SPATIALLY INDUCED EFFECTS AND SUSTAINABILITY FOR SPECIAL ECONOMIC ZONES: IMPLICATIONS FOR ZONES IN PAKISTAN UNDER CHINA PAKISTAN ECONOMIC CORRIDOR

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Abstract
The China Pakistan Economic Corridor (CPEC) is one of the Belt and Road Initiative projects. Nine special economic zones (SEZs) are proposed under the CPEC and the aim of establishing SEZs is to support and promote local industry as well as other dimensions such as improving energy generation and political stability in Pakistan. The CPEC will facilitate close proximity and collaboration between Pakistan and China, Pakistan can learn from China's successful experience in SEZs. As this concept zone is 'regional' in itself, it is important to analyze this policy from the point of the "New economic geography" theory. This paper explores the existing literature on SEZs in order to identify the role of sustainable development goals (SDGs) in the perspective of spatially induced effects of a zone and their implications for SEZs under the CPEC.

Keywords: Special economic zones (SEZs), Sustainability; Sustainable Development Goals (SDGs), China Pakistan economic corridor (CPEC), spatially induced effects; geographical agglomeration
JEL classification: R12, R11

1. Introduction

Today's globalised and well integrated world is the result of collective and individual efforts of all countries around the globe for over six decades. These efforts intend to promote trade liberalisation through various channels, including Free Trade Agreement (FTA), Economic Corridors, Most Favoured Nation (MFN) status arrangements, and an SEZ. The term can be defined in two perspectives; geographically speaking, SEZ is a limited area in a country where certain kind of economic activities, performed by certain economic agents, are favoured by a certain set of policy tools that are not applicable to the rest of the country. Secondly, in the context of institutions, a SEZ is demonstration of discrimination applied by the host government in favour of certain economic activities, for a certain group of economic agents (Ge, 1999; Tyler and Negrete, 2009; Crane, Albrecht, M. Duffin and Albrecht, 2018). Using economic zones as a policy tool has been supported by international institutions such as World Bank and Asian Development Bank because they also believe in free trade and industrialisation. Moreover, these economic enclaves and open door trade policy are considered by many to be responsible for the rapid economic growth of East Asian Tigers (Hong Kong, Singapore, South Korea and Taiwan) and newly industrialized south East Asian economies (Malaysia, Indonesia and Thailand) (Anwar 2014).

The main objective or aim behind establishing these enclaves is similar for different countries,unlike the taxonomy of the terminology that differs from country to country. It has several names such as Free Zones (South America, Spain & France), Special Economic Zones (China, India, Russia, Ukraine, and Pakistan), Economic & Technological Development Zones (China), Foreign Trade Zones (USA, Canada), Industrial Development Zones (South Africa), Trade Development Zones (Australia), and Maquiladoras (Mexico). All these zones with different terminologies refer to a similar concept, i.e. to promote duty free and smooth import of intermediate goods that are required for the production of export commodities (Tyler and Negrete 2009), to promote labor-intensive manufacturing for exports to advanced

developed countries (Anwar, 2014) , to attract local and foreign investment, create employment opportunities (Alkon 2018) or with a slight variation in the policy objectives (Jayanthakumaran 2003). Moreover, these enclaves are considered as a policy instrument to achieve economic transition from a less integrated economy to an open and regulated economy (Palit 2009). Thus, this paper uses SEZ interchangeably with all these terms as it is the one officially used in CPEC project.

In the modern world, the first industrial enclave was established in Shannon, Ireland in 1959 (Anwar 2014; Moberg 2015; Amirahmadi and Wu 1995). These enclaves or zones that were established in 1960s in inward-looking countries, pursued export-oriented policies (Palit 2009). Initially, most of the Export Processing Zones (EPZs) were established with the mutual objective of attracting FDI to the manufacturing sectors in the host country that are labor-intensive in nature (Farole 2011; Makabenta 2002). This was an alternative of traditional import-substitution policy. However, over time, policy makers realized that EPZs have a limited role that is not efficient under the changing global regulatory and economic situation. This limitation is due to the following factors: strict custom-controls, around 80% of the products have to be exported, not being able to create linkages with the rest of the economy and dependent on fiscal incentives. However, over time the limited role of these zones was expanded into much bigger and wider range of targets including economic reforms and development policies (Amirahmadi and Wu 1995). Consequently, the focus shifted to SEZs that are multifunctional in terms of policy objectives, less reliant on fiscal incentives, creating more backward and forward linkages, and they are wider in size (Zeng 2015). SEZs are built not just for manufacturing exports but also to promote regional development (Anwar, 2014). In last two decades, the popularity of SEZs increased; according to international labor organization there were 3,500 SEZs in 130 countries in 2006 as compared to 176 zones in 1986 (Frick, Rodríguez-Pose, and Wong 2018).

Pakistan, like many developing countries, on the one hand, is establishing SEZs in cooperation with China under China Pakistan Economic Corridor (CPEC), which is one of the six corridors of Belt & Road Initiative (BRI).On the other hand, it is also prioritizing sustainable development goals (SDGs) as it is a part of Pakistan Vision 20205 policy and Agenda 2030. Table 1 shows the link between Pakistan's Vision 025 and SDGs.

Table 1. The link between Pakistan's Vision 2025 and SDGs

	Pillar	Links with SDGs
1.	**People First**: Developing social and human capital and empowering women	SDGs 1 (poverty), 3, (health) 4 (education), and 5 (gender)
2.	**Growth**: Sustained, indigenous, and inclusive growth	The target is virtually identical to SDG 8, and also to SDGs 10, 12, 13, 14, 15
3.	**Governance**: Democratic governance: institutional reform and modernization of the public sector	Again, the language is similar to that of SDG 16
4.	**Security**: Energy, water, and food security	Linked to SDG 2 (zero hunger), 6 (water security), 7 (energy security), and 11 (urban)
5.	**Entrepreneurship**: Private Sector and entrepreneurship-led growth	This is linked to SDG 9 (foster innovation)
6.	**Knowledge Economy**: Developing a competitive knowledge economy through value addition	SDG 9 (innovation), and 4 (education)
7.	**Connectivity**: Modernizing transport infrastructure and regional connectivity	SDG 9 (infrastructure), and 17 (global partnership)

Note: Extracted from Pakistan Vision 2025 One Nation-One Vision

Although, Pakistan has a history of poor performance in both developing SEZs and SDGs, policy makers are still ambitious and looking forward to change the course by learning from a close alliance with China. Over the time of the past three decades, several export processing zones (EPZ) were established in Pakistan, however, only four of these EPZ are functional now. Work environment, inappropriate location, inadequate facilities, safety and security issues, inadequate skill enhancement, inadequate trainings, bhatta culture and high inflation are the major impediments in the performance of EPZs(Mukhtar et al. 2013). The functional EPZs are located in Karachi, Saindak, Risalpur and Sialkot("Export Processing Zones Authority" 2019).Government and policy makers need to be diligent and avoid those mistakes which they have made before. The existing research work on SEZ in Pakistan, mainly focuses on bureaucratic and institutional failures of the existing system and to the best knowledge of the authors, a comprehensive study of spatial and sustainable aspect of SEZ is still lacking. After analysis and synthesis of available existing literature on SEZs, this paper proposes a policy design that incorporates SDGs into spatial mechanism of SEZs at the initial stage of developing SEZs. It could help Pakistan and other developing countries in the process of establishing a SEZ and achieving sustainability. According to Word Investment Report 2019, sustainable development imperative is one of the new challenges faced by SEZs("World Investment Report 2019 - Special Economic Zones" 2019). Therefore, the policy mix of spatial impact of SEZs and SDGs is a rather new phenomenon. According to the best knowledge of authors, this concept is yet to be explored.

2. China's Experience

The outcome of establishing SEZs depends on the prime instrument that is used to convince investors to invest in a particular SEZ. For Pakistan this instrument is tax exemption like many other countries for instance Poland. However, once the final effects of using this instrument varies from country to country; in case of India, growth in exports and net foreign exchange are the main outcomes of SEZs. However, in China, it resulted in a big inflow of FDI, high export growth and increase in employment (Ciżkowicz et al. 2017). This variation also depends on the need of the host country; for instance, one of the aims of zones in Thailand is to decentralize the industries in Bangkok because they wanted to solve the issue of congestion and pollution. Similarly, the outcome or the consequence of these zones also vary from country to country; international and domestic integration are the well understood objectives of such zones; and export processing zones in South Korea went so far in domestic integration that they were no longer enclaves (Jayanthakumaran 2003).

The development of SEZs that is part of long term plan of CPEC depends heavily on the coordination and planning of both countries. And given that China represent the most successful case of building industrial and trade enclaves, Pakistan, like many other developing countries (India, Vietnam, Thailand), can learn from Chinese experience. According to a report by the World Bank, besides boosting the industrialization, modernization and urbanization, SEZs in China have a share of 22% in China's GDP, 45% in total foreign direct investment (FDI), and 60% in exports. These zones have increased the income of participating farmers by 30% and created more than 30 million jobs("China's Special Economic Zpnes" 2015).

Here, Pakistan has the privilege to not just learn from distance and historical evidences but from economic collaboration and institutional coordination. China adopted an "open door" policy in 1978 and by 1980it had developed first four economic zones (Shenzhen, Zhuhai, Shantou and Xiamen). In case of China's SEZs, the targeted goals of high FDI, expansion in exports and technology diffusion were achieved by implementing a set of favorable policies (government support, land reforms, flexible labor laws, fiscal incentives and technological upgradation) and the right mix of production factors (low cost of labor and skilled workers). The rationale of establishing SEZs was to develop forward linkages with capitalist countries through trade liberalization and backward linkages with domestic markets. During 1980-84 when China's GDP grew at 10 percent per year, Shenzhen special economic zone experienced phenomenal growth rate of 58%, whereas, Zhuhai, Xiamen and Shantou grew at 32, 13 and 9 percent respectively (Yeung, Lee, and Kee 2009). These zones were deliberately located far away from Beijing in order to avoid political interference and in just five years China experienced unprecedented economic growth (Zeng 2016). The success story of these first four economic zones lead to further opening up the economy and China embarked on establishing several economic enclaves, including Economic and Technological Development Zones. It is important to highlight the factors or particular characteristics of China's "open door" policy that made this success possible. Other the locational advantage, below follow some significant common elements discussed by (Zeng 2016; Nallathiga 2007) .

• Determination and support of both central and local government

Commitment and a gradualist approach of government didn't let the initial uncertainties and temporal setbacks to hinder the process. On the one hand, Central government tried to decentralize the power and prevented political opposition to create an inclusive and open legal and policy environment. On the other hand, local governments facilitated the economic zones with quality infrastructure including transportation networks, supply of water and gas, and telecommunication services along with efficient regulatory and administrative support.

• Land Reforms

China adopted land reforms to start market-based land distribution. In the 1980s, they allowed local as well as foreign investors to apply for land lease and also to participate in "open-bidding". This practice was opposed to the land ownership system of China before 1981 which postulated that all land belonged to the state.

• Flexible Labor Laws

China opted for flexible labor laws, accompanied with MNCs best management strategies and wages linked with productivity and enhanced production capacity of labor.

• Fiscal Incentives with Clear Objectives

Legislative authorities helped SEZs in achieving political & economic autonomy by developing municipal laws and regulations in line with national laws and regulations for the administration of SEZs. This institutional autonomy was further supported by fiscal incentives, including export tax exemption, fast custom clearance, favorable import duties, depreciation allowance, low uniform indirect taxes, numerous special tax holidays, flexible labor laws, and ability to send back profit to home countries by foreign firms. Furthermore, the government set clear objectives and benchmarks to evaluate the performance of rapidly increasing number of SEZs. GDP growth, rise in export, employment and revenue generation are the significant ones.

• Technology Adoption and Innovation

SEZs have become a hub for innovation, R&D and skilled labor which generates and adapts technology. Moreover, it protects intellectual property rights by setting up policies and regulations along that are to be followed by intellectual property rights office (Liuhto 2009).

In the case of Pakistan, SEZs have both a policy and infrastructure rationale. The government is trying to liberalize trade and attract foreign investment while creating job opportunities for locals, providing adequate logistics and having environmental controls. While it is important to learn from the success story of China, it is even more important to learn from the mistakes Pakistan itself has made in the past. Above mentioned factors are crucial in making a policy success but it takes some pre-requisite conditions to implement them successfully. China announced a SEZ in Kashgar region that is a less developed region in China and it connects China with Pakistan. If China tries to implement the model of Shenzhen SEZ in Kashgar, it will not work because both regions are totally different in terms of economic, social and ethnic conditions. Shenzhen is a coastal area, neighboring Hong Kong and Taiwan, whereas, Kashgar is suffering from ethnic and social conflicts (Chou and Ding 2015). Furthermore, the size of a zone is also one of the most important feature that must be considered here. In other words, the distinction between national-level and provincial-level zones is essential. This implies that Pakistani zones in size might be equivalent to provincial zones in China, so we should not follow Shenzhen or other big zone's framework blindly. What needs to be understood here is that each and every SEZ has its own set of characteristics and along with a general framework, they need a personalized policy design as well (Herlevi 2017).

China has been facing challenges on the front of green development, innovation, social justice and economic sustainability. According to recent statistics, a major portion of the population is exposed to low quality of air, water and soil; 25 percent of the population does not have access to clean water. SEZs can be used a prototypes to ensure sustainable social and economic practices within the geographical area of the zones but later can be expanded to the country (Mohiuddin et al. 2014). However, as Pakistan is in the initial phase of SEZ development, it should ensure economic and social sustainability from this point in order to avoid to future setbacks.

3. 3. Geographical Distribution of SEZs in Pakistan

The geographical distribution of SEZs reflects that they are more popular in developing countries as compared to developed ones. With establishment of SEZs, it is possible for developing economies to invite foreign investors to work within an enclave that is free of control, without having to subject whole economy to a liberalized and deregulated system.

The location choice of a SEZ is decided according to two criteria; the first one depends on the development features of the region which include: 1) Market-related factors such as GDP of the state, population and population density of the state. 2) Labor-related factors including availability of labor, wage rate, quality and skills of workforce. 3) Infrastructure and Logistics services, namely, transportation networks, telephone density, distance from the ports, airports and highways, and warehousing (Chakraborty, Gundimeda, and Kathuria 2017).

The second one is a rather precautionary criterion; according to a report by United States Institute of Peace, most of the countries around the world are establishing SEZs in order to address one or more of the following issues:

- A weak policy framework and a poor investment climate
- Compensating for inadequate infrastructure facilities in the country
- Providing a kick-start to under-developed and neglected regions and industries

Nine zones are proposed under the CPEC and their geographic distribution is a mix of above mentioned two criteria. Zones like ICT Islamabad and Allama Iqbal city are being established considering the first criterion, whereas other zones are located in under-developed regions (Baluchistan, FATA and Gilgit Baltistan) of the country as per the second criterion of location choice. Figure 1 shows the geographical distribution of nine SEZs in Pakistan. Although Pakistan is in the initial phase of establishing these economic zones and there are only nine SEZs, the map shows an equal geographical distribution in terms of provinces, as these zones are not clustered in a certain region or province. India, on the other hand, despite having many successful SEZs, portrays a poor picture of zone distribution. 73 percent of the zones are located in the Southern and Western states which are already developed states as compared to Northern states and this resulted in economic regional disparity (Anwar 2014). Whereas most of SEZs in China are located in coastal areas and near metropolitan cities on purpose. This provided them with better connectivity and access to quality infrastructure (Zeng 2015).

Image 1. SEZs in Pakistan.

Source: Illustrated by the author using Geographical Information System data of Pakistan openly available at http://www.diva-gis.org/datadown. District level data is used as an approximation of SEZ location.

According to Ishida (2009), SEZs can be divided into four categories acoording to location, namely metropolitan, port or costal, junctions and border area zones (Ishida 2009). From Table 1, it can seen that three of the zones could serve as junstions, whereasthere are two zones for both costal and metropolitan types. There are three potential candidates of border area zones but in reality it might not be possible as Islamabad's strategic and trade relations with Afghanistan and India are not friendly.

Table 2. Identification of SEZ type.

SEZ	Type
Rashakai Economic Zone , M-1, Nowshera	Junction between Mardan and Nowshera
China Special Economic Zone Dhabeji	Port or coastal zone, 25.4km from Port Qasim
Bostan Industrial Zone	Junction between Quetta and Ziarat or between Quetta and Chaman.
Allama Iqbal Industrial City (M3), Faisalabad	Metropolitan zone
ICT Model Industrial Zone, Islamabad	Metropolitan zone
Development of Industrial Park on Pakistan Steel Mills Land at Port Qasim near Karachi	Port or coastal zone
Special Economic Zone at Mirpur, AJK	No certain type
Mohmand Marble City	Border zone as distance to Torkham is around 70KM. Junction between FATA and KPK province
Moqpondass SEZ Gilgit-Baltistan	No certain type

Source: Author's compilation using geographical distance data from google map.

Rashakai lies at the distance of around 9.6km from Mardan and 14km from Nowshera. Bostan Industrial zone could provide a junction between Quetta and Ziarat, and between Quetta and Chaman. It lies at a distance of around 34.5km from Quetta, around 88km from Ziarat and around 95Km from Chaman. On the other hand, Moqpondass SEZ in Gilgit Baltistan may also serve as a border junctio between Pakistan and China. Given the georaphical location, it lies closest to China;therefore, it could play a very important role in cross border trade. The ICT zone is located in Islamabad that is the capital of Pakistan and Allama Iqbal Industrial City is being dveloped in Faisalabad that is third biggest city of Pakistan and already an industrial hub. The identification of these types is important to build backward and forward linkages with domestic and foreign market respectively. Therefore, the institutional and regulatory framework of each special economic zone must be designed in accordance with these types.

Several other characteristics of each SEZ are summarized in Table 3, such as, the type of industry, total area dedicated to the zone, and infrastructural connectivity. These characteristics along with identified zone type in this section could be a helpful for the potential industries in terms of their strategic and operational policies.

Table 3. Characteristics of SEZs.

SEZ	State	Area (Acres)	Industries	Connectivity
Rashakai Economic Zone , M-1, Nowshera	KPK	1000	Fruit Food Packaging Textile Stitching Knitting	Airport 50 KM Dry port 65 KM Railway Station 25 KM Motorway 0 KM Highway 5 KM City Center 15 KM
China Special Economic Zone Dhabeji	Sindh	1000	To be determined during feasibility stage	Airport 80KM Seaport 85KM Railway Station 5KM Highway 4.5KM (N-5)
Bostan Industrial Zone	Baluchistan	1000	Fruit Processing Agriculture machinery Pharmaceutical Motor Bikes Assembly Chromites Cooking Oil Ceramic industries Ice and Cold storage Electric Appliance Halal Food Industry	Airport 23KM (Quetta) Sea-port 713KM (Karachi) & 976KM (Gwadar) Dry Port (Quetta) 32KM Highway (N-50) 0KM
Allama Iqbal Industrial City (M3), Faisalabad	Punjab	3,000	Textile Steel Pharmaceuticals Engineering Chemicals Food Processing Plastics Agriculture Implements	Airport around 52KM (Faisalabad) Dry Port 20KM (Faisalabad) Highway 0KM

ICT Model Industrial Zone, Islamabad	Islamabad	200-500	Steel Food Processing pharmaceutical & Chemicals Printing and Packaging	Not decided as the identification of land is under-progress
Development of Industrial Park on Pakistan Steel Mills Land at Port Qasim near Karachi	Sindh	1500	Steel Auto & allied Pharma Chemical Printing and Packaging Garments	Airport 19KM Bin Qasim Port 10 Km Bin Qasim Railway 12KM
Special Economic Zone at Mirpur, AJK	AJK	1078	Mix industry	Airport 130Km Highway 22KM (GT Road) Railway track 2KM Dry Port 5KM (Mirpur proposed dry port)
Mohmand Marble City	FATA	300	Marble Industry Stone Industrie	Airport 29KM Dry port 29KM Railway Station 28KM Motorway 33KM
Moqpondass SEZ Gilgit-Baltistan	Gilgit-Baltistan	250	Marble / Granite Iron Ore Processing Fruit Processing Steel Industry Mineral Processing Unit Leather Industry	Airport 35KM (Gilgit) & 160KM (Skardu) Dry port 200KM (sust) Highway 4KM

Source: ompiled by author using the information from (Abbas and Ali 2017; "DistancesFrom.Com" 2018; "FATA Development Authority » Marble City in Mohmand Agency" 2018; "Progress Update | China-Pakistan Economic Corridor (CPEC) Official Website" n.d.; "Google Maps" n.d.; "Rome2rio: Discover How to Get Anywhere" n.d.)

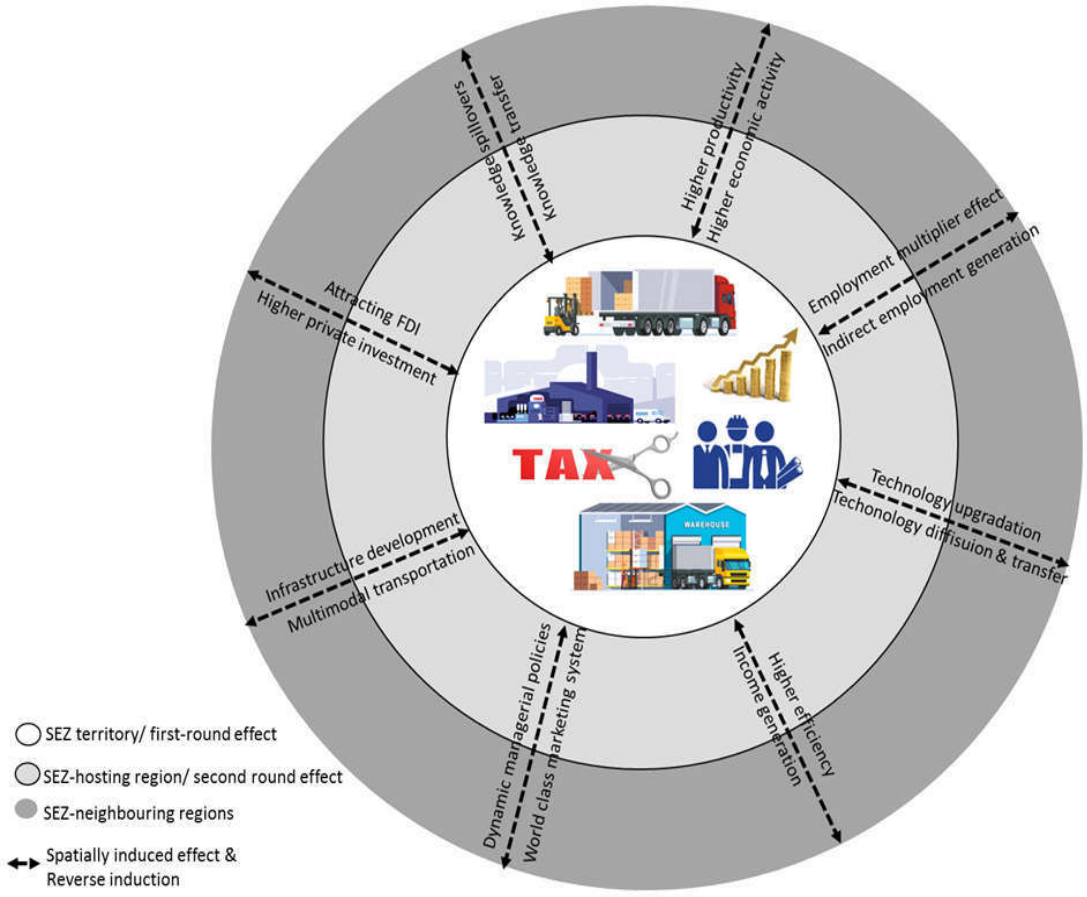
4. Spatially Induced Effects and Externalities

The idea of economic agglomeration have been with us since the era of industrialization. It was discussed by Marshall, one of the pioneers of economics, as "industrial districts". He described how industry and labor specialization, knowledge sharing, pooling of inputs and outputs generate economic benefits for member firms as well as externalities (Marshall 1890). SEZs provide a conducive environment to industries that generates externalities flowing "forward, backward and horizontally". In the middle of twentieth century, the concept of SEZ or EPZ were analyzed using an orthodox approach. This approach examines the possible outcomes of a SEZ in terms of static economic indicators, such as direct impact on employment, investment, and foreign exchange earnings. However, in late 1980s, researchers shifted their focus from a static approach to a heterodox approach. The latter one focuses on dynamic implications of a SEZ in terms of policy design and targets. It is based on endogenous growth theory, hence it aims at achieving sustainable economic growth by developing human capital, technological advancement and institutional reforms. Recently, the focus has been shifted to new economic geography theory, where spatial and agglomeration economies are the focal point (Cheesman n.d.; Aggarwal 2010). Therefore, this paper focuses on developing a link between spatial implication of SEZs and sustainable development goals,

it is explained in two steps. First, this section illustrates the mechanism of spatial effects of SEZs. Second, this mechanism will be linked with SDGs in the next section.

The new economic geography theory emphasizes on cumulative and circular process stating that agglomeration of trade oriented manufacturing firms in one region can affect the neighboring region outside the concentration of firms. Hence, the geographic proximity of firms will take the economy out of 'vicious circle' of investment to 'virtuous circle' of investment (Aggarwal 2011). The one important feature of new economic geography theory is that the agglomeration is attributed to increasing returns of scales that are a result of knowledge spillovers, market demand and cost of trade. Other incentives for agglomeration could be infrastructure quality, collaboration of enterprises and better technical and business environment (Ambroziak and Hartwell 2018; Aggarwal 2011).

Image 2. Synthesis of Spatially induced effects of SEZs available in literature.



Source: Author's' illustration using (Ciżkowicz et al. 2017; Aggarwal 2007; Palit 2009; Ambroziak and Hartwell 2018)

In this section we incorporate these three approaches and describes how, initially, the impact of a SEZ is limited to static direct effects within the geographical territory of a SEZ as illustrated in Figure 2. Nevertheless, this limited direct impact leads to more dynamic and indirect implications on a regional level. According to(Ciżkowicz et al. 2017), this mechanism is divided into four main rounds or channels:

4.1. First-round effect

A company's decision to invest in a SEZ creates direct and static job opportunities, brings in FDI within the geographical territory of an SEZ. The business enterprises working within a SEZ territory are believed to be equipped with high quality infrastructure, favorable tax policy, and lesser restrictions by government. These factors help in bringing in more companies to the zone which gives a kick-start to first round affects.

4.2. Second-round or induced effects

These effects are induced by the functioning of an SEZ-based companies in the region of SEZ but actually occur outside the territory of SEZ. The SEZ region could be defined as the surrounding geographical area, it could be one whole city or multiple cities depending on the specific location of a SEZ. Most of the SEZs attract companies belong to one industry, for instance, IT zones in India. This will result in industrial agglomeration and hence in agglomeration economies which may be attributed to second round induced effects.

The second-round effects or catalyst effects of SEZs are not limited to spillover effects of employment and investment but they also generate backward and forward linkages between SEZ-based firms and domestic economy. For instance, firms in SEZ sell their products in local market (forward link) and they purchase raw materials from local suppliers (backward link). Firms working in SEZs are equipped with advance technology, superior knowledge and outclass managerial skills; Active association and interaction between local labor force and domestic corporate sector and firms in SEZs also lead to technology and skills diffusion. These knowledge-based and technological spillovers could result into upgrading of domestic technology by demonstration effect, learning-by-doing and on-the-job training (Ciżkowicz et al. 2017).

Other than spillover effects in the domestic market, the trade-oriented manufacturing firms in SEZs will become highly competitive due to high standards in international markets. Which in effect will stimulate a growth process that is accelerated, circular, cumulative, self-reinforcing, innovative and efficient (Aggarwal 2011).

4.3. Spatially induced effects

Once the second round effects have been active, agglomeration have taken place, economic activities in the region of SEZ generates externalities for the neighboring regions. The important factor here is the geographical or spatial closeness of the area.

4.4. Reverse induction or feedback loop effect

Several economic, social and political association between two variables are known to be bi-directional. Similarly, the above mentioned spatially induced effects can occur in the reverse direction; economic performance of the neighboring region of a SEZ can affect the economic situation of the SEZ region. This stage works in a loop, one direction will feed off the other one, making it a circular process.

Till now most of the studies that have been done on SEZs or EPZs in Pakistan are descriptive in nature due to lack of data availability. The last report published by Export Processing Zone Authority in Pakistan was in 2010. However, the concept of SEZs is rather new and nine zones mentioned in section 2, are still under development process so it is not possible to carry out quantitative or econometric analysis. The existing literature mostly focuses on direct or first round effects of SEZs in Pakistan, on the other hand, this paper analyzes parameters that are more dynamic and spatial in nature. The above described spatial induced mechanism will not only generate investment and employment opportunities within the zone's territory, it will also affect neighbor regions that in turn will produce reverse induction effects. For instance, Bostan Industrial Zone in Baluchistan will not only have direct effect within 1000 acres of the zone territory, it will also boost economic activity in the neighboring region (that in this case is the capital of Baluchistan province). The efficiency of spatially induced effects highly depends on the linkages of SEZ with local economy. The costal location of Chinese SEZs is considered to be the key of success; however, we argue that success also depends on the ability of SEZs to generate agglomeration and spatial induced economies. Being the most deprived province of Pakistan, Baluchistan needs policy reforms that would give a push to the economic activity. The success of this economic zone will assist in bringing this change. Similarly, the functioning of rest of the eight economic zones will prove to be an important policy tool for economic growth. Nevertheless, the political instability and corruption might hinder this process, which needs to be avoided.

5. Spatial Distribution of Sustainable Development Goals around SEZs

The initial emergence of Sustainable Development Goals (SDGs) in the early 1980s was in the context of climate change and economic and social sustainability were added later in 1990s and early 2000s (Hák, Janoušková, and Moldan 2016). Currently, there are 17 SDGs which are divided into three categories of economic, environmental and social sustainability. However, the distribution is collectively exhaustive but not mutually exclusive; a few goals fall in two categories. In this section, we expand the distribution in the context of spatial impact for SEZs. The same geographical design of SEZs and neighboring regions is used here as in the previous section.Figure 3 shows the economic, environmental and social aspects of sustainability that should be incorporated into SEZ policy framework. The first rectangle refers to geographical territory of a SEZ. And the SDGs falling in this region are the ones that will should be considered while designing the infrastructure inside the SEZs or they can be promoted from the economic activities happening in the territory. For instance, SDG number 8, decent work and economic growth can be achieved through a successful industry working in the zone. However, as mentioned in the previous section, this effect will have spill-over effects on the hosting and neighbouring region of the zone. As it can be seen from the Figure 4, most of the economic and environmental SDGs can directly be dealt with from the zone territory, however, most of the social SDGs need to be addressed outside the zone. For example, if government improves the third SDG i.e., good health and wellbeing, this will positively affect the productivity of labour force working in the zone. Moreover, industries functioning inside the zone need to adapt sustainable production practices which will work towards environmental sustainability. SEZs should be model territories for neighbouring regions and they may follow suit.

Pakistan's agenda 2030 aims to explore avenues for international collaboration by establishing national incubation centers but if they redesign the policy and include SEZs as one of the avenues, the consequences will be more wide-spread. But it is important to design and plan SEZs in such a way that they support SDGs, otherwise, this time of establishing SEZs will not any different from the previous failed attempts at EPZs. They can target SDG 9 ("Industry, Innovation and Infrastructure") and 11 ("Sustainable Cities and Communities")(Government of Pakistan 2019). Moreover, the SDGs initiated in the zones will have far reaching spatial effects. Moreover, the size of this impact depends on the degree of integration with domestic markets and fiscal agenda or plan of the host economy (Akinci and Crittle 2008; Ciżkowicz et al. 2017) . This connection with domestic market is known as backward linkages, and in the context of success of SEZs it is as important as the forward linkages that are developed with international market (Ambroziak and Hartwell 2018; Ciżkowicz et al. 2017; Farole and Akinci 2011; Ge 1999).

Figure 3. SEZs and Sustainable Development Practices.

Source: Adapted by authors from the Report on Fostering Sustainable Development through Chinese Overseas Economic and Trade Cooperation Zones along the Belt and Road (2019).

6. Conclusion & Policy Recommendations

The fate of a particular zone depends on policy framework, available incentives, infrastructure quality, location, logistics and other supply chain services (Dorożyński, Świerkocki, and Urbaniak 2017). The practice of establishing SEZs in low-income and developing Asian and African economies resulted in limited success due to several factors. Most important factors are political influence, rent seeking unfavorable business conditions, and less effective institutional framework. Pakistan, like other developing countries, is

embarking on this mission of establishing SEZs in order to support and promote local industries. However, special care and diligence is required to make this policy a success. With a right mixture of institutional policies and infrastructure system that promotes sustainable practices, SEZs are expected to succeed and boost economic growth. One the contrary, a zone developed amidst unfavorable conditions will result in resource misallocation and rent seeking. Given the weaknesses of political and bureaucratic systems of Pakistan, the risk of poor development zone practices and uncompetitive policies could cause these SEZs to be a burden on the economy. Bad policy decisions which are crucial to the failure of a zone are a major detrimental factor and it is recommended to avoid these mistakes. Such mistakes could include poor location selection, inadequate infrastructure facilities, poor labor policies, rigid performance requirements, heavy reliance on fiscal incentives, poor integration with local market, and unsustainable business practices within the zone. In case of Pakistan, the nine zones are still still in the initial phase of development, however, some of the institutional policies are already decided according to special economic zone act 2012 as amended in december 2015. However, these proposed nine SEZs are a joint venture of China and Pakistan, and China is a role model for SEZs and free trade zones. Pakistan could use China's assistance and experience, which will consequently be better for the regions where SEZs exist as well as for the neighboring regions due to spatially inducedeffects. Therefore, it would be advisable to incorporate sustainable development goals into zone development policy at this stage instead of forcing them later when the zone will be fully functional. It will not only benefit the industries working inside the zone but it will also promote sustainable practices outside the zone.

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Conflicts of Interest

The authors declare no conflict of interest.

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