQsoft. (2009). "Cluster de Tecnologías de Información del Estado de Querétaro México." Retrieved on November 5, 2009, in http://www.inteqsoft.com.mx/

Isbasoiu, George (2007). "Industrial Clusters and Regional Development. The Case of Timisoara and Montebelluna." [versión electrónica], 30 p., ERIK Network Conference, Brussels: RTN Urban Europe Program. Retrieved on September 11, 2009. Available in http://es.scribd.com/doc/474934/Industrial-Clusters-and-Regional-Development-The-Case-of-Timisoara-and-Montebelluna

IT@Baja (2009). "Soluciones para el Cluster de Tecnologías de Información de Baja California. México: Cluster de Tecnologías de Información de Baja California, A.C." Retrieved on November 5, 2009, in http://www.itbaja.com/somos

ITDWB (2009). "Clusters for Competitiveness a Practical Guide and Policy Implications for Developing Cluster Initiatives." [Electronic Version]. 92 p. International Trade Department of the World Bank (ITDWB). Retrieved on September, 7, 2009 Available in: http://www.competitiveness.org/article/library/

ITESM (2010), "La Competitividad de los estados Mexicanos," Escuela de Graduados en Administración Pública y Política Pública, Marzo, 2010.

ITESM-FEMSA (2009). "Mapas de Oportunidades." México: Observatorio Estratégico-Tecnológico. Retrieved on November 25, 2009, in http://oet.itesm.mx/privado/centro/oportunidades/mapas/homedoc.jsp

Johnston, Ron (2003). "Clusters: A Review". Prepared for 'Mapping Australian Science and Innovation' Department of Education, Science and Training. March 2003. Australia. Retrieved on November 5, 2009. Available in: http://www.dest.gov.au/archive/mapping/pubs/case_studies/clusters.pdf

Katzenstein, P.J. (1985). Small States in World Markets. Industrial Policy in Europe. USA: Cornell University Press.

Kerala Government (2004) "Presentation about Clusters". Kerala, India. Retrieved on September 11, 2009 Available in: http://www.kudumbashree.org/Minutes/Aug-2004/cluster/cluster_raj.ppt

Ketels, Christian (2003). "The development of the cluster concept – present experience and further developments." [Versión Electrónica], 25p., Duisburg, Alemania: NRW conference on clusters. Retrieved on September 4, 2009 Available in: http://www.competitiveness.org/article/library/

Ketels, Christian, Göran Lindqvist, and Örjan Sölvell, (2006). Clusters Initiatives in developing countries and transition economies. Stockholm: Center for Strategy and Competitiveness. Retrieved on September 4, 2009 Available in: http://www.cluster-research.org/dldocs/CIsDevelopingTransitionMay06.pdf

Krugman, Paul (1998). "What's new about the new economic geography?," Oxford Review of Economic Policy 14 (2). p. 7-17

Li and Fung Research Centre (2006a). "Industrial Cluster in Yangtze River Delta (YRD)," Industrial Cluster Series, 3, 2006.

Li and Fung Research Centre (2006b). "Industrial Cluster in the Pearl River Delta (PRD)," Industrial Cluster Series, 2, 2006.

Li and Fung Research Centre (2006c). "Overview of the Industrial Cluster in China," Industrial Cluster Series, 1, 2006. Retrieved on October 18, 2009. In the web on: http://www.idsgroup.com/profile/china.html#IndustrialClustersSeries.

Li and Fung Research Centre (2010). "Update on Industrial Clusters in China 2010," Industrial Cluster Series, 6, 2010. Retrieved on February 6, 2011. In the web on: http://www.idsgroup.com/profile/pdf/industry_series/LFIndustrial6.pdf

Liu, X. (2008). "SME Development in China: A Policy Perspective on SME Industrial Clustering," ERIA Research Project Report 2007, Bangkok: JETRO, 5, 2008.

Lundvall, Bengt-Ake (2003). "Industrial Clusters and Competence Building in the Era of the Globalizing Learning Economy." [Versión electrónica], 10 p., Thailand: Lecture at Opening of Thailand Science Park. Department of Business Studies Aalborg University, Denmark. Retrieved on September 12, 2009.

Malberg, A. and Power, D. (2006). "True Clusters". In B. Ashiem, P. Cooke and R. Martin (Eds.), Clusters and regional Development. (pp. 50-68) New York, USA: Routledge.

Markusen, Ann R. 1996. "Sticky Places in Slippery Space: A Tipology of Industrial Districts" . Economic Geography 72(3). July 1996. P. 293-313.

Marshall, A. (1920). Industry and Trade. London: Macmillan

Maskell, P. and Kebir, L. (2006). "What qualifies as a cluster theory?" In B. Ashiem, P. Cooke and R. Martin (Eds.), Clusters and regional Development. (pp. 30-49) New York, USA: Routledge.

Meyer-Stamer, Jörg and Ulrich Harmes-Liedtke (2005). "Como Promover Clusters" Duisburg/ Buenos Aires: MESOPARTNER. Retrieved on September 7, 2009. Available in: http://diprode.opp.gub.uy/pacc/Inicio/Documentos_PACC/Crecimiento_y_productividad_Urlich.pdf

NDRC (2007). National Development and Reform Commission, http://www.sdpc.gov.cn/zcfb/zcfbtz/2007tongzhi/t20071205_176934.htm. Retrieved on September 12, 2009.

Neri, J. C. (2008). "Políticas de clusters como una estrategia para elevar la competitividad." Gobierno del Estado de Guanajuato, México.

OECD (1999) Proceedings, "Boston Innovation, The Cluster Approach", p.12, in Nordin, Sara (2003) Tourism Clustering and Innovation. [Versión Electrónica]. 90p., Estocolmo: European Tourism Research Institute. Retrieved on September 7, 2009 Available in: http://www.competitiveness.org/article/library/

OECD (2009a). "Innovación Regional en 15 Estados Mexicanos" ,OCDE Síntesis, April, 2009.

OECD (2009b). "Supporting Regional Innovation in Mexico" , OCDE presentation, June, 2009.

Paola Morales (2007). "Un Zoom a los Clusters". El Universal. Ciudad de México. Retrieved on April 26, 2011. Available in: http://www.eluniversal.com.mx/articulos/32361.html

People's Government of Chengdu (2009). "Optimization of industrial design to promote the development of industrial cluster in Chengdu" , http://www.chendu.gov.cn/GovInfoOpens2/detail_ruleOfLaw.jsp?id = Sr5ixVjp381UaKAfEOWd. Retrieved on September 12, 2009.

People's Government of Guangdong Province (2007). "Guangdong Provincial Industry Cluster Upgrade Demonstration District Interim Measures identified." In: http://www.gd.gov.cn/govpub/bmguifan/200809/t20080910_65248.htm. Retrieved on September 12, 2009.

People's Government of Shaanxi Province (2009) "Guidelines for the development of industrial cluster in the province of Shaanxi". In: http://www.gov.cn/gzdt/2009-05/08/content_1308085.htm. Retrieved on September 12, 2009.

People's Government of Shandong Province (2008). "Shandong Provincial Government On the views of Development of Industrial Clusters" . In: http://www.shandong.gov.cn/art/2008/7/29/art_956_1641.html. Retrieved on September 12, 2009.

Portal Ciudadano del Gobierno Federal (2009). Sitio Oficial del Gobierno de México Apoyos para Empresas que se unan en agrupamientos empresariales. México: Gobierno Federal. Retrieved on November 5, 2009, in http://www.gob.mx/wb/egobierno/egob_Apoyos_para_empresas_que_se_unan_en_clusters

Porter, Michael E. (1990). The Competitive Advantage of Nations. New York: free Press.

Porter, Michael E. (1998). "Clusters and the New Economics of Competition" . Harvard Business Review 76 (6): 77-91.

Porter, Michael E. (2000a). "Location, competition, and economic development: Local clusters in a global economy" . Economic Development Quarterly 14 (1): 15-34.

Porter, Michael E. (2000b). "Location, clusters, and company strategy" . In Gordon L. Clark, Maryann P. Feldman and Meric S. Gertler (eds.) The Oxford Handbook of Economic Geography. New York: Oxford University Press.

Roelandt, Theo (1999). "Cluster Analysis and Cluster-Based Policy Making in the OECD Countries: An Introduction to the Theme" (p. 9-23). In Bosting Innovation: The Cluster Approach. [Versión electrónica]. Francia: OECD Proceedings. Retrieved on September 11, 2009

Rosenfeld, S. (2002). "A Governor's Guide to Cluster-based Economic Development." Washington: National Governors Association. Retrieved on September 7, 2009. Available in: http://www.rtsinc.org/staff.html

Rosenfeld, S.A. (1996). "Industrial Strength Strategies: Regional Business Clusters and Public Policy," Aspen Institute Rural Economic Policy Program, Best Practice Series, Industrial Strength Strategies.

Rosenfeld, S.A. (1997). "Bringing Business Clusters into the Mainstream of Economic Development," European Planning Studies, Volume 5, No.1.

SBEDP (2001). Review of South Bay Key Industry Clusters. [Versión electrónica] 31 p., South Bay Economic Development Partnership (SBEDP) California , USA:. Retrieved on September 12, 2009.

Schmitz, H., and Nadvi, K. (1999). Clustering and Industrialization: Introduction. World Development, 27(9), 1503-1514.

Sölvell, Örjan, Göran Lindqvist, and Christian Ketels (2003). The Cluster Initiative Greenbook. Gothenburg: Competitiveness Institute (TCI)/ Vinnova.

Sonobe, Tetsushi and Otsuka, Keijiro (2006). Strategy for Cluster-Based Industrial Development in Developing Countries, Foundation for Advanced Studies on International Development and National Graduate Institute for Policy Studies, July 13, 2006.

Timpano F. - Piva M.C. 2008 Cluster policies and local development, Vita e Pensiero

Unger, Kurt (2009). "Competitividad y Especialización de la Economía de Guanajuato: Un acercamiento municipal, 1993—2003," Centro de Investigación y Docencia Económica (CIDE), documento de trabajo 462.

UNIDO (2001). "Development of Clusters and Networks of SME´s." [versión electrónica], 36 p., Viena: The UNIDO Programme. United Nations Industrial Development Organization. Retrieved on on September 12, 2009.