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Central Asia's AFFAIRS 1/2021
QUARTERLY ANALYTICAL REVIEW

KAZISS
Kazakhstan Institute for Strategic Studies under the President of the Republic of Kazakhstan

Issued Quarterly Since 2003

Responsible for publication:
Almas Arzikulov
Layout:
Pavel Romanenko

Translation by LLC «Delta Consulting Group»

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This Journal was registered
with the Ministry of Culture and Information
of the Republic of Kazakhstan
on January 24, 2003.
Registration certificate No. 3529-zh.

ISSN 2414-570X
doi.org/10.52536/CAA

Printed by «Nadegda 2050» LLP,
Kokshetau, Baimukanov street, 3.
Copies: 350.

SRSTI
06.71.02

BUILDING CLUSTER OBSERVATORY OF KAZAKHSTAN: A STEP TOWARDS ORGANIC CLUSTER POLICY

doi.org/10.52536/CAA/vol_8_issue_1_A4

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Abstract. Traded clusters are geographic concentrations of interrelated industries. While their positive effects are commonly agreed with, some governments still do not have a sound and structured cluster policy. Kazakhstan is not an exception. Introduced by the government in 2005, the notion of clusters has been largely misinterpreted, if compared to the universally accepted definition. The purpose of this paper is to identify the challenges in cluster policy formation in Kazakhstan and to offer recommendations on its improvement. Towards this goal, the article provides the evaluation of the government approach to traded clusters and presents a cluster observatory prototype based on the original methodology by Delgado, Porter, and Stern [16]. We argue that clusters must be redefined in the local policymaking, and that cluster observatory could be a major tool for addressing existing policy gaps. While the text is centered around Kazakhstan, its major findings could contribute to a broader group of countries.

Key words: *Industrial Clusters, Cluster Policy, Cluster Observatory*

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ҚАЗАҚСТАНДЫҚ КЛАСТЕРЛІК ОБСЕРВАТОРИЯ: ҮЙЛЕСІМДІ КЛАСТЕРЛІК САЯСАТТЫҢ ҚҰРЫЛЫСЫНДАҒЫ БІРІНШІ ҚАДАМ

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Аңдатпа. Өндірістік кластерлер - бұл өзара байланысты салалардың географиялық шоғырлануы. Кластерлердің оң әсерімен келіскеніне қарамастан, кейбір үкіметтерде әлі тұрақты кластерлік саясат жоқ. Қазақстан да ерекше жағдай емес. 2005 жылы енгізілген кластерлер ұғымы жалпыға бірдей қабылданған анықтамамен салыстырғанда маңызды ерекшеліктері бар. Осы мақаланың негізгі мақсаты - Қазақстандағы кластерлік саясатты қалыптастыруында қол жетімді қиындықтарды анықтау және оны жетілдіру бойынша ұсыныстар беру. Осы мақсатқа жету үшін мақала өндірістік кластерлерге мемлекеттік тәсілге бағасын және Дельгадо, Портер мен Штерн [16] түпнұсқа әдіснамасына негізделген кластерлік обсерватория прототипін ұсынады. Біз Қазақстандық кластерлік саясатты дамытуда бірінші кезекте кластерлерді қайтадан анықтау керек, ал кластерлік обсерватория саясаттағы бар олқылықтарды жоюдың негізгі құралы бола алады деп санаймыз. Мақаланың назары Қазақстан болғанымен, оның негізгі зерттеулері басқа елдердің кең тобына ықпал етуі мүмкін.

Түйін сөздер: *өндірістік кластерлер, кластерлік саясат, кластерлік обсерватория*

КЛАСТЕРНАЯ ОБСЕРВАТОРИЯ КАЗАХСТАНА: ПЕРВЫЙ ШАГ К ОРГАНИЧНОЙ КЛАСТЕРНОЙ ПОЛИТИКЕ

Мадина Кабдуалиева, Ануар Буранбаев

Аннотация. Торгуемые кластеры представляют собой географические концентрации взаимосвязанных отраслей. Несмотря на значительные положительные эффекты от развития кластеров, кластерная политика все еще не сформирована во многих странах. Казахстан не стал исключением. Введенное в 2005 году понятие кластеров было в значительной степени неверно истолковано в сравнении с общепринятым определением. Цель данной статьи - выявить проблемы в формировании кластерной политики в Казахстане и предложить рекомендации по ее построению. В этих целях в данной статье представлены анализ государственного подхода к торгуемым кластерам и прототип кластерной обсерватории, основанный на оригинальной методологии Дельгадо, Портера и Штерна [16]. Формирование местной политики требует пересмотра понятия и подходов к развитию кластеров, а кластерная обсерватория может стать основным инструментом для устранения существующих пробелов в кластерной политике. Несмотря на то, что в статье изложен кейс Казахстана, ее выводы могут найти более широкое применение при проведении исследований в других странах.

Ключевые слова: *отраслевые кластеры, кластерная политика, кластерная обсерватория*

Introduction

Viewing economic development through a prism of separate industries is obsolete. It deprives one of understanding the relations between industries and how they aggregate into value chains. For this reason, in recent decades both developed and developing countries are actively adopting the so-called cluster approach.

The concept of clusters was popularized by Michael Porter back in the 1990s. Stemming from the classic concept of economies of agglomeration [21], clusters were defined as "geographic concentrations of interconnected companies and institutions in a particular field" [23]. As multiple studies show, this approach remained majorly intact over the years [16] [22] [35]. However, the definition alone does not allow one to fully understand when a group of firms becomes a cluster [35]. Failing to distinguish the two may lead to the government investing in expensive yet abortive cluster initiatives. To address this drawback, various papers attempted to establish a clear set of cluster criteria [16] [26] [35]. There are five general characteristics.

First, clusters contain the firms from the so-called "traded industries" – those that "concentrate in particular regions but sell products or services across regions and countries" [32, p. 559]. Other industries called "local", in contrast, are dispersed across the nation, with their size proportional to the region's size [32, p. 559].

Second, firms in the cluster are geographically proximate [16]. Sharing a common location is important to establish business relations and to minimize transaction costs. This also means that while seeking for a "national cluster" could be tempting, it is unlikely for one to exist due to difficulties in communication that large distance usually implies.

Third, cluster members use similar inputs in the production process [16]. They can be both tangible, such as raw materials, and intangible, such as labor force skills and technologies. Thus, related firms often have common suppliers and recruit specialists who graduated from certain universities.

Fourth, firms in a cluster target the same clients and markets, even if their goods are not perfect substitutes. They tend to face common challenges and seek similar services from the government. That is why clusters often have business associations, which help the entrepreneurs to accumulate more bargaining power and act as one [23].

Fifth, to form a cluster, firms should share the same identity. Work ethics and values driving the production of goods and services also help to establish connections [12]. As Morosini [25, p. 35] argues, members of industrial clusters form "social communities specializing in efficient knowledge creation and transfer" and tend to have a higher level of institutionalized trust and stronger personal interactions than businesses that are not in the cluster.

Notably, it is difficult to develop relations among firms artificially. Successful clusters seem to have emerge as a result of a continuous accumulation of competences in the region [35]. However, once these links are established, some clear positive effects might be observed. For instance, the European traded clusters offer average wages that are 14% higher than in other locations, as well as they host 77% more high-growth firms [24, pp. 5-6]. The regions with strong clusters also have shown higher resilience through economic crises and managed to develop stronger international linkages due to a high level of specialization [12].

They are also more innovative: the nature of interactions happening within the cluster makes the Triple Helix Model work [20]. Even if certain industries start to decline, locations with strong clusters are quicker to

adapt to new activities [15] [35] and often have an auspicious environment for startups [26]. Thus, being in a cluster may outweigh the weaknesses of young enterprises: the companies which are smaller, but are closely located and interact with each other, may eventually outperform multinational companies that chose to develop on their own [25, p. 305].

However, while there is little doubt that clusters can positively contribute to national and regional competitiveness, cluster policy development seems to be a prerogative of developed countries. To date, the US and the EU are still the nuclei of cluster initiatives, with Canada and India following in their footsteps.

Other developing states, however, tend to have more modest results in this field. Kazakhstan, which is studied in this paper, is a good example of a country that still cannot transition successfully from traditional post-soviet approach to industrial development. Notwithstanding the attempts to switch to cluster approach in the early 2000s, the local government did not manage to develop a sound policy yet. Also, unlike to its Western counterparts, Kazakhstan has no working cluster observatory – an important tool that helps to systematically track and measure cluster development across various locations by narrowing industries into clusters based on links outlined above [18, pp. 17-18]. Neglecting such an instrument puts the state at risk of having an outdated and inefficient cluster policy.

This paper argues that the existing approaches to cluster policy in Kazakhstan must be reimagined and that it could be done by the means of cluster observatory. Considering the demand for building a new economic development model, this is a critical moment to summarize all the lessons learnt and design a new cluster policy approach. Towards this goal, the paper presents major fallacies in developing cluster policy and suggests a working algorithm for building its own cluster observatory. Structure-wise the article consists of three sections. The first section provides an overview of the current cluster policy in Kazakhstan based on various sources. The second section focuses on the methodology of building a local cluster observatory, as an instrument to improving Kazakhstani cluster policy. The final section outlines key recommendations for further development of the Kazakhstani cluster policy.

Literature review

To understand the place of clusters in the Kazakhstani public policy, it was important to study both the conceptual framework (how are clusters defined?) and plan of action (how are clusters developed?). Towards this goal, three types of literature were analyzed.

First, the State of the nation addresses (hereinafter – addresses). Delivered annually in the form of a public speech, they depict the results achieved the last year and highlight the President's top priorities for the next one. As of the current structure of the state planning system, the objectives set in the addresses also affect the work of the government. Akin to many former Soviet republics, in Kazakhstan, the president has an ultimate power of defining the direction of the whole central apparatus and even local authorities. His vision and perception of clusters are expected to lie in a very basis of the Kazakhstani cluster policy.

Second, documents of the government. These are the documents included in the state planning system, such as programs, strategies, plans, and forecasts, encapsulating precise initiatives that government undertakes to reach the development goals. The government documents were analyzed to evaluate the methodological framework that guided cluster policy and initiatives that were put into action.

Third, local academic literature and media. Scientific articles and analytical reviews, interviews and blogs represent the opinions of those working outside of the government, which could show an alternative perspective on the topic of discussion.

Since the notion of clusters is not new to Kazakhstan, the literature review covered the period of 15 years. This time frame was especially helpful as it captured the terms served by two presidents and six different governments, showing the whole spectrum of approaches to cluster policy.

Clusters in the State of the nation addresses. First mentioned in 2005's State of the nation address, clusters were claimed as one of the competitiveness driving forces [10]. While the address opened a discussion about the importance of developing clusters and formed a basis for the first initiatives in this field, it did not provide a clear definition. The speech listed seven clusters that were chosen as a top priority. The reasoning for the choice made was not provided.

The lack of proper justification might explain missing a consistency in the approach to cluster development in the following addresses. Seven clusters declared in 2005 would never appear in the President's narrative again. In 2006, the head of state switched his rhetoric to the development of new "medical" and "innovative" clusters to be built in Astana (present-day Nur-Sultan) and Almaty [9]. These two clusters would later be mentioned in several addresses, sometimes complemented with "tourism", "cultural", and "intellectual" clusters. Yet the composition of each of them remained unexplained. Most importantly, in 7 out of 16 reviewed addresses cluster development was not mentioned as a part of economic policy [5] [6] [7] [33] [34] [37] [38]. The address made in 2012, which laid the foundation for the "Kazakhstan 2050" long-term strategy, barely mentioned clusters, narrowing them down to the knowledge and innovations sphere [2].

Thus, the State of the nation addresses show two major things. First, the understanding of clusters was unrefined from the very start and remained uncorrected throughout the period studied. Declaring seven clusters that should be developed made an impression of clusters being something that can be controlled and created from scratch. As has been discussed earlier, this approach is fundamentally contradictory to the way clusters develop. The Kazakhstani government preserved its Soviet approach in picking national champions, rejecting the ancillary role that authorities should play in cluster development. Second, it is difficult to infer the role of clusters in the President's agenda. The consecutive exclusion of clusters from state addresses points to the lack of a clear vision on how cluster policy would unfold during the presidential term. Due to the key role played by the head of state in the Kazakhstani politics, this could serve as a significant impediment to forming a cluster policy by sending a signal of clusters being just a buzzword rather than a significant element of the national and regional development.

Clusters in the documents of the government. The legal information system of regulatory acts of the Republic of Kazakhstan contains nearly 900 various clusters-related documents that include provisions, projects, strategies, orders, annexes, commentaries etc. Most of them are not formally included into the state planning system, which diminishes the impact they may potentially exert. Moreover, regardless of such a voluminous framework, it is immensely fractured, sophisticating the understanding of the state cluster policy.

Considering the novelty of clusters both to public officials and business in 2005, it was crucial to set a list of criteria that helped to identify clusters and to design an algorithm

for their development. However, as the analysis of the main government documents shows, these objectives were not met. There were two major problems accompanying local cluster policy development.

First, the whole process was sporadic and disorganized. In total, the government took four big attempts to foster cluster development. The first one came as a response to 2005's State of the nation address when seven plans of cluster development were introduced. While it was the responsibility of the government to fill the methodological gap, it failed to introduce the definition of clusters into the state apparatus. Once the narrative switched from these seven clusters, they were put behind. As a result, seven plans have neither been executed nor abolished. Today, their current status is still unclear, yet there was no evidence that the government spends any resources from state budget towards their realization.

The second attempt was taken eight years later, in 2013, when the government developed the Concept of prospective national clusters formation. Instead of elaborating the 2005's initiative, this document proposed a new set of six clusters that should have been developed. The Concept, however, did not eventually turn into a full-fledged state program. The real changes did not happen, and uncertainty regarding clusters, their characteristics and functions remained.

The third attempt to build a cluster policy took place in 2014 when the state program of industrial and innovative development for 2015-2019 was developed. Commonly this period is thought of as the "official birth" of cluster policy in Kazakhstan. Unlike its antecedents, the program outlined the need for developing a methodology for identifying and evaluating clusters. At the same time, with no proper methodological framework, the program still included cluster development as a part of the start-up development initiative.

The fourth and most recent attempt was taken along with the development of the next five-year state program of industrial and innovative development. As promised, it declared the introduction of cluster methodology elaborated by the World Bank and a group of local experts from the Ministry of Industrial and Innovative Development and the Center of Industry and Export *QazIndustry*. However, it was neither described within the program nor fully explained in available open sources [19]. Practically, it did not leave a space for evaluating the objectivity of the cluster framework and an opportunity to offer any feedback on its further improvement. In contrast, cluster methodologies elaborated in the US and the EU are a subject of public discussion and constant improvement. Holding on the previous version, the new program presented additional initiatives dedicated to the development of human resources, technologies, and infrastructure. While all of them could be reasonable for cluster development, they again demonstrated the preservation of a top-down approach in the local cluster policy.

The second problem with cluster policy was that it did not manage to become omnipresent. The Ministry of Industrial and Innovative Development (hereinafter – the Ministry) was the major organization on a central level in charge of the cluster initiative and the development of the cognominal state program. For this reason, it would have been hard to realize cluster initiatives that were not directly related to the functions of the Ministry. This could be the reason why other strategic documents either do not have concerted view on cluster development (such

[8] The acting state programs of education, healthcare, employment, agriculture, infrastructure, digital and regional development were reviewed.

as the forecasting scheme of territorial and spatial development and the state program of tourism development) or did not include any cluster-related initiatives at all (such as national 5-year strategic plan and other state programs[8]).

As a result, cluster policy was significantly narrowed down. Confined with its own duties, the Ministry tailored clusters to a whole sector (tourism and pharmaceuticals), specific product or service (milk, meat, and flour), and even the organizations (Nazarbayev University and Innovative Technologies Park). This approach was both confusing in terms of the cluster scale and kept most traded industries out of cluster policy scope. It also presented cluster development as a temporary project of 5 years only undermining its core idea of being a stable ecosystem of firms and institutions [23]. The omissions of the central government could be potentially resolved by the local governments. However, it was not the case for Kazakhstan, where local executive bodies stand on the very bottom of the state hierarchy and must obey the framework set by the central apparatus.

In such a situation, another puzzle to solve is why none of the Kazakhstani governments did not manage to succeed at developing a cluster policy. The analysis by Bailey and Montalbano [22] provides four possible answers. First, seeking for a prestige – developing policy without gaining deep understanding first, just to raise a popularity of policymakers in office. Second, picking winners top-down – ignoring the judgments of business and expert community. Third, lack of competence – not having enough information and skills to create an adequate policy. Fourth, capture – pursuing personal goals in case of overlapping interests of the government officials and beneficiaries of cluster initiatives. In the case of Kazakhstan most of these problems could have been true. Yet to understand the roots of this inconsistency, a deeper research of legislature and state planning system is required.

Therefore, the analysis of government documents diagnoses the lack of universally accepted cluster policy in Kazakhstan. Despite numerous trials to launch cluster development, it is difficult to articulate the goals and objectives the government wants to pursue. Without accepting common definitions and ensuring their presence in all types of government documents, it would be difficult to foresee the future of clusters in Kazakhstan.

Clusters in local academic works and media. The issue of cluster misinterpretation and cluster policy overall is not much addressed by local expert communities. The amount of academic works on clusters in Kazakhstan is rather scarce. The media content is also limited: news releases are rare and paraphrase the information outlined in the government documents.

The Kazakhstani articles present in open access have one common trend – they focus on reviewing classic works in the field, without contextualizing it. There was also no paper found that attempted to develop the cluster observatory. The reports by international development institutions tend to follow the framework given in the government documents and do not challenge the methodological basis. Some national and foreign experts attempted to suggest quantifiable criteria of clusters, but none of them managed to provide a reasonable justification for their choice.

Considering the existing literature gap and flaws in the current government approach to clusters, a new perspective is needed. The next section addresses these challenges by suggesting using cluster observatory as a basis for new cluster policy development in Kazakhstan.

Methodology

The role of cluster observatory in cluster policy formation is hard to overestimate. Not only this instrument is handy in methodizing the knowledge about clusters and their characteristics, but also in monitoring the changes clusters undergo on a certain territory. The observatory is usually presented as an online interactive platform, open to everyone.

The attempts to introduce cluster observatory started in the early 2000s, but its full-working version was launched around a decade ago, followed by revolutionizing paper by Delgado, Porter, and Stern on cluster mapping approaches. Their methodology was universally accepted as the underlying algorithm of cluster observatory development. Subsequently, more and more countries adopted it to shape their own cluster policy, including the EU members, Canada, Russia, and India.

In the case of Kazakhstan, cluster observatory is also an important instrument to use for at least three reasons. First, it will help to unentangle confusion about clusters and their composition. Having all data about clusters concentrated on a single platform will make it easier for policymakers to understand the whole concept and make them follow clear quantifiable criteria that define clusters. Second, it will contribute to switching to a more organic approach in policymaking. Instead of picking the clusters to develop, with cluster observatory, the government will be able to monitor which ones are naturally growing faster or slower and undertake more specific initiatives to help them develop. Third, it will assist business in evaluating available opportunities in various regions across different clusters. As a result, it may decrease the costs an establishment must incur to research the market and potential partners.

To build a cluster observatory, it is necessary to follow the algorithm, to avoid excessive subjectivity in defining clusters and mapping them. Due to its wide recognition, the methodology by Delgado, Porter, and Stern [16] was used as a benchmark. It highlights three essential processes standing behind the development of a cluster observatory: defining the territorial unit for the analysis, grouping industries into clusters, and choosing cluster performance indicators to measure their development level.

The first step depends on national approaches to territorial analysis. As Weiser and Kaibitsch [26, p. 9] show, "there is no universally accepted way of establishing the exact boundaries of a cluster. What is perceived as close in one location may represent an insurmountable distance in others; distance can be influenced by the availability of transport facilities, as well as by cultural identity and social values". For example, the US cluster observatory provides information on three geographic levels (states, economic zones, and counties), and the European one is based solely on administrative units (regions and cities). Regardless of the approach, it is important to verify the connectivity within the territorial unit. It is usually measured with commuting rates[9]. In the case of Kazakhstan, however, it is impossible to measure these links among various locations due to a lack of data. For this reason, the Kazakhstani cluster observatory, akin to the one of the EU, will use administrative areas as territorial units for analysis. To date, there are 203 administrative areas in Kazakhstan, comprising regions and cities.

The second step is the most difficult to perform. Practically, the only country that has made cluster classification completely on its own is the US. Other countries build their observatories on the US cluster classification. It takes place due to two big limitations. First,

[9] Measured as share of people regularly traveling from one location to another for work or studies

the data on industries available in the US is more detailed which allows a higher level of precision in categorizing them into clusters. Having a classification that is built on a large-scale data will be of no use. Second, the US economy is more integrated and mature. Developing economies, in contrast, could simply have not developed inter-industrial links yet. This is also a case for Kazakhstan, which has two big cities of Nur-Sultan and Almaty. Since both cities played an important historical role in the country development (both were capital cities at different times), they concentrated large portions of workforce and establishments. The size of other administrative areas, in contrast, is much smaller, which will not allow seeing a trend needed to identify the borders of each cluster.

To cope with these imperfections, it would be reasonable for Kazakhstan to adopt the cluster classification that has been already developed and tested. The European one is the most relevant to the Kazakhstani context. Since the EU cluster observatory itself is based on the US one, it ensures the accurate application of the original methodology [16], including the division of industries into traded and local groups, which requires the data that is not collected in Kazakhstan. Also, both Kazakhstan and the EU share the same industry classification system (NACE REV 2), which allows a smoother transfer of cluster classification to the context of Kazakhstan and conducting a comparative analysis with its member countries. Thus, for the Kazakhstani cluster observatory, the classification of 51 traded clusters of the EU would be used [13].

The final step of building a cluster observatory is more flexible in execution and allows using available data without a significant decrease in accuracy. While cluster classification allows differentiating the industries by their connections, it alone is not sufficient to measure cluster development. It is necessary to use some quantifiable indicators to see how different clusters perform in different regions.

Unlike cluster classification, performance indicators are more diversified across existing cluster observatories. To ensure consistency, the EU method of measuring cluster development was analyzed first. The EU observatory offers "cluster strength" as a key performance indicator. The strength is based on five criteria: cluster size, specialization, employee productivity, SME performance, and innovation leaders [18]. Considering data limitations, for Kazakhstan, it is possible to use only size and specialization criteria. The former is measured with the employment size, while the latter is based on location quotient calculations. The benchmark values for both criteria are also taken from the European cluster observatory. Using these measures combined provides a good balance: while the former shows the absolute size of a cluster, the latter compares a certain region size to other regions and Europe.

To increase the versatility and reliability of performance measures, this paper suggests two additional factors: integrity and concentration. Cluster integrity is the share of industries that belong to this cluster according to the adopted classification that is already present in this administrative area. This indicator serves as a proxy for diversification. It allows seeing whether the whole value chain of this cluster has been already formed or there is still a potential for this cluster to spread out.

Cluster concentration is the value of the Herfindahl-Hirschman Index[10] for a particular cluster. It shows the dependency of the cluster on one or a few industries and serves as a proxy for sustainability. The lower the value – the higher the sustainability of

[10] Measured as a sum of squares of employment shares of each industry in the cluster

the cluster. This measure can also address the main limitation of specialization criteria – location quotients can be misleading if their high value is caused by a single large firm and not a group of firms. In the Kazakhstani context, where many cities were built in the Soviet period around one big factory or enterprise, this indicator is of a particular importance to apply.

Based on the EU cluster classification and three cluster development criteria (strength, integrity, and concentration), the cluster observatory of Kazakhstan was developed. In total, it shows how many clusters each of 203 administrative areas has, as well as at what stage of development this cluster is. At the moment of writing, the observatory offers around 20 functions that can be used for building a cluster policy.

Research results

Using the observatory, it would be easy to evaluate an overall state of cluster development in Kazakhstan in a short period. Applying the EU cluster classification to 203 administrative areas gives information on around 5,600 cluster-area pairs. While the performance indicators of these pairs differ drastically, it shows that the Kazakhstani economy has already developed at least the rudiments of clusters.

Yet there is only one cluster in Kazakhstan – the Business Services in Almaty – that satisfies all criteria of a developed cluster. This is another evidence for an unsuccessful approach to cluster development that existed to date. More promising picture appears if one tries to evaluate the performance of the Kazakhstani clusters with the strength criteria only. Suggested observatory identified 97 strong clusters spread around in 41 different locations, most of which are cities. They contain around 850 thousand employees or 38% of total employment in traded industries. Diversity of strong clusters, if analyzed by their type, is not wide: one-third of strong clusters are production and transmission of electricity, metal mining and production and transmission of oil gas. The half of clusters constituting the classification are strong in none of the administrative areas studied.

To give a practical example of cluster observatory capacities, a summary of all Business Services clusters in the country is provided in Table 1. The information is accumulated under five sections. The first one – cluster composition – gives an overview of which particular industries share the links among each other and tend to form a cluster. The second section outlines the list of clusters that relate to Business Services. This information would be crucial in understanding the links of a higher scale – the ones formed among groups of industries. Based on that, it would be easier to estimate which cluster has the highest chance to appear after the Business Services one develops. The information under "strong cluster locations" and "potential cluster locations" tabs denote specific regions that have already succeeded in the Business Services to a certain extent. The final section suggests several cases from international practice that could be worth studying in designing Business Services cluster strategy. Yet it is vital to apply this experience with caution – there is no universal recipe on how a cluster can be developed, and the context matters.

At the same time, it is important to understand the limits of cluster observatory. To keep it updated, further research is needed. As the quality of statistical data improves, it may be useful to modify the indicators used to measure cluster development or to redefine the basic territorial unit used for this analysis.

This instrument is also short of any forecasting methods. The proven geographic agglomeration of enterprises does not

Table 1. Business Services clusters

Cluster composition	Business Services is one of the most diversified clusters. In total, it may contain up to 21 industries, starting from taxi operations and management to computer programming and architectural activities.
Related clusters	The Business Services cluster has connections with nine other clusters, most of the links being quite strong. The clusters related to Business services are (1) Distribution and Electronic Commerce, (2) Marketing, Design and Publishing, (3) Insurance Services, (4) Education and Knowledge Creation, (5) Communications Equipment and Services, (6) Financial Services, (7) Performing Arts, (8) Biopharmaceuticals and (9) Printing Services. The first five have the highest chance of being developed in locations where the Business Services cluster exists.
Strong cluster locations	The cluster is already strong in four cities: Nur-Sultan, Almaty, Aktau, and Atyrau. In total, these cities employ 240 thousand workers in 23 thousand establishments. The city of Almaty has both strong and low-concentrated cluster, while other three cities may need to decrease their dependency on a small number of industries to increase the sustainability and resilience of their Business Services cluster.
Potential cluster locations	There are 64 locations that satisfy at least one criteria of cluster strength. Among them, four cities have the highest potential to develop Business services: Aktobe, Karaganda, Shymkent, and Ust-Kamenogorsk. To become strong clusters, they need to get a higher local quotient value, i.e. tobecome more specialized than other regions. Akin to Almaty, Shymkent also has a more balanced structure than others in terms of concertation. It may be expected that these cities will be the next growth poles of Business Services in the country.
Best practices	There are abundant examples of successful Business Services clusters in both Europe (Antwerp, Upper Bavaria, Darmstadt, Koln, Hovedstaden, Nord-Pas-de-Calais, Pays de la Loir, Oslo, London, etc.), and the USA (San Jose, Denver, Minneapolis, Detroit, Washington DC, San Louis, Atlanta, and Houston).

guarantee all positive spillover effects to emerge. The observatory also does not provide recommendations on what kind of help certain areas may need to develop their clusters. Thus, the use of other methods, both quantitative and qualitative should not be neglected. At some point, it might be unavoidable to conduct surveys and interviews to identify the problems of cluster development.

Discussion

Based on the regulatory analysis and possibilities coming with the introduction of the cluster observatory, there are four streams of policy recommendations.

First, the unanimous definition and characteristics of clusters in all kinds of government documents must be introduced. This will ensure consistency of the cluster policy and narrow down the space for interpretation. It is recommended to utilize the original definition by Porter [23], which is also adopted in policies of other countries. Otherwise, it would be difficult to conduct a comparative analysis.

Second, the government should develop a list of principles guiding the behavior of policymakers responsible for cluster policy. Porter [23] outlined the most basic ones: enforcing a regulatory environment that is conducive to the development of linkages among business, focusing on specialized factor creation, and resisting the temptation to intervene in factor and currency markets. All these principles require the government to step back and loosen a grip on cluster development.

Third, considering limited resources, policymakers should focus on existing clusters and not create new ones. Here is the main stage when cluster observatory can be used. It will allow replacing the conservative

top-down with a more organic bottom-up approach, where government reacts to the changes in clusters, and not vice versa. Under this framework, inaction is also a way of impact.

Fourth, the government must evaluate what kind of initiatives would better serve cluster development. They should go in line with adopted principles and consider diverging levels of cluster performance across the country. Donahue, Parilla, and McDearman [35, p. 4] suggest five areas of intervention. First, information and networks – making the information about opportunities for business universally accessible. Second, talent development – elaborating education policy in schools and colleges to prepare professionals with relevant skills. Third, research and commercialization – serving as an intermediary between business and research groups to establish partnerships. Fourth, infrastructure – building logistics facilities or providing a high-speed broadband connection. Fifth, capital access – compiling the data about young firms and opening it to potential investors. Regardless of the number of initiatives the government would choose to pursue, it is also important to consider them when planning the state budget. Otherwise, their effect might be reduced.

Conclusion

In the globalized world, cluster development is a proven method of raising both national and regional competitiveness. Seeking to shape the approaches for cluster policy development in Kazakhstan, this paper contributes to the larger body of literature in two ways.

First, it sheds a light on major clots that prevent cluster policy development. The case of Kazakhstan is illustrative of two major barriers to an efficient cluster policy: the lack of clear definitions and methods to estimate the performance of clusters. Moreover, while in foreign literature cluster observatory is presented as a useful instrument to track cluster development, this paper shows the perspective of how it can help to address basic policy fallacies.

Second, it proposes two extra measures of cluster development, such as integrity and concentration that can be calculated even with limited data. While the methodology developed by Delgado, Porter and Stern [16] is universally accepted, the research communities of developing countries also must strive to improve it considering the context of their nations. Whereas the focus of the article was the case of Kazakhstan, the findings outlined in this paper can also be valid to other developing countries, especially to the former Soviet republics.

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