

Industrial Clusters in Russia: The Development of Special Economic Zones and Industrial Parks

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Abstract: This study investigates the process of developing and implementing Special Economic Zones (SEZs) and industrial parks in Russia. Governments commonly use SEZ policies to develop and diversify exports, create jobs and launch technology/knowledge sharing. The industrial cluster concept is based on the significance of rivalry and supplier networks within the cluster, the combination of geographical specificities and government policies that lead to innovation and productivity growth. This study reveals that in Russia, the government's approach in developing these initiatives has strongly interfered with business activities and prevented the vital competitive and collaborative behavior of firms within these economic zones.

Key words: Industrial cluster, special economic zone, industrial park, Russia, state, competition, collaboration, innovation

INTRODUCTION

Industrial cluster policies are a key and widely used tool for economic development in local and regional economic development planning. Industrial clusters, i.e., groups of geographically proximate companies within a similar industry are believed to enhance employment, diversify exports and transfer technology and managerial know-how. Crucial elements of the industrial cluster model include the provision of a collaborative and competitive environment an appropriate geographical location and proximity to resources, related and supporting firms and state regulations and strategic programs that facilitate innovation and productivity (Porter, 1990; Krugman, 1991; Schmitz and Nadvi, 1999; Morosini, 2004; Ketels and Memedovic, 2008; Zeng, 2012; Delgado *et al.*, 2014, 2016).

The formation of industrial clusters is an important part of governmental policies and regional development in Russia. Some internationally competitive industrial zones originated in the former economic regime such as conglomerates in the oil and gas sectors the aluminum and airspace industries and military and strategic defense. However, the stimulation of industrial clusters did not emerge until the early 2000s in the form of industrial parks in 2006 (Sandler and Kuznetsov, 2015). Among the determining factors in 2005, President Putin signed a decree, No. 116-federal law "Establishment of Special Economic Zones (SEZs) in the Russian Federation" which envisioned 4 types of SEZs: industrial, innovation, tourism and port and logistics zones. This study focuses predominantly on industrial SEZs as industrial

development is a core objective for the Russian economy. SEZs and industrial parks are emerging in Russia around existing resources, especially research and development (R&D) and human resources. They have been created mostly in areas that have not only weak infrastructure and low production capacity but also the potential for economic growth. The Russian government has offered local and foreign investors various greenfield and brownfield projects in these zones which are supported by incentives such as an established communal infrastructure, simplified "one-window" administrative procedures and low taxes (Tolmachev *et al.*, 2011). The emerging clusters are expected to generate large national corporations, thereby reducing import-dependency in strategic areas. However, SEZs and industrial parks have been generally established on the initiative of regional policymakers who have little guidance from the federal government and little experience and knowledge. These policies are motivated by a desire to overcome particular political, economic or organizational challenges rather than being part of a coherent regional development plan. As a result while some projects have developed as exemplars most of them have struggled.

This study aims to investigate the implementation process of industrial cluster policies in Russian regions with SEZs and industrial parks. In doing so it will fill a gap in the literature related to the establishment of SEZs and industrial parks in the Russian context. It thus investigates the operational impact of high levels of bureaucracy and state interference on business activities and the unique mindset of both state officials and

entrepreneurs concerning managing business activities with proclaimed capitalist intent but a socialist mentality. The study has implications for policymakers not only in Russia but also in other developing countries. The study is structured as follows. It begins with a review of the literature on the industrial cluster model and SEZs and industrial park policies in particular. This review is followed by a description of the methods used in the research and the findings. The last section concludes and presents some recommendations for further research.

Literature review

The concept of industrial clusters: The concept of industrial clusters originates with Marshall (2013) who used the term “Industrial Districts” (ID) to characterize the benefits gained by locating firms in the same geographical area. These benefits comprise access to three types of positive externalities: specialized workers, specialized suppliers of inputs and services and technological and knowledge spillovers among co-located companies. Subsequently these externalities have been noted to be generated not only by geographic proximity but also by sectoral, horizontal and vertical agglomerations in terms of the division of labor; all those involved benefit from the specialization that accompanies operating within the same industry, using the same set of resources or occupying the same supply chain (Sonobe and Otsuka, 2006; Feser *et al.*, 2008; Keeble and Nachum, 2002; Swords, 2013). Similarly, social, cultural and institutional “proximity” provide similar benefits (Becattini *et al.*, 2003).

Industrial clusters have three defining characteristics. The first is proximity: clusters are fostered by accessibility which is generally considered in geographical terms at the level of a region or town. Another characteristic is value creation: clusters comprise distinct firms that are related to one another through the production of goods and services that are valued by customers. The third characteristic is the business environment: firms share a cluster-specific business environment that is generated by both individual actions and collaboration among companies, government agencies, universities and other organizations in what is sometimes described as an “innovation system” (Cooke, 2001; Lechner and Dowling, 2003; Feldman *et al.*, 2005). The balance between collaboration and competition in the business environment which combines information exchange and specialization advantages is a critical determinant of an industrial cluster’s innovative capacity and in turn its member’s competitiveness (Porter, 1990).

Clusters improve industrial competitiveness through product specialization and enhance collective efficiency

through business value chains and reduced transaction costs (Zeng, 2012). Additionally, firms within clusters foster a high degree of networking and interconnections that encourage knowledge and technology spillovers, thus stimulating productivity and innovation (Maskell and Malmberg, 1999; Maskell, 2001). Such enterprises can obtain a self-sustaining dynamic result from a robust reasonable advantage in a specific range of products and services. Knowledge spillovers and close interactions with customers and other companies, venture capitalists and knowledge-intensive service providers generate more new ideas and provide intense pressure to innovate while the cluster environment reduces the costs of experimenting. Business formation is expected to be higher within clusters. Start-ups are more dependent on external suppliers and partners within the cluster (Feldman *et al.*, 2005; Wennberg and Lindqvist, 2008). New opportunities have been created for Small and Medium-sized Enterprises (SMEs) when Multi-National Enterprises (MNEs) start to do less of their work in-house, preferring to delegate some of their activities to specialist sub-contractors. Small manufacturers work more efficiently in a geographically clustered environment and are assisted by supporting organizations that stimulate information exchanges (Marchi and Grandinetti, 2014).

Industrial clusters are fostered by externalities of different types, supplier relationships and the utilization of common factor inputs such as specialized labor markets or knowledge-sharing processes. When some of these positive externalities occur naturally their dynamics can be furthered through a combination of networking, collaboration and competition (Best, 2001; Delgado *et al.*, 2014). However, not all economic activities lead to clusters. For some companies within a certain industry, the need to be close to the potential market is more essential than the possible benefits of being geographically close to other companies in the same field. In these circumstances, companies do not compete across regions and they are not directly exposed to competitors, who can draw on the business environment and cluster conditions elsewhere. For the firms in other industries, the cluster benefits are more vital than proximity to the market. In these circumstances, competition is based not only on complex internal business strategies and operational practices but also on the skills and assets that they can obtain from the location of their activities (Porter, 2003; Dunning and Narula, 2004; Ketels and Memedovic, 2008). However, many examples suggest that a decade or more is required to develop a real competitive advantage. Cluster’s governance or policymakers should facilitate cluster’s development and improve their innovative capacities; otherwise, they will remain stable not

transform and potentially stagnate, especially if firms do not upgrade, move up the value chain and diversify (Porter, 1990; Ketels, 2013; Delgado *et al.*, 2014; Delgado *et al.*, 2015). Clusters survive and succeed predominantly because they can increase the diversity and sophistication of their business activities to attain greater productivity and efficiency. In an export-led growth model this capability is particularly significant. It includes efficiency achievements and reduced entry barriers through business value chains, production specialization and division of labor; efficient local state support; knowledge, technology and skill spillovers through inter-firm relations including those with state-owned enterprises and foreign corporations; entrepreneurial initiatives and social networks; innovation and technology support from knowledge and public organizations and from industrial associations (Porter, 1990; Swann and Prevezer, 1996; Porter, 2003; Boja, 2011; Zeng, 2012; Delgado *et al.*, 2014; Delgado *et al.*, 2015).

Some researchers suggest that industrial clusters spontaneously develop (Brusco 1982; Schmitz and Musyck, 1994; Ketels, 2013; Delgado *et al.*, 2014) when the interaction of market forces causes cluster growth by combining rich craft-skilled labor and benefiting from social and institutional capital. Other researchers stress the significance of the role of national and international government policies (Cowling and Sugden, 1999; Bianchi, 2000; Parrilli, 2009). In particular, they suggest that cluster development is not spontaneous; instead it occurs due to the implementation of national laws and initiatives to facilitate the development of SMEs and to support their competitive progress. The cluster's success significantly depends on the robustness of the government's strategy for upgrading competitiveness. The government should be open to providing support to all emerging clusters that show a willingness to cooperate and that have some assets on which to build. It also should be engaged in cluster initiatives as a facilitator and participant not as a leader. The most successful cluster initiatives stem from Public-Private Partnerships (PPPs). According to Porter (1990), the government should not provide subsidies, protection or the relaxation of competition laws to develop clusters which is even more important in countries that have less experience with competition in their domestic markets.

Special economic zones and industrial parks: The concept of a SEZ is not novel. Its early, simpler version can be traced back to economic districts which were later extended to a free trade format or export-processing zones. Since, the 1960s many countries, particularly in Asia, have used zones of this type to break away from an

import-substitution development strategy and to promote export-driven economic growth. However, most of these zones predominantly specialized in one or more type of export-oriented economic activity, ranging from bonded warehouses, export assembling, processing and border trade to transportation and financial services. Others have been explicitly established to facilitate technology transfer and promote R&D as in the case of hi-tech development zones and scientific parks. Most SEZs are either associated or co-located with ports (Creskoff and Walkenhorst, 2009; Farole, 2011; Kirk, 2014). SEZ is a general definition that covers recent iterations of traditional commercial zones. The basic concept of the SEZ reflects several specific characteristics (The World Bank Group, 2008):

- Its territory is geographically demarcated
- It has a single administration
- It offers tax benefits within this area
- It provides an autonomous customs zone with simplified procedures and duty-free benefits
- It offers more liberal economic and juridical regulations than those in the rest of the country

SEZs are geographic concentrations of firms. They are created to provide better infrastructure and R&D and they offer various fiscal incentives that are not found outside the zones. They are often established by direct industrial policy interventions to promote regional economic growth where state policy offers incentives to attract anchor investors and other firms to the same location (Gupta, 2008; Kirk, 2014). Examples include high-technology parks, science parks, industrial zones/parks, export-processing zones, free trade zones, free ports and single factory zones (The World Bank Group, 2008).

The industrial park is a territory zoned and planned for industrial development. It is commonly located in the suburbs or completely outside a city's residential areas but it has well-developed transportation connections such as roads and railways. This concept is predominantly based on the following ideas (Geng and Hengxin, 2009; Ratinho and Henriques, 2010), establishing the necessary infrastructure in a specifically restricted territory reduces certain expenses for businesses (e.g., roads, rail sidings, electricity, water and gas); the distant localization of industrial zones decreases their environmental impact on urban areas.

Murphy and Baldwin (1959) made the first attempt to define the industrial park, suggesting that it had three features. First, industrial parks must enforce mandatory restrictions on the firms within its walls including

minimum and maximum lot sizes and land-use ratios, industry types and environmental standards. The park has to be zoned correctly and regulated by private agreements. Second, an industrial park should employ a management organization to enforce restrictions, approve new firms, regulate private agreements and supervise their fulfilment. An industrial park cannot use a single-firm development model. Third, the park must be some form of planned industrial district. To ensure the project's success, it must provide detailed planning for the territory that accounts for all necessary utilities for each site, including water, electricity, gas, sewage and transport infrastructure (i.e., access to highways and railways).

In 1985, Arlesh divided industrial parks into three groups: research parks, innovation centers and science parks (Moudi and Hajhosseini, 2011). Some research suggests that the industrial park is a sub-type of the Free Trade Zone (FTZ) or the SEZ, i.e., a smaller version that is specifically designed for SMEs (The World Bank Group, 2008; Shaw and Yeoh, 2010; Farole, 2011; Sandler and Kuznetsov, 2015). Some researchers combine the definitions for technology or science parks (Phillimore, 1999; Sun *et al.*, 2007; Liberati *et al.*, 2015) while others suggest that an industrial park is merely a "heavyweight" version of a business or office park (Moore *et al.*, 1992; Frej, 2001; Behera *et al.*, 2012). In this study an industrial park is considered an SEZ sub-type because the Russian government has deliberately and specifically initiated the establishment of industrial parks for SMEs and SEZs for MNEs.

As the foundations of SEZ and industrial park models correspond with the concept of industrial cluster development they have to pursue the following objectives to progress: cooperation and competition, knowledge exchange and innovations, interactions with outside firms and technology exchange, production and export diversification, new start-ups and the emergence of other supplementary industries (Landingin and Wadley, 2005; Hsu *et al.*, 2013; Zeng, 2012; Brautigam and Tang, 2014; Nel and Rogerson, 2014). Despite the growth of SEZs worldwide, many have failed to fulfill their objectives such as employment growth and export diversification. SEZ policy and management practices have progressed over time (Gupta, 2008; Aggarwal, 2010). Many successful SEZs have changed their foundation of competitiveness, concentrating on service quality rather than counting on fiscal incentives. These factors were ultimately vital in determining the differences between successful and failing economic zones (Farole, 2011; Kirk, 2014). Formulating policies for a functioning zone is much easier than bring it into existence. If the development of SEZ is not complex then it may not lead to expected results

concerning adequate tax profits as they are very low. Fiscal incentives can play a vital role in attracting investments in the short term, especially during the initial stages of zone development. Nevertheless, they have an insufficient impact on long-term success: no significant correlation exists between fiscal incentives (particularly tax holidays) and outcomes (The World Bank Group, 2008; Shakya, 2009).

SEZs are created to ease serviced land and infrastructural complexity that may prevent investment inflow in to regional or national economies by providing potential investors with access to prebuilt manufacturing sites, necessary utilities (e.g., electricity, water, telecommunications and sewage) and long-term leases. SEZs also facilitate the administrative procedures associated with business registration, license acquisition and access to key services such as utilities and construction. They provide so-called "single-window" or "one-stop" services, meaning that their management takes full responsibility for coordinating all administrative procedures. Lastly an essential component of the administrative services provided by zones is customs administration which is commonly offered with fiscal incentives with a customs officer inside or at the gate of the zone to perform customs clearance to speed up import and export operations (Aggarwal, 2005; The World Bank Group, 2008; Shakya, 2009; Farole, 2011; Tolmachev *et al.*, 2011; Cheesman, 2012; Kirk, 2014).

The management of SEZs and industrial parks, along with other public authorities is responsible for attracting investors and creating networks to promote such zones and in turn, stimulate their growth. Additionally, most successful zones use an anchor investor strategy where high-profile companies are invited to join at the initial stages of zone creation, thereby signaling the zone's solidity to other potential investors and stressing this factor to provide them with a useful network of suppliers and partners. Commonly with this strategy, SEZ authorities strive to attract well-known MNEs in certain industries (Basile and Germidis, 1984; Gupta, 2008; Tyler *et al.*, 2009; Aggarwal, 2010). In Russia, the government has played a vital role in the creation of SEZs and industrial parks because its initial aim was to resolve problems concerning the improvement of the investment climate and weak governance rather than to overcome economic and legal limitations in trade operations (Barkhatova, 2000; Tolmachev *et al.*, 2011).

MATERIALS AND METHODS

This study investigates the implementation and development processes of industrial clusters in Russia by

analyzing SEZs and industrial parks. These issues have not been previously explored and analyzed as they are relatively new. First, the researcher undertook a documentary analysis that reviewed the established procedure, scope and geographic locations of SEZs and industrial parks in Russia. Data were collected from the official government websites of SEZs and the Association of Industrial Parks (AIPs) in Russia which included zone descriptions, various presentations and financial reports. Second, semi-structured interviews were conducted with the managers of five SEZs (Titanium Valley SEZ, Alabuga SEZ, Lipetsk SEZ, Togliatti SEZ and Moglino SEZ), three investors from 2 of these SEZs and 2 representatives from the AIPs. Primary data collection was conducted in 2 stages: December 2014 to January 2015 and January-February 2016. Overall, twenty in-depth interviews lasted 1-2 h each. Twelve interviews were face-to-face meetings that took place at the manager's offices and 8 were telephone interviews. The respondents from these organizations were general directors, deputy directors and research managers. The SEZ investors belonged to the following industry sectors: titan production, the production of components and equipment for metallurgy and mechanical engineering and the manufacturing of plastics, rubber and chemicals. Interviews were conducted in Russian and were subsequently examined and translated into English.

In this study, the researcher has composed three types of interview questions for three groups of respondents: SEZ administrators, SEZ investors and AIPs representatives. Respondents required not to disclose their names, positions or connections of their organizations in this study nor any possible signs and associations that could potentially reveal this information. Responses were gathered and merged according to their groups (i.e., SEZ administrators, SEZ investors and AIPs representatives); patterns have been identified and compared. This approach is descriptive in nature; therefore, the information derived from the interviews cannot be found in available open-source documents and the Internet. All the data obtained from the interviews has been estimated as highly valuable. The results of this study are presented jointly to preserve the respondent's anonymity.

RESULTS AND DISCUSSION

Administration of SEZs: After President Putin signed the decree No. 116-federal law "establishment of Special Economic Zones (SEZs) in the Russian federation" in 2005 which referred to the creation of four types of SEZs, many regions had applied to establish these projects on their

soil. A regional governor or a group of state officials or ministers could apply. However, only 2 regions obtained permission to create SEZs: the tatarstan republic and the lipetsk region. Russia's ministry of economic development has been managing the SEZ project since then. A few essential elements played a vital role in winning this competition: the region's financial strength their industrial capacity and their recognition as appropriate locations from an economic perspective. The biggest problem for Russian business is its remoteness from borders and customs; thus location is a key element. Transport costs in Russia play a vital role in the product's final price. The respondents mentioned the possibility of personal networks and warm relationships between the regional and federal government during the selection of pioneering regions for SEZs.

The federal government created a public organization in the form of a Joint-Stock Company based in Moscow-the headquarters of the SEZ's administration and subsidiaries across the country, so-called "managing companies" that are responsible for establishing and developing their projects in different regions. These managing companies have not been initiated to gain profits; instead they have been established to attract investors, prepare the necessary infrastructure for them and supervise the functionality of this infrastructure and the project in general. Although, it is a Joint-Stock Company, 100% of the shares belong to the government. Therefore, SEZs are entirely owned by the state. Managing companies usually profit from investor's payments to use the SEZ infrastructure (e.g., electricity, water, sewage and recycling). However, they keep all the profits gained from infrastructure rent in the regional budget and they do not share them with the federal office. The federal SEZ organization in moscow merely monitors regional SEZs to ensure that they stick to the schedule for establishing and developing the project. The Moscow headquarters acts as an intermediary between regional SEZs and the ministry of economic development which monitors the efficiency and development of these projects. In the early stages, regional managing companies and SEZs are financed by the state budget but they are expected to become self-sufficient in the long term. The financial structure of the SEZ project is mixed: the federal government sponsors about half of the funding and the other half is provided by the regional government.

The respondents denied the possibility of private investors managing SEZ projects for several reasons. First, an immense budget is required to finance the launch of this project. Second, even if the project is privately initiated, it can lead the investor to increase infrastructure

rent and result in the exclusion of tax benefits which has been observed in industrial parks. However, the respondents suggested that at the government level, only attempts to create SEZs on a private basis were discussed. Federal law No. 398 “The criteria for establishment of special economic zones” (26 April, 2012) provides the list of requirements that every region must meet in their application to obtain the right to establish an SEZ including a description of the potential territory a list of the necessary infrastructure, the region’s industrial capacity and a general business plan. Although, the government initiated the SEZ project a few private organizations could have facilitated applications to the ministry of economic development by expressing an interest in establishing their companies in the zone after it was created. A group of experts on the federal level evaluates such applications and then makes a decision. Who is included in this group of experts is unclear. Information is vague, referring for instance to managers from various ministry departments and economists. While making its decision, the group considers the region’s general strategic development program including the potential collaboration of existing companies in the area with the companies in the SEZ.

The ministry of economic development monitors SEZ’s efficiency annually. The Federal Law No. 491 “Criteria for evaluating the performance of special economic zones” (10 June, 2013) describes how an SEZ’s managing company is examined. Among the many criteria, the most important ones are presented:

- The amount of FDI attracted to the project
- The number of new investors emerged in the zone
- The number of newly created workplaces
- The amount of SEZ companies’ revenues
- The amount of tax paid
- The coefficient between investments in the project by the state and by private investors

Notably, sanctions are not enacted if the managing company produces unsatisfactory results. The respondents claimed that the ministry of economic development had never been very unsatisfied with any SEZ’s results; thus no sanctions had been applied. In the worse-case scenario an SEZ closure is impossible as the contract agreements between the investors and the regional government have been signed for a long-term perspective. Nevertheless, the federal government has the right to alter the SEZ’s management. The process of preparing the infrastructure varies across different SEZs. The respondents suggested that this variance could be one reason why some SEZs had developed more

intensively than others. The current success model as well as international experience, suggests that infrastructure should be created first to attract investors (Aggarwal, 2010; Farole, 2011; Kirk, 2014). Nonetheless, few SEZs have attempted to attract investors first or receive primary contractual obligations; only later have they begun to build the necessary infrastructure. One respondent claimed the following:

“We cannot build the infrastructure first. This approach does not suit our realities. What happens if we prepare the infrastructure for the entire SEZ territory and don’t manage to attract all the investors straight away? Who is going to cover the costs of unused areas? We need to get initial contractual obligations from investor that show serious intentions and financial capacity for this project. Afterwards, we start establishing the infrastructure on a certain delimited area particularly for this investor”.

As a result, investors did not display much interest in these projects. In some cases an SEZ began preparing an infrastructure for a specific investor while it was building its factory on site. In relation to the fulfillment of contractual obligations, the government guaranteed financial support for the project. Regional policymakers also ensured the fulfilment of contractual obligations which helped create healthy relationships with investors. Investors go through a particular assessment procedure before being accepted in the zone. Once the company shows an interest in establishing its business in the zone, it submits an application with its business plan. All the requirements are written in the federal law No. 116 “establishment of special economic zones in the Russian federation”. Among the many requirements, several are stressed: the amount of money to be invested over a certain period, the number of workplaces that will be created, ecological standards and industry and infrastructure specifications. A group of experts in the regional and federal governments assess this application. After the government approves the application a company must invest at least 1.8 million dollars in the project and 600,000 dollars should be invested in first three years. As such both sides of the agreement have contractual obligations. The SEZs are promoted in different ways in Russia. First, the governor and his colleagues promote their SEZ projects at the meetings with Foreign or regional partners. Second, managing companies in collaboration with the department of international affairs and regional development which is the part of ministry of economic development-organize international meetings, conferences and exhibitions with similar organizations in other countries. Additionally, when investors penetrate the Russian market and plan to

locate their businesses in an EZ, they usually contact state institutions to obtain information and consultations about free zones in Russia. In some cases, investors conduct research to determine a suitable location for their businesses. SEZ investors have commonly been found through the personal networks of the regional governors or they were successful companies in the region that planned to expand. Some respondents suggested that a correlation existed between the regional government's promotional activity and the SEZ's success: "there was a situation when a big investor required a personal meeting with the regional governor before locating its factory in a certain SEZ but the governor refused, explaining that these sorts of activities were not necessary and a waste of his time. State managers from different region heard about this came to invite the investor to their SEZs and provided personal meetings with their regional governors. As a result, this investor located its business in their SEZ".

All the respondents noted that no real competition existed among SEZs in Russia. They compete to some degree but every economic zone is unique due to its industrial, economic and geographical specificities. SEZs are relatively geographically distant from one another and thus cover their own regional markets. Moreover, no competition exists between the companies in the zones for the following reasons. First, the concept of 2 SEZs was to create supply chain cooperation to a certain extent. Other zones attract various investors from different industries but according to the federal law requirements. Second, when an investor's application is assessed by a group of experts before it is fully accepted in the zone, the experts consider the industry type and if organization's goals are in line with regional interests regarding strategic development. In other words both the managing company and regional state officials attempt to avoid a competitive environment by refusing investors who operate in the same industry as the existing companies in the SEZ and the region. The respondents stated that they had not had to directly refuse an investor because investors usually did not want to come to a zone where their potential competitors already operated: "if we bring competing companies into our SEZ, it will be chaos. Can you image what would happen? Despite the fact that we haven't faced such situations yet, when companies from similar industry segments plan to establish themselves in our SEZ we still try to avoid this".

The only form of competition within the SEZs is for qualified specialists and managers. According to respondents, industrial parks do not compete with SEZs. These projects offer different benefits. Moreover, industrial parks might provide an additional opportunity

for investors to establish their businesses in the same region. If both types of clusters operate in the same regions they are commonly managed by one government organization. In terms of the collaborative environment as mentioned above, 2 of the SEZs were created based on the supply-chain concept. Others attract any companies from different industries but according to the requirements of the federal law. However, even in supply-chain SEZs, the number of companies involved in cooperative networks is relatively low for instance, three of four companies which is similar to free zones that did not claim a supply-chain concept. Therefore, the collaborative environment surrounding these SEZs is lacking.

These six industrial SEZs have already had primary positive effects: attracting FDI in these projects and the regional economy; increasing employment, enhancing the region's infrastructure and production capacity and launched minor collaborative activities between companies inside and outside the SEZ. The creation of one workplace within the SEZ leads to the creation of 4-5 workplaces outside the SEZ. Investors predominantly pull employees from the local population though, they employ a small percentage of foreign staff. All respondents report key factors that can stimulate the SEZ's sustainable development. The first key factor is the country's general investment climate because countries compete to attract new investors. The second essential factor is the financial capacity of both the local government and investors which is an essential consideration for the project's success.

SEZ investors: One respondent was an anchor investor, i.e., the first enterprise to come to the SEZ to create supply-chain collaboration. This company had already been established in proximity of the SEZ for many decades and had planned to create a subsidiary in the zone which was located near its parent company. Financial benefits were another important reason that this investor came to the SEZ (e.g., a duty-free zone and various tax benefits). Additionally, this company cooperated with the local government to create an SEZ in the region. However, the process of establishing this SEZ took many years because of the lack of activity by regional policymakers. Some companies came to the SEZ because of personal contacts in this zone which facilitated the bureaucratic procedures required to register the company. Other reasons such as financial benefits and product market share in the region may play a secondary role. Some firms plan to import raw materials from abroad which means that the duty-free customs regime will be beneficial. Additionally, proximity to the anchor

investor is perceived as an additional benefit for product realization although, it is not a crucial factor. The main problem for investors in the selection of SEZs for their businesses was the lack of trust in the local government and managing companies which did not negotiate or provide guarantees regarding the timely preparation of infrastructure. In addition, constantly changing rules and laws and complex legislation in Russia also contributed to this distrust. The respondents stressed the importance of built infrastructure as infrastructure preparation played a vital role in the selection of SEZs in Russia. If the company plans to build infrastructure on its own, it must complete complicated and time-consuming procedures to obtain the necessary approvals and signatures from state officials. One respondent commented as follows: “key factors for the successful development of SEZs are not connected with its model but with the general economic policies of the country which include time-consuming sequential bureaucratic procedures, complex juridical regulations, huge construction costs, etc. Most of the time, state officials make incompetent decisions as they do not bear any real responsibility. All these factors make Russia unattractive for investment: if you are not competitive in your investment costs you do not invest. The Russian market is not big enough for sales. Reduced import barriers are good but because of the large volume of work required to establish the business, Russia becomes uncompetitive even for export-oriented operations”.

All the respondents agreed that they did not experience a competitive environment inside or outside the SEZ. Competitors are located in other regions or even in other countries. Due to the enormous size of Russia, every region is perceived as a different market (Brown and Earle, 2000; Tsukhlo, 2007). Moreover, the respondents added that investors commonly try to avoid SEZs where their competitors are already operating. Additionally, managing companies try to avoid attracting companies from similar market segments. This avoidance reflects cultural aspects of Russia where companies try to prevent competition in every possible way while foreign businesses perceive competition as a motivating factor or a stimulus (Shastitko and Avdasheva, 2009; Orlov, 2013; Michailova and Husted, 2003).

“Innovation will come when there are a lot of companies working in the same area and they start to collaborate. It is too early now there is no need. But innovation also comes when there is competition. You do not find any competition among Russian companies and they do not tend to innovate. This is what the state does not understand. This is the main issue that the government refuses to understand: competition is good. Our managing companies tell us that they do not bring

competitors to our SEZ but we say that we do not care because our company is competitive. That is the difference: competition for foreigners is sport for Russians, it is threat” (Guangwen, 2003).

In supply-chain SEZs, some companies expect to collaborate with all members of the SEZ in the long term but in the meantime they do not have such opportunities due to the absence of potential partners and the zone’s immaturity. Companies that collaborated with other members of the SEZ claimed that it had happened on its own: the first investor simply joined the cluster the other 2 noticed the location of the first one and chose the same zone to benefit from their proximate location to one another.

Financial benefits of the SEZ stimulate the development of its companies, particularly in the early phases of the company’s activity. Duty-free customs benefits are predominantly utilized for import procedures as few businesses in Russian SEZs are export-oriented. Despite fiscal incentives, the most important factor for a company’s growth is still linked with the market sales. The respondents also claimed that because of high state interference in business activities in Russia due to bureaucracy and state official’s insufficient knowledge regarding the management of business processes, Russia is always one step behind other competitive nations or is simply slower in its development than other countries. Consequently, the development of SEZ projects and in turn, of companies located within SEZs is slowed. Political stability, the country’s general investment climate and regional government activity in attracting investors and promoting SEZ projects are also significant factors. Additionally, the respondents stressed the importance of the anchor investor in leading and directing the entire SEZ: small companies that collaborate with the anchor firm will follow its lead. Some respondents claimed that the key factors for successful SEZ development were linked with the country’s general economic policies including time-consuming bureaucratic procedures, complex juridical regulations and enormous construction costs, rather than with the model. Moreover, most of the time, state officials make incompetent decisions as they do not bear any real responsibility for the outcome. All these factors make Russia unattractive for investment: “if you are not competitive in your investment costs, you do not invest.” The Russian market is not big enough for sales. Reduced import barriers within the SEZs are good but because of the considerable amount of work required to establish businesses, Russia has become uncompetitive even for export-oriented operations.

Association of industrial parks in Russia: Russia inherited many industrial zones and manufacturers after

the collapse of the USSR and many organizations have not managed to survive in the market economy since then. The federal government decided to create industrial parks in 2 possible forms. One was merely a greenfield project, where the necessary infrastructure (e.g., gas, electricity and sewage) was provided but the investor was expected to build the real-estate infrastructure. Another form was a brownfield project where the old infrastructure of a derelict industrial area was transformed into a business park. Primary industrial parks in Russia were state-owned projects that appeared in the 2006.

This concept was estimated to be an essential tool for resolving the problem of economic development. The industrial park was not widely used in Russia because of the lack of necessary funding, legal regulations and general information about this model. Nevertheless, some regions were pioneers in implementing these initiatives. The turning point was the decree No. 59 of 16 February 2010 which suggested the term “manufacturing park,” clarifying its meaning as a number of real estate units (such as manufacturing, administration, logistics, warehouses and other facilities necessary for production activities) that are managed by a single company with a territory of no <10 ha and a basic infrastructure for efficient functioning of SMEs (e.g., water, electricity, gas and sewage). By 2009, industrial parks had been established in 15 regions of Russia and by 2015 in 48 regions. The Tatarstan Republic and the Moscow, Leningrad and Kaluga regions were actively implementing this economic tool. Businesses of any industry sectors can establish their production sites in industrial parks; however, they should still comply with the regulations based on the federal law No. 488 “about the industrial policy in the Russian Federation” (31.12.2014). Some projects failed in develop. The key reasons behind their failure were the lack of political activity and funding in the region which are crucial for the establishment of industrial parks.

The scenario was the same as the creation of SEZs. Regional governments used the industrial park to attract investors to the region. Local governments and other state officials played a significant role in building warm relationships with major investors and provided substantial financial support for the project. The federal government does not have any direct control over these regional industrial parks as these projects are entirely initiated and sponsored by regional governments. In some cases, the federal government has provided financial support for certain industrial parks but such actions were based merely on personal favor and networks between particular state officials in the regional and federal administration. Additionally, state-owned industrial parks

offer few regional tax benefits to investors. The respondents stressed the importance of the regional government in developing industrial park initiatives.

“Basically, the regional government plays a crucial role in establishing industrial parks in their region. It is not only about funding but bringing MNEs into the region through personal networks which subsequently help attract other good investors to the park. A good example can be kaluga region in which the regional governor managed to attract several huge investors to its industrial parks such as Volkswagen, L’Oreal, continental, samsung, etc. As a result, it greatly facilitated the development of industrial parks in the Kaluga region, boosted the local economy and improved the general investment climate”.

Private industrial parks started to emerge in 2008-2009 as predominantly brownfield projects due to construction costs. The typical scenario was that the owner of an industrial area or a factory with unprofitable financial activities had decided to transform it into an industrial zone for more prosperous purposes. In the case of greenfield projects, the model is similar to SEZs as well: investors pay rent for the utilization of communal infrastructure but they do not own the actual land. In brownfield projects, investors pay rent for both the communal infrastructure and the real estate. In some cases, companies have the opportunity to redeem the real estate or even the land on which they are established, although this is not a common phenomenon. Both state and privately owned industrial parks have managing companies that are similar to those in the SEZ model which are responsible for among other things, monitoring the park’s efficiency, searching for investors, receiving payments from investors and looking after the park’s territory. State-owned industrial parks occasionally hire private organizations to manage their clusters but the project remains under state control and supervision. The respondents also reported that the entire industrial park project lacked juridical support and regulations which was commonly discussed. In 2015, the federal government signed the decree No. 794 “Industrial parks and the managing companies of industrial parks” (4 August, 2015) which clarified industrial parks, their characteristics their rules for creation and the general national standards. Overall, the SEZ and industrial park models are very similar, despite some differences (Table 1).

Similar to the SEZs, industrial parks are promoted in different ways. The regional government supports state-owned projects at various international events, conferences and exhibitions. The managing companies organize meetings with foreign colleagues as they have a solid financial basis for doing so. The situation is a little

Table 1: Differences between SEZs and industrial parks in Russia

SEZ	Industrial park
Government initiative	Government and private investor's initiative
Single administration/managing company	Single administration/managing company
Financial benefits: reduced, income tax, land tax road tax, transport tax and import-export taxes	Either no tax benefits or reduced income tax and/or land tax
Large investment projects required (At least 600,000 US dollars invested in first 3 years)	No budget restrictions
Greenfield only	Greenfield and brownfield
Environmental standards and industry selection criteria	Environmental standards
Federal government annual monitoring	No additional monitoring

bit different for private parks. Although, state officials claim that they also promote private industrial parks in reality, these projects attempt to survive on their own, searching for investors and operating independently without any additional financial support. The key factor that attracts investors to the industrial parks is the established infrastructure that reduces investment costs. Industrial parks in different regions compete a bit for investors but such competition is not essential. From the perspective of managing companies an investor's selection of a park is primarily a game of chance. No competition exists between firms within the parks. As in SEZs, investors do not want to come to a park where their competitors operate; managing companies or regional administration do not attract companies from the same industry sector. However, companies do compete for qualified labor, though it is not a widespread practice in the supply-chain networks within industrial parks. Most parks consist of companies that are randomly established; they come from different industries without any concrete structure or policy.

Industrial parks have already attracted many investments, increased employment and improved the economic situation of the regions in general. However, these projects tend to appear only in the western part of Russia because of the developed markets there. The federal government is striving to change the situation and to establish parks in the eastern part of the country. However, such efforts have thus far been unsuccessful as companies do not see the potential for business growth in those regions. The basic rules of markets dominate here. Moreover, the government shows a lack of financial support for private industrial parks. Entrepreneurs have claimed that the circumstances are unfair because state industrial parks have received more support than private ones. Moreover, regional governments more intensively promote state-owned industrial parks. However, the government claims that it provides financial support for all projects through special banking lending

programs. However, entrepreneurs are not satisfied with these programs as they involve time-consuming and complicated bureaucratic procedures and the financial support is generally inadequate. Some businesses claim that given the high rents and high costs within industrial parks, operating inside and outside the parks does not differ significantly.

This study aims to examine the implementation and development processes of industrial clusters in Russia by analyzing SEZs and industrial parks. According to the literature about the establishment and development models for SEZs and industrial parks they vary in different countries; however, certain patterns exist. Countries worldwide have launched free trade zone projects to pursue similar aims: to attract FDI; increase employment, knowledge and technology exchanges; create innovations; increase the competitiveness of the economy (locally and internationally) and diversify exports, among other aims (The World Bank Group, 2008; Farole, 2011; Tolmachev *et al.*, 2011; Zeng, 2012; Kirk, 2014). Governments produce and adjust local laws to create more attractive conditions for investors. The basic idea is to reduce the number of bureaucratic procedures and to make the processes of registering and starting a business even quicker. Moreover, the structure of most SEZ projects involved the infrastructure being initially built entirely for investors before attempting to attract them to the free zone. In other countries, particularly those in Southeast Asia, the economic zone is typically created entirely in advance before attracting investors (Chen, 1993; Farole 2011; Cheesman, 2012; Kirk, 2014).

In Russia, some aspects are different. First although, the "one-window" model has been created both in SEZs and industrial parks, the registration process and launch of the business remains complicated. As a result, the procedures have not been simplified thus investors are not attracted to the zone. Second, in the early stages of establishing the SEZ in Russia, the infrastructure was not created and the zone's administration strove to attract the investors to practically empty territories, promising the fulfillment of future obligations. The investor was expected to construct the manufacturing site and create the real estate for its business and the managing company simultaneously started building the necessary infrastructure specifically for that investor. This uncertainty did not inspire investors to come to the zones because of the high risk of the nonfulfillment of contractual obligations. The "Russian approach" might partly explain the inefficient development of the economic zones however, this question should be further investigated. Moreover, when the first SEZs and industrial parks were created, the juridical system had not

been addressed such initiatives yet. For example, “Lipetsk” and “Alabuga” SEZs were pioneers that experienced all possible challenges such as import-export duty-free procedures, tax payments, cooperation issues and an investor seeking procedures. Even now, many gaps in jurisdiction still prevent the sustainable development of economic zones in Russia.

The choice to penetrate a particular economic zone is based on a number of key factors such as proximity to resources, tax benefits the potential of cooperation with other companies inside and outside the zone and labor resources (Aggarwal, 2005; The World Bank Group, 2008; Farole, 2011; Kirk, 2014). Investors come to industrial economic zones in Russia for similar reasons to be close to potential markets and to reduce production costs by locating manufacturing sites close to these markets and resources. The managing companies’ representatives mentioned these aspects during their interviews. Nevertheless, investors emphasized the importance of the potential zone’s development level and its infrastructural capacity. In general, companies have a wide range of choices among SEZs and industrial parks in the regions which makes factors such as tax incentives and proximity to resources and markets secondary. The core element concerns providing infrastructure in the cluster’s territory; otherwise, the company must go through a very complicated and time-consuming procedure to establish everything in its own. SMEs prefer brownfield projects to access established real-estate infrastructure and to avoid costs on construction activities. Companies predominantly sell their goods either locally in the same region or in Russia. Export-oriented activities are not widespread but they are expected to commence in the near future. To select an appropriate location for the business, SMEs mainly investigate the markets of potential economic zones themselves while MNEs use personal networks or participate in various consultations with state representatives.

Another essential aspect that deserves attention is the role of the regional government in the development of the economic zone because in Russia, all free economic zones and most industrial parks are owned and managed by the state. According to the respondent’s responses, the local government acts as the key “salesman” for local SEZs or industrial parks, especially for state-owned projects. In some cases, personal networks and relationships between the investor and regional officials played a crucial role in developing the cluster. The local government determines how quickly the industrial cluster is established, registered, approved in a particular region and funded. The literature has found that state

involvement in the development of SEZs or industrial parks is limited only in terms of investing in the projects and providing necessary juridical support (Aggarwal, 2010; Sonobe and Otsuka, 2006; Shakya, 2009; Farole, 2011). This Russian phenomenon implies that the more active a local government is in promoting industrial clusters in its region, the more SEZs and industrials are developed. Moreover, it inspires an investigation of the essence of the “entrepreneurial state” (Pereira, 2004; Mazzucato, 2015).

According to Aggarwal (2006), Landingin and Wadley (2005), Farole (2011), Hsu *et al.* (2013), Zeng (2012), Brautigam and Tang (2014), Kirk (2014), Nel and Rogerson (2014) and many other authors, the development models of SEZs and industrial parks are based on the concept of industrial clusters. The foundations of this model are the proximity of companies that cooperate and compete, launch knowledge and technology exchanges and create innovation all of which lead to a competitive advantage of a certain industry or a region (Porter, 1990; Ketels, 2013; Delgado *et al.*, 2014). Hence, competition and collaboration are crucial factors for the cluster’s sustainable development. The findings clearly demonstrate the absence of competition between companies within SEZs and industrial parks as well as the lack of cooperative networks. Both parties seek to avoid a competitive environment within the cluster. Some investors do not come to a certain economic zone because of the existing rivals in it or they negotiate with the managing company to avoid attracting companies that operate in the same market segment. The managing companies prefer to honor these requests or even do this job in advance without the investor’s appeals. Moreover, the respondents did not notice much active cooperation among the companies in the zone and they did not manage to clarify the reasons for this lack of cooperation. According to the literature, the causes can be different, for instance an inappropriate concept for the economic zone (Farole, 2011; Tolmachev *et al.*, 2011; Kirk, 2014) or a major restriction of knowledge sharing and collaboration activities among firms due to the Russian mentality (Longenecker and Popovski, 1994; Levin and Satarov, 2000; Dickenson and Blundell, 2000; Puffer and McCarthy, 2003; Michailova and Husted, 2003). In general, investors come to clusters due to the basic laws of the market economy which do not depend on the SEZ or industrial park models. According to the literature on cluster lifecycles and possible reasons for their extinction (Porter, 1990; Swann and Prevezer, 1996; Alberti, 2006; Boja, 2011), Russian economic zones and parks have pre-conditions that slow down development or even result in failure.

CONCLUSION

This study aims to explore the Russian experience in implementing and developing industrial cluster policies by analyzing SEZs and industrial parks and identifying potential emerging issues. The results reveal that in Russia, industrial clusters in the form of SEZs and industrial parks have had some positive impacts on the regions in which they have been established, e.g., investment inflows, industry diversification and a little employment growth. However, after approximately 10-15 years of this model's implementation, these zones remain immature and encounter many issues. Most regional governments still struggle to attract investors and to efficiently develop their economic zones. The government's approach to developing these initiatives implies a reliance on state interference in business processes and in turn, the prevention of healthy competition and collaboration which are crucial factors for a successful industrial cluster model. This approach will not result in innovation growth which means that economic zones will not accomplish their intended objectives. The successful development of industrial cluster initiatives in Russia will require in-time funding from the federal government a free-market approach to their establishment and development, better negotiations with potential investors regarding infrastructure preparation and the implementation of appropriate regulations that can help attract foreign and local investors and trigger economic activity.

Policymakers should initially construct economic zones with cluster features to improve industry competitiveness and innovation capacity in regions. The location of industrial clusters should be prioritized according to factors such as cost reduction, profitability growth and performance improvement, instead of simply choosing regions in dire economic straits. Strategic alliances, competition and collaboration must be based on resource sharing and integration. The state and cluster companies should establish collaborative principles which facilitate mutual efforts in innovation and R&D and in turn, enhance the international competitiveness of companies or industries. SEZs and industrial parks are expected to develop high value-added products and services and brace themselves for new market challenges.

Uninvestigated phenomena such as the emergence of industrial clusters in Russia, require a more complex approach and calls for the use of multiple data collection methods and analyses. Further research would involve conducting interviews with SEZ investors and industrial park representatives, the distribution of questionnaires,

analyses of statistical data on the regions where these economic zones are established and financial data on the companies based in the zones. Such research would enable the evaluation of the impact of these industrial clusters on economic development in the regions and would help determine whether they facilitate the development of the companies within these clusters.

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