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CLUSTER-BASED DEVELOPMENT:
A CHINESE CLUSTER POLICY

ROZWÓJ OPARTY NA KLASTRACH:
CHIŃSKA POLITYKA KLASTROWA

Summary: Clusters and links between companies are becoming increasingly important in the dynamically changing global economy. Chinese clusters have been developing for many years, although they are not at a level of development such as the Japanese or American ones. Many of them are powerful entities responsible for a significant percentage of world production and trade. The Chinese authorities support the specialization of regions in specific production, which began with the open door policy and the transfer of the Japanese model "one village, one product" to the Chinese economy. The paper presents a theoretical conceptualization of the cluster idea, taking into account various approaches to this problem and outlines the development policy based on clusters in China. The main aim of this article is to present cluster-based development approach as a part of cluster policy and development in China.

Keywords: clusters, industrial clusters, China, cluster-based development.

Streszczenie: Klastry i tworzące się relacje między firmami nabierają coraz większego znaczenia w dynamicznie zmieniającej się gospodarce globalnej. Klastry chińskie rozwijają się od wielu lat, choć nie są na takim poziomie rozwoju, jak np. klastry japońskie czy amerykańskie. Wiele z nich to potężne podmioty odpowiedzialne za znaczny procent produkcji i handlu światowego. Władze chińskie wspierają wyspecjalizowanie regionów w określonej produkcji, co rozpoczęte zostało wraz z polityką otwartych drzwi oraz przeniesieniem modelu japońskiego *one village*, *one product* w warunkach chińskiej gospodarki. W artykule zaprezentowano ujęcie teoretyczne pojęcia „klaster", uwzględniając różne podejścia do tego zagadnienia. Głównym celem artykułu jest zaprezentowanie polityki rozwoju opartego na klastrach w Chinach, będącej częścią polityki klastrowej oraz rozwoju gospdarczego.

Słowa kluczowe: klastry, klastry przemysłowe, Chiny, polityka rozwoju oparta na klastrach.

1. Introduction

Clusters, understood as mergers of companies, local authorities, and universities, are the foundation of many corporate strategies as well as policies within various national economies. In clusters, enterprises perceive opportunities for growth, innovation, broadly understood cooperation and synergies achieved thanks to mutual cooperation. For many companies, especially small and medium ones, cluster functioning is a motive for internationalization of their business. Following their core company, they often operate in clusters in the host markets. For central authorities, clusters are a key to creating innovation, improving the investment appeal of regions, incorporating local business into clusters, etc. All these expectations have created more and more clusters, clusters initiatives and other "clusterish"[1] units. Countries are becoming increasingly aware of their clustering policy, basing their growth on clusters. An example of a region dominated by a cluster is the Silicon Valley of the United States, which is the most frequently cloned cluster in the world. Each cluster has its own unique history and functions based on a different model. This is due to the coexistence in the cluster not only of enterprises, but also factors and local actors, such as local authorities or knowledge-creating units. Also every cluster policy is different because the situation in the national economy is distinct. Other factors have led to clustering in Japan and others in China, although they are often using the same movements (like „One village, one product" to be presented in the section 4 of this article).

The main aim of this article is to present cluster- based development approach as a part of cluster policy and development in China. In order to better understand the subject the paper focuses on, section 2 describes clusters and different approach to this idea, section 3 presents cluster policy in general while section 4 applies this model to the cluster policy in China.

2. Clusters – review of definitions

The most common definition of a cluster is that formulated by M. Porter, which assumes that the cluster is a geographic concentration of actors, both cooperating and competing with each other at the same time. This is a market-oriented approach in which the cluster is identified with the market. Table 1 contains an overview of the definition of clusters formulated by various authors over the years. It is worth noting both the range of subjective definitions presented as well as the orientation of cluster units.

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[1] The concept of "clusterish" units is the author's own idea and can be interpreted as all of the cluster-like initiatives and units that are named clusters even if their model is not similar to the cluster model.

Table 1. Clusters definitions review

Author	Year	Definition
Marshall	1890	Clusters as external economies created by labor market pooling and the benefits of moving people across firms, supplier specialization, knowledge spillovers.
Krugman	1991	New economic geography: Clusters as co-location decisions of firms due to increasing returns to scale, lower costs of moving goods across space, etc.
Saxenian	1994	Clusters as social and institutional phenomena: technological change, organizations, social networks, and other non-market relationship in which markets are embedded: organization within and between businesses, relationship among firms.
Porter	1998	Geographic concentrations of interconnected companies and institutions in a particular field, linked by commonalities and complementarities. Clusters include: linked industries and other entities (suppliers), distribution channels and customers (demand), related institutions (research organization, universities, training entities, etc.).
Hill and Brennan	2000	Competitive industrial cluster can be defined as a geographic concentration of competitive firms or establishments in the same industry that either have close buy-sell relationships with other industries in the region, or share a specialized labor pool that provides firms with a competitive advantage over the same industry in other places.
Rosenfeld	2005	Clusters are simply geographic concentrations of interrelated companies and institutions of sufficient scale to generate externalities.
Cortright	2006	An industry cluster is a group of firms and related economic actors and institutions, that are located near one another and that draw productive advantage from their mutual proximity and connections.
Glaeser and Gottlieb	2009	People cluster in cities to be close to something. At their heart, agglomeration economies are simply reductions in transport costs for goods, people, and ideas.

Source: [Wolman, Hincapie 2010, p. 3].

The traditional understanding of the cluster is illustrated in Fig. 1 which shows the concentration of cluster entities in close geographic proximity. Figure 1 can be interpreted as a cluster, but it does not reflect fully the concept of clusters. Cluster is not just a simple sum of actors acting together, but, above all, relationships between individuals inside the production system like:
- the backward linkages between raw material suppliers and machinery suppliers;
- the forward linkages between selling agents and direct customers;
- the links between the firms and commercial service providers such as designers, testing laboratories, transporters, banks or financiers, and import agents, among others.

It is these relationships and their intensity that are a prerequisite for the existence of effective clusters (Fig. 2) and they distinguish well-functioning clusters from those unsuccessful ones [*Industrial Development*… 2017, p. 49].
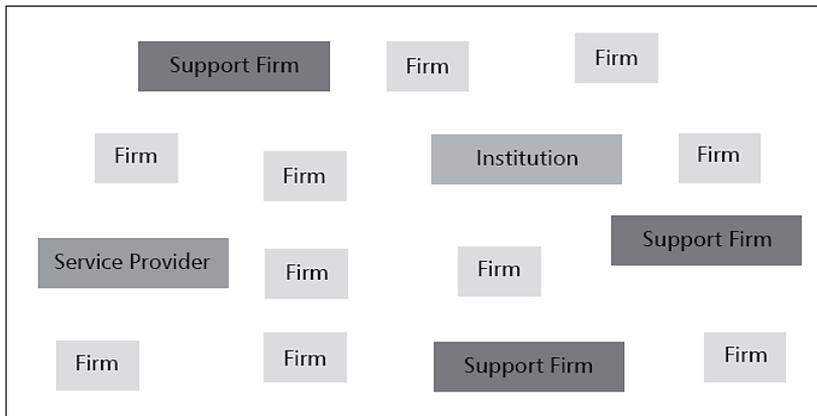
Fig. 1. Cluster – concentration as seen by firms, support firms, institutions and service provider

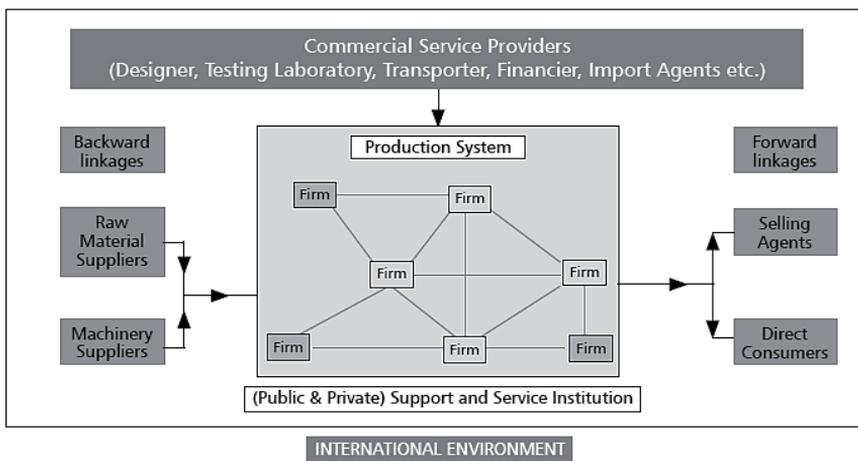Source: [*Industrial Development*… 2017, p. 49].

Fig. 2. Relationships among key players in a cluster

Source: [*Industrial Development*… 2017, p. 49].

In today's rapidly changing global economy, the concept of clusters is still evolving. This is most influenced by the development of a broadly understood technology, which changes both the scale and the speed of information flow between cluster entities and its external partners. The market attitude is changing as it is currently difficult to clearly define the market of a given cluster. As technology evolves, it seems that Porter's cluster condition disappears – geographic proximity does not shape the cluster model. Technology enables greater communication and, as a result, the cluster can involve more and more subjects and regions.

3. Cluster-based policy

Modernly, cluster policy or cluster-based policy is the focal point of local and regional policies implemented by governments in countries around the world. The participation of innovative clusters in the creation of economic development has been recognized and clusters have been noticed as driving forces of the economy. Cluster-based policy is a set of instruments and actions taken by various levels of government to improve the competitiveness of the economy by developing new ones or stimulating the development of already existing clusters, mainly at regional level. This policy is based on the assumption that the main driving force is the market based on the cooperation and collaboration of various entities, has a strategic nature and serves to create new value.

Cluster-based policy can take one of four model solutions. In the first model, the policy is aimed at creating a competitive advantage in the key sectors of the economy. In the second, the policy focuses attention on increasing the competitiveness of small and medium enterprises. The third policy model is aimed at enhancing the competitiveness of entire regions especially in the eyes of further investors. The fourth model addresses innovation and the task of politics is approaching the zone of science, research and industry [Brodzicki et al. 2004, pp. 16, 17].

Cluster policy has many tools that can support cluster development. Policy elements have the task of organizing services in the cluster environment by, for example, gathering and sorting information and economic data for clusters that will be useful to the affiliates and the creation of an information system for businesses about possible additional financing methods. The purpose of the policy is also to create investment incentives by building a cluster brand, investing in modern technologies, and supporting cluster IT centers. Another aspect of cluster policy is to build and strengthen networking in clusters and invest in human capital.

Despite having a wide spectrum of tools for creating clusters, politics is not about creating clusters, but is only part of the process. Even the most effective clustering policy will not develop an effective cluster unless the other necessary conditions are imposed. Its task is to help in creating, supporting current operations and participating in the life of the cluster. According to C. Ketels "While cluster-based economic development is not 'the' answer […] it is part of a policy agenda that aims directly to strengthen our ability to generate sustainable and meaningful growth" [Ketels 2014].

There is no single model of cluster policy, each country adapts it to its own needs and political, economic and social environment. Cluster support programs are being developed in many countries, demonstrating that cluster policy is a key component of economic policy geared to local, regional and national development.

In order to achieve the desired results, a number of actions are needed which, by supporting the transfer of knowledge and technology, support the innovation of the economy. States must lead so conscious innovation policy, which should also result as a foundation of cluster policy.[2]

4. Cluster-based policy in China

The origins of clustering and regional concentration of industry in China should be seen in the creation of special economic zones (SEZs). SEZs have been created since 1979, when 3 special economic zones were established in Guangdong and were part of the so-called Open-Door Policy. This policy assumed the opening of selected regions for foreign investors and foreign trade [Demurger et al. 2002, pp. 447, 448]. Over ten years, 19 special zones have been created, and the original target of doubling per capita gross domestic products has been reached. In 1989 Chinese authorities decided to implement the plan "one village, one product",[3] which assumed a specialized selection of the cities and to help their further development. Specialization means that at least 30% of production and employment must be concentrated in the one industry (so-called specialized sector). After the selection of the city, the local government creates a package of preferential programs to attract even greater number of companies related to the production of a given good to a specified location. Eventually, the city officially recognized as a specialized are entitled to receive funds for the creation of innovation centers, to support the development of new technologies as well as to support the development of relations between the participants of the cluster. Examples of such cities that also include Porter's definition of clusters are: Socks City, Sweater City, Kid's Clothing City, Footwear Capital etc. „One village, one product" can be interpreted as a regional development policy and local industrial promotion.

Specialization of regions is significantly evident in China, where the clusters are often the whole production towns, represent a significant force in the world production and trade. Selected Chinese clusters were presented in Fig. 3. Cities specialized in the production of underwear, buttons, shoes, socks, toys, etc. were developed by capital inflows from Hong Kong and Taiwan, and the influx of labor from the interior of the country. They have become the engine of Chinese export and the economic development. An example would be Gurao city, which together with six other specialized Chinese clusters, produced almost 3 billion bras in 2014, which was 60% of the world production in that year [*Bleak times*… 2016].

Undoubtedly, special economic zones and industrial clusters have contributed to the rapid economic development of China, which has gone (still going) through three

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[2] More about cluster policy can be found in [Drelich-Skulska et al. (eds.) 2014, p. 230].

[3] "One village, one product" was originally created by the Governor of Oita Prefecture, Japan in 1979; other names of this concept in China are: "one town, one product", "one city, one product", "one district, one product", "one hamlet, one product".

Town, *city*	Product	Town's claimed contribution
Ouhai, *Wenzhou*	Eyewear	90% of global-brand products (2016)
Jinjiang, *Quanzhou*	Zips	10% of global production (2011)
Chenghai, *Shantou*	Toys	30% of global production (2014)
Shiling, *Guangzhou*	Bags, suitcases	70% of European and US mass market (2013)
Gurao, *Shantou*	Bras	12% of China's production (2014)
Tangxia, *Dongguan*	Golf products	40% of global production (2011)

Fig. 3. Selected specialized clusters in China

Source: [*Bleak times*… 2016].

stages of its development (Fig. 4). The actions of the authorities should be aimed at creating a network of links between companies which are not strong enough yet [Shen 2014].

Fig. 4. Three stages of development of Chinese economy

Source: [Shen 2014].

All special economic zones can be considered as agglomeration of specialized companies, which can be seen in the context of clusters. The cluster policy around them focuses primarily on shaping the geography of the industry by concentrating on the same kind of business activity in a particular location. The spatial point of view directs Chinese economic policies to the lower development areas and better organization of development processes in other regions. Through these efforts the emphasis is placed on regions further away from the coast which is the most economically developed part of the country. The role of the state in shaping clusters and special zones is evident in many fields. It is crucial in providing basic infrastructure (roads, electricity, etc.) and the technological infrastructure necessary for the

development of modern enterprises. All actions were aimed at increasing the attractiveness of the regions in attracting and creating new businesses in the area.

In the strategy formulated by the National Commission for Reform and Development "statement to facilitate the development of industrial clusters" from the year 2007, the Chinese central government has recognized clusters contribution to the industrial development and assurance the economic development of the country. The document also includes specific actions, which are the basis of cluster policy. Among the activities listed: 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 [Medina 2010, p. 20].

It is worth emphasizing that the understanding of clusters as a specialized agglomeration of companies (as defined by M. Porter) is not the only concept influencing the formulation of cluster policy in that country. The task of the Chinese authorities is not only to support the urbanization process, but also to promote product innovation by encouraging companies to invest in those regions with a high level of industry diversification. Clusters bringing together companies from different industries can be an effective means of promoting product innovation [Zhang 2014, pp. 15, 16].

5. Conclusions

Cluster policy in China is not as explicit as it is in other countries in the world, e.g. in Japan, where it is conducted in a systematic way and has different stages over the years. Many Chinese clusters are bottom-up clusters, where the initiative came from companies themselves, contrary to the top-down method, where local or central authority is the initiator of clustering in a given region. Despite clearly defined assumptions for the creation of specialized cities and special economic zones, some clusters have developed beyond the government-selected territories. All this proves that the government should promote every bottom-up initiatives and help shape the business cluster in various locations. According to D.Z. Zeng "while market forces are usually responsible for initially producing industrial clusters, the government supports or facilitates them in various ways, including setting up an industrial park on the basis of an existing cluster" [Zeng 2010, p. 7].

It should be noted that Chinese clusters and Chinese cluster policy are unique and, it can be assumed, unable to be transplanted into other countries. This is due to the political, economic and social system of China and the history of the closure and opening up to the foreign capital in different historical periods. Members of many clusters are state-owned companies, and the specific relationship between state and private capital shapes the model of Chinese clusters.

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