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A comparison and case analysis between domestic and overseas industrial parks of China since the Belt and Road Initiative

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Abstract: With rapid globalization, industrial parks are playing an increasingly important role in the national and regional development. Since the Belt and Road Initiative (BRI) was put forward, national-level overseas industrial parks of China have emerged with new development features and trends. It is of great importance to carry out a comparative study on domestic and overseas industrial parks of China. Based on the perspective of spatiotemporal evolution, this paper compares and analyzes national-level overseas industrial parks along the Belt and Road (B&R) and domestic industrial parks of China. In time, China's industrial parks have experienced four stages with distinctive state-led characteristic. There are different development paths and modes for overseas industrial parks along the B&R and domestic industrial parks. In space, the national-level overseas industrial parks are invested and constructed by Chinese enterprises (mostly from the coastal developed cities), and mainly distributed in the countries along the B&R. Through typical cases comparison of Thai-Chinese Rayong Industrial Zone and Tianjin Economic-Technological Development Area, the paper finds that national-level overseas industrial parks are basically market-driven and concentrated in traditional advantageous industries, while domestic industrial parks are mainly government-led high-tech industries. Localization of overseas industrial parks and remote coupling with domestic industrial parks become very important.

Keywords: Belt and Road; development zone; overseas industrial park; China; comparative study

1 Introduction

The industrial park has always been the hot topic of social sciences (Peddle, 1993; Castells and Hall, 1994; Ning, 2002; Zhang *et al*., 2010). It can be defined as a special development zone that is planned, developed and divided according to specific industry functions, which focuses on providing enterprises with facilities such as roads, transportation, land and policies (UNIDO, 1997). Enterprises in the parks can realize industrial complementarity through

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different types of industries and form industrial agglomeration to obtain economies of scale (Côté and Hall, 1995). Industrial parks first appeared in the United Kingdom and the United States in the 1920s, the expansion of these spaces reflects a stimulus plan for large-scale economic investment (Yang *et al.*, 2010). Since the Second World War, the development modes of industrial parks in various countries have been constantly evolving with the division of world economy, and industrial parks are becoming more international (Conway and Liston, 1981; Webber *et al*., 2002; Wang and Zhu, 2018).

Since the reform and opening-up, industrial parks in China have become an important tool or means to promote economic development and urbanization (Wang *et al*., 1998; Wei and Leung, 2005; Xu *et al*., 2010; Yu *et al*., 2015). China's zones cover a wide spectrum and take a variety of forms, such as the emerging Free Trade Zone (FTZ), Export Processing Zone (EPZ) and Free Port Zone (FIAS, 2008). In 1984, China set up the first batch of development zones in the coastal open cities, and then began to appear in different types, such as Economic and Technological Development Zone (ETDZ), High-tech Industrial Development Zone (HTIDZ), Bonded Zone (BZ) and New Area (NA) (Geng and Zhao, 2009). According to *Directory of Audit Bulletins of Chinese Development Zones* (*2018 Edition*), the number of approved development zones has reached 2,543, among which there are more than 550 national-level development zones. However, the emergence of the overseas industrial park model is even more special. In 1999, Haier Group built an industrial park in Camden, South Carolina. Until 2005, Ministry of Commerce of the People's Republic of China (MCPRC) formally proposed to establish China Overseas Economic and Trade Cooperation Zone (COCZ). The COCZ has gradually become an important and popular research topic.

With the launch of BRI in 2013, the development of COCZs has entered a new era (Cheng, 2016). As an emerging geopolitical culture, BRI has reshaped China's economic geography (Aoyama, 2016; Hsu, 2017; Sidaway and Woon, 2017; Shen and Chan, 2018; Lin *et al*., 2019). Based on the existing geo-economic advantages of border areas, it not only promotes China's industrial transformation, economic growth and international exchanges, but also has a major impact on the economic growth of countries and regions along the B&R (Huang, 2016; Summers, 2016; Fei, 2017; Song *et al*., 2017). COCZs are also becoming an important platform for Chinese enterprises to go global (Meng *et al.,* 2019). As of 2018, China has built 75 COCZs in the B&R countries with a total investment of 25.5 billion USD, creating nearly 220,000 local jobs (MCPRC, 2018a). From January to August of the same year, Chinese enterprises added a total investment of 9.58 billion USD in 55 countries along the B&R with a year-on-year growth rate of 12% (MCPRC, 2018b). In short, COCZs have created positive influences on international relations, geo-economics and community reconstruction (Bräutigam *et al*., 2010; Bräutigam and Tang, 2011; Farole, 2011; Liu, 2017).

China's overseas industrial parks have achieved great achievements, but their development is later than that of domestic ones. Moreover, only 20 of the COCZs have got approved by MCPRC. There are both connections and big differences between domestic and overseas industrial parks. However, most of the existing research focuses on overseas industrial parks in other countries and lacks comparative studies on China's domestic and overseas industrial parks along the B&R. This paper focuses on the spatiotemporal characteristics and development modes of industrial parks, and compares the developmental status of national-level overseas industrial parks along the B&R and domestic ones of China.

2 Comparison of domestic and overseas industrial parks of China

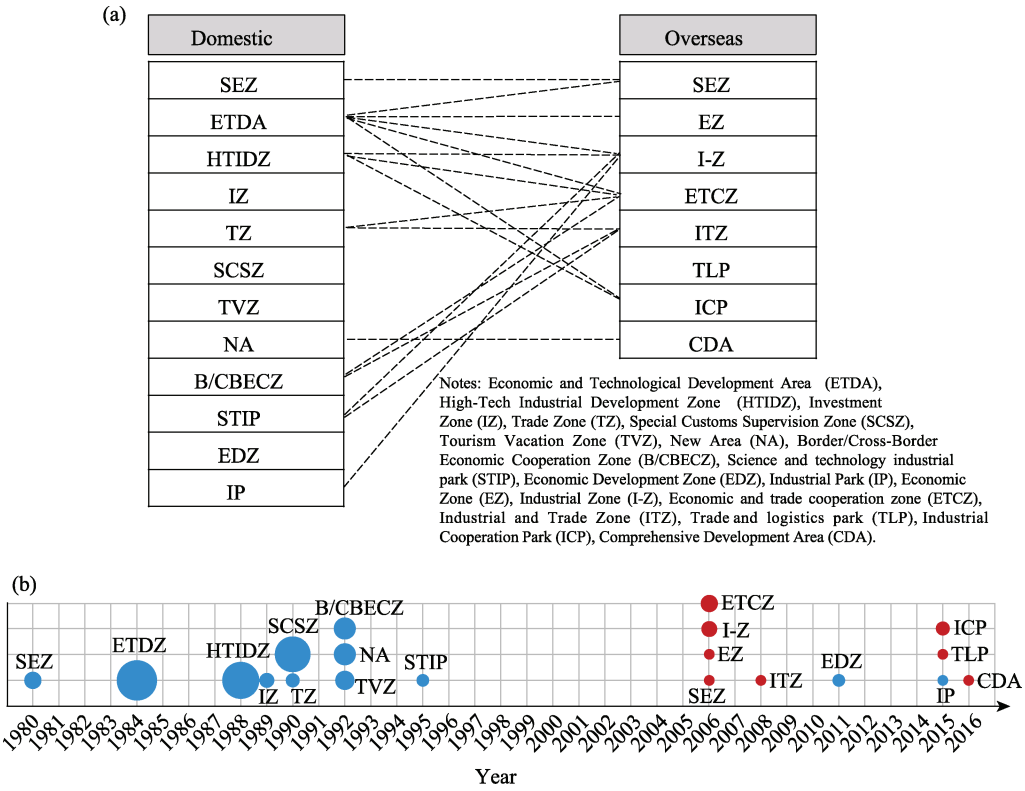
Scholars have studied industrial parks of China from different angles (Meng, 2005, 2015; Geng *et al*., 2010; Meng and Liu, 2011; Moberg, 2015). As far as China is concerned, there are four construction modes in the domestic industrial parks, such as government-led, enterprise-led, research-institution-led, and private self-organized (Wang, 2011), while the overseas industrial parks along the B&R have three ones of high-level government driving mode, industrial park development company leading mode and private enterprise leading mode (Wuzhati *et al*., 2017). In general, China's industrial parks are mainly dominated by Chinese government (Liu *et al*., 2018; Shen *et al*., 2018, 2020).

Establishing Special Economic Zones (SEZs) is an important strategic choice for China's development. China's SEZs including EPZs, bonded logistics parks, state-level high-tech zones, state-level bonded port zones and FTZs, are constantly changing (Farole and Akinci, 2011; Tao and Li, 2016; Yuan, 2017), which have promoted economic growth of China (Wei, 1995; Zeng, 2011; Alder *et al*., 2016). Studies have shown that the contribution of ETDZs and HTIDZs to economic development far exceeds other types of zones (Valerio Mendoza, 2014). According to statistics, SEZs of China accounts for over 80% of the cumulative foreign direct investment (FDI) (FIAS, 2008).

To promote foreign investment and strengthen international exchanges, China has begun to go global by establishing SEZs in neighboring countries and Africa (Bräutigam and Tang, 2012; Zeng, 2016). A comparative study found that China–Egypt Suez Economic and Trade Cooperation Zone localized the TEDA mode of Chinese domestic SEZs (El-Gohari and Sutherland, 2010). And the original purpose of establishing SEZs in Africa was to promote Chinese companies to go global and enhance China's soft power (Bräutigam and Tang, 2014). Companies can form clusters in the zones and benefit from network effects and economies of scale (Harrison, 1992; Porter, 1998, 2000).

China's industrial parks are in a new era of rapid development (Liu, 2010). The impact of the economic growth of institutional transformation is decreasing and the resource constraints on SEZs are increasing (Yuan, 2017). Although SEZs have promoted the increase of FDI, they have not attracted domestic investment (Wang, 2013). Spatial isolation, environmental decline and insufficient talents are also challenges (Abubakar and Doan, 2017; Wang and Meng, 2018; Zhuang *et al*., 2019a, 2019b). NAs and HTIDZs in China are in imbalanced distribution and uneven development (Zhuang and Ye, 2018, 2020). The industrial cluster effect of domestic industrial parks is relatively weak, resulting in insufficient innovation level of industrial parks (Lai and Shyu, 2005; Hui and Yang, 2007). China's overseas industrial parks are also facing various development problems, such as weak construction conditions and the passive role of Chinese government in the construction of overseas industrial parks (Guan, 2012). Due to differences in development environment, COCZs have difficulty in communication between governments at various levels, planning and layout of industry, land development and investment attraction (Farole, 2011; Liu and Dun, 2017). In addition, the modes of China's overseas industrial parks lack a systematic and integrated top-level design (Hao *et al*., 2016). Disproportionate investment and income, policy transfer from China to abroad, cultural differences, imperfect legal system and insufficient international talents all hinder COCZs' development (Jia and Sa, 2015; Song *et al*., 2018; Zhang, 2018).

The different national conditions and social context have led to differences in the types of domestic and overseas industrial parks. Since the types of industrial parks are too wide, this article divides the types of domestic industrial parks and national-level COCZs according to the parks' functions. Specifically, China's domestic industrial parks mainly include SEZ, ETDZ, HTIDZ, Investment Zone (IZ), Trade Zone (TZ), Special Customs Supervision Zone (SCSZ), Tourism Vacation Zone (TVZ), NA, Border/Cross-Border Economic Cooperation Zone (B/CBECZ), Science and Technology Industrial Park (STIP), Economic Development Zone (EDZ), Industrial Park (IP), etc. The national-level COCZs along the B&R mainly include SEZ, Economic Zone (EZ), Industrial Zone (I-Z), Economic and Trade Cooperation Zone (ETCZ), Industrial and Trade Zone (ITZ), Trade and Logistics Park (TLP), Industrial Cooperation Park (ICP) and Comprehensive Development Area (CDA) (Figure 1a). From the similarity and experience of the leading industries of industrial parks at home and abroad, the development modes of national-level COCZs along the B&R mainly draws on China's domestic industrial parks, especially ETDZs and HTIDZs. As illustrated in Figure 1(b), domestic ETDZs and HTIDZs have been built earlier, and they have absolute advantages in both quantity and scale. Their accumulated development experience provides direct and important mode reference for other industrial parks and later COCZs. Therefore, they are the types of domestic industrial parks that have the closest relationship with COCZs and have the largest proportion (Figure 1a).



Note: The circle position on the timeline represents its earliest year of establishment; the circle size refers to the total number of parks of this type. The colors of blue and red mean "domestic" and "overseas" respectively.

Figure 1 Type evolution of national-level industrial parks at home and abroad (China)

On the methodology, in view of the particularity of China's industrial parks and their complex relations, this article mainly compares domestic industrial parks and national COCZs in terms of time scale, space scale, mode, industry type, and industrial park type. And compare the national-level industrial parks and their domestic counterparts. In time, the research mainly uses statistical analysis method to make comparative analysis on the development stages and paths of China's domestic industrial parks and the national-level COCZs along the B&R through the statistical data collected by relevant national departments. In space, this paper mainly uses space technologies such as ArcGIS to analyze the geographical origins and layout of industrial parks. By collecting and sorting data from the official websites of various industrial parks, this study compares the industry types and operation modes of parks. Based on the interviews and the data collected from official websites, we choose Thai-Chinese Rayong Industrial Zone (TCRIZ) and Tianjin Economic-Technological Development Area (TEDA) as typical cases for comparison.

3 Comparison of the spatiotemporal characteristics between domestic and overseas industrial parks

3.1 Time-scale: The development process and stage division of industrial parks

Since the reform and opening-up in the late 1970s, China has started to learn from some developed countries for promoting rapid economic development. The establishment of Shekou Industrial Zone became the beginning of China's industrial park. After then, Chinese central government made a series of policies and measures to promote the rapid establishment and expansion of industrial parks. This paper roughly divides the developmental process of China's industrial parks into four stages (Figure 2).

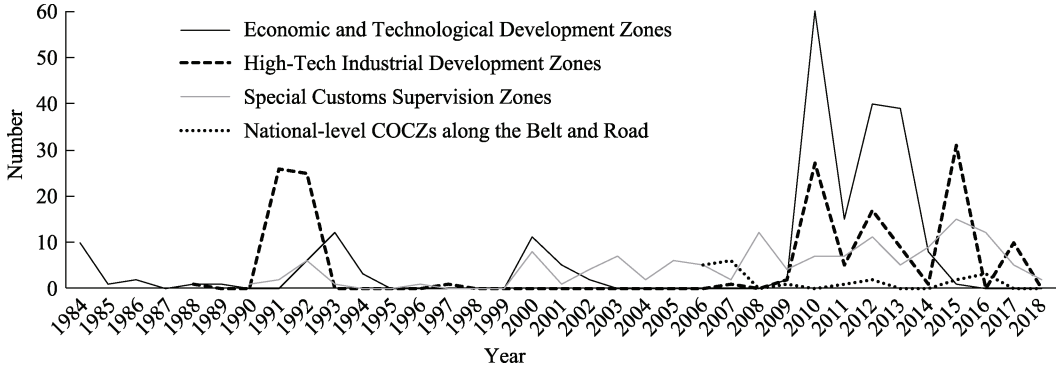


Figure 2 Temporal evolution of national-level COCZs along the B&R and domestic industrial parks of China
Source: *Directory of Audit Bulletins of Chinese Development Zones* (*2018 Edition*) (http://www.ndrc.gov.cn/gzdt/201803/t20180302_878800.html); the Ministry of Commerce of the People's Republic of China (http://fec.mofcom.gov.cn/article/jwjmhzq/article01. shtml)

3.1.1 Start-up growth stage (1984–1995)

In the early stage of reform and opening up, domestic industrial parks have developed rapidly. China set up national-level ETDZs in open coastal and inland cities, providing a complete infrastructure and investment environment for the foreign economy and trade. The first

batch of Special Customs Supervision Zones (SCSZs) was established for international trade transfer, procurement, distribution, export processing, etc. Especially in 1988, China implemented "National Torch Plan" to boost economic development. Some cities with higher level of knowledge and economy started to establish HTIDZs to absorb domestic and foreign scientific and technological achievements to develop high-tech industries.

3.1.2 Low-speed growth stage (1996–2005)

China's industrial parks were in a low-speed development in this stage, and the total number of approved industrial parks was relatively small. Various problems at this stage, such as unclear industrial positioning of parks, repeated construction and blind investment, have been highlighted. In 1994, the State Council issued the notice on strict examination and approval and the earnest cleaning up of various development zones, and then issued emergency notice on suspension of examination and approval of various development zones in 2003, which effectively slowed down the development speed of industrial parks. However, China approved the first batch of 15 EPZs (one of the types of SCSZs) in April 2000 to speed up import and export trade, and in June 2005 the State Council approved another 18 ones. Therefore, although there are many types of China's industrial parks, the overall development speed is relatively slow in the second stage.

3.1.3 Spurt-type growth stage (2006–2012)

After strict rectification, industrial parks showed a trend of spurt-type growth. To strengthen exchanges with neighboring countries, MCPRC issued the basic building requirements and bidding procedures for COCZs in 2006, and officially started to set up COCZs in some countries and regions. In 2008, the State Council declared to promote the construction of COCZs, indicating that pushing Chinese enterprises to go global became a national strategy, which also accelerated development of China's overseas industrial parks. Meanwhile, the State Council initiated the upgrading of provincial-level development zones, and many of them have been actively upgraded to national-level ETDZs. In 2012, the 18th National Congress of the Communist Party of China put forward the Innovation-driven Development Strategy so that state and local governments were vigorously developing HTIDZs, and the number of SCSZs increased.

3.1.4 Adjustment slowdown stage (2013–)

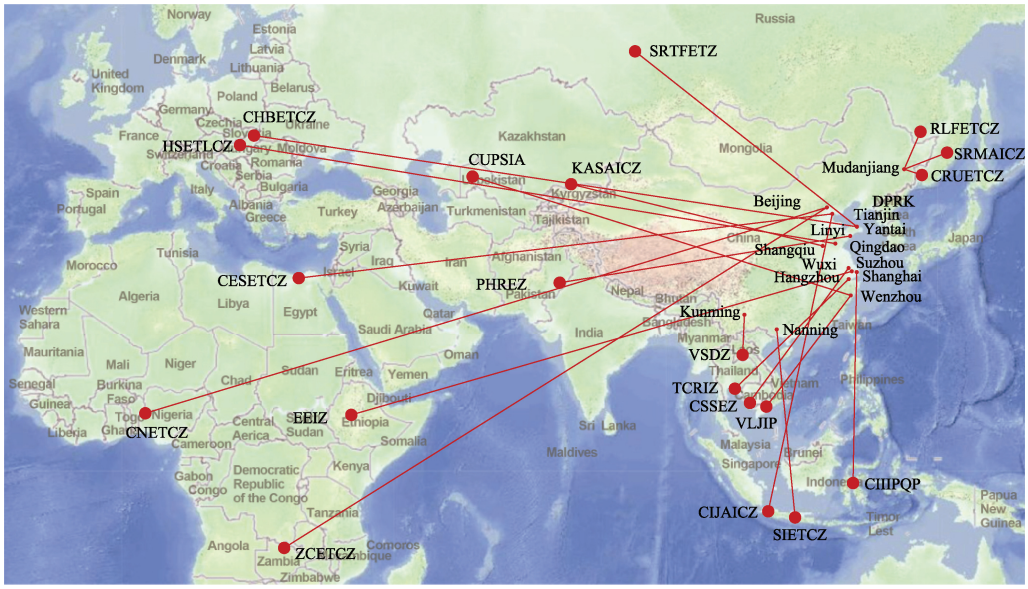
The BRI has a great effect on COCZs. Chinese enterprises began to develop domestic industrial park construction modes to other countries and extend overseas industrial parks. The 19th National Congress of the Communist Party of China in 2017 stressed that China should adhere to a comprehensive and deepening reform when entering a new stage of development and implement the new development concept to transform the economic development mode, which pointed out the direction for the development of China's industrial parks. The number of industrial parks in China increased because of continuous upgrading development zones.

On the whole, the development of industrial park in every stage is closely related to national policies. COCZs along the B&R are developed locally by domestic industrial park modes. China's domestic industrial parks cannot be separated from government's leading role. While for overseas industrial parks along the B&R, government mainly plays a supporting role, indicating that there are significant differences in the development paths of domestic and overseas industrial parks.

3.2 Space scale: The geographical origin and spatial layout of industrial parks

With the continued downturn of the global economy and the rise of emerging economies, more and more countries are beginning to explore the construction model of overseas industrial parks (Liuhto, 2009). Many kinds of domestic development zones have gradually become special space carriers for promoting rapid social and economic development. After the financial crisis in 2008, China is facing a transition from "bringing in" to "going out". It is characterized by Chinese enterprises or developers of development zones starting large-scale construction of overseas industrial parks. Especially since the implementation of BRI, China's development modes featuring national-level overseas industrial parks have become increasingly prominent.

The national-level COCZs (Figure 3) have obvious geographical proximity effect with China, and most of them are distributed in neighboring countries including Russia, Vietnam, Indonesia, Laos, Thailand and Cambodia. In addition, COCZs have also been established in some African countries, such as Egypt, Nigeria, Zambia and Ethiopia. The rich natural and labor resources of these countries or regions have attracted COCZs. At the regional level, most of national-level COCZs were invested and built by Chinese enterprises with the



Note: CHBETCZ (China-Hungary Boside Economic and Trade Cooperation Zone), HSETLCZ (Hungary Sino-European Trade and Logistics Cooperation Zone), CESETCZ (China–Egypt Suez Economic and Trade Cooperation Zone), EEIZ (Ethiopian Eastern Industry Zone), CNETCZ (China-Nigeria Economic and Trade Cooperation Zone), ZCETCZ (Zambia-China Economic and Trade Cooperation Zone), CUPSIA (China-Uzbekistan Peng Sheng Industrial Area), KASAICZ (Kyrgyzstan Asia Star Agricultural Industry Cooperation Zone), PHREZ (Pakistan Haier-Ruba Economic Zone), SRTFETZ (Sino-Russia Tomsk Forestry Economic and Trade Zone), RLFETCZ (Russia Longyue Forestry Economic & Trade Cooporation Zone), SRMAICZ (Sino-Russian Modern Agricultural Industry Cooperation Zone), CRUETCZ (China-Russia Ussuriysk Economic and Trade Cooperation Zone), VSDZ (Vientiane Saysettha Development Zone), TCRIZ (Thai-Chinese Rayong Industrial Zone), CSSEZ (Cambodia Sihanoukville Special Economic Zone), VLJIP (Vietnam Long Jiang Industrial Park), CIIIPQP (China-Indonesia Integrated Industrial Park Qingshan Park), CIJAICZ (China-Indonesia Julong Agricultural Industry Cooperation Zone), SIETCZ (Sino-Indonesia Economic and Trade Cooperation Zone)

Figure 3 The overseas national-level COCZs and their connections with domestic cities in China

support of Chinese government and the host government. These enterprises mainly come from the developed coastal provinces and cities of China, and the provinces with the largest number of national-level COCZs include Shandong (4), Zhejiang (3), Heilongjiang (3), Jiangsu (2), Beijing (2), and Tianjin (2). The coastal developed provinces have a higher degree of openness and faster industrial upgrading than the inland provinces, and urgently need new areas for industrial transfer. In terms of single city, Mudanjiang sets up the largest number of national-level COCZs with 3. The cities in the Yangtze River Delta are mainly oriented toward Southeast Asian countries. Beijing, Tianjin, Shandong, Henan and other provinces are mainly oriented toward West Asia, South Asia, Central Asia, Central and Eastern Europe and Africa, while Northeast China is mainly oriented toward Russia.

4 Comparison between domestic and overseas industrial parks

4.1 Types of industries and parks

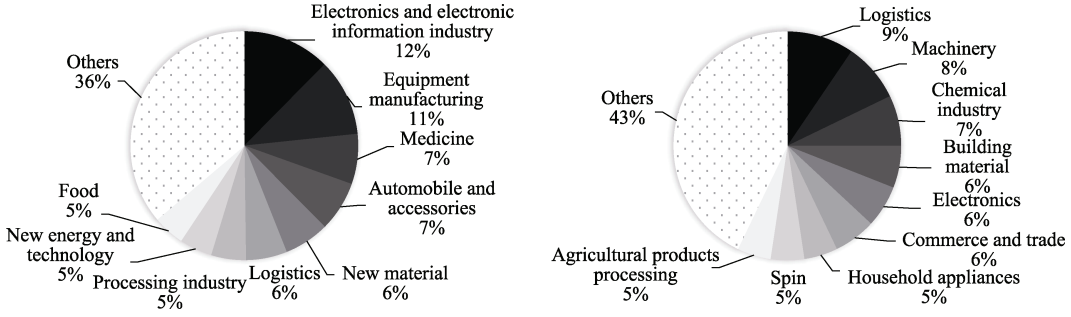
COCZs provide a platform for China's excess capacity to find new markets in other under-invested countries around the world (Huang, 2016). Until 2018, China has established 20 national-level COCZs. According to the leading industries of industrial parks, there are five types of COCZs, including processing and manufacturing parks (PMP), resource utilization parks (RUP), agricultural industrial parks (AIP), trade and logistics parks (TLP) and comprehensive industrial parks (CIP) (Table 1), which are mainly processing and manufacturing industries. Of the 20 implementing enterprises, 14 are private and 6 are state-owned. Under BRI of China, enterprises that go out are highly independent and their government functions are reduced, which is conducive to promoting the localization of overseas industrial parks. According to *Directory of Audit Bulletins of Chinese Development Zones* (*2018 Edition*), there are 552 development zones approved by the State Council (national-level development zones) and can be divided into five categories: ETDZs (219), HTIDZs (156), SCSZs (135), B/CBECZs (19), and other types of development zones (23).

The development zones and COCZs have great differences in industrial types (Figure 4). The former focuses on frontier fields of technological development, such as electronics and information, equipment manufacturing, medicine, automobile, new material and new energy, food, and so on. Among which, equipment manufacturing industry, textile and garment industry, communications, electronics, food industry, and petroleum chemical industry are mainly distributed in the development zones of eastern coastal areas (Gao and Jin, 2015). While COCZs are mainly concentrated in the industries with lower technical level, such as logistics, machinery, chemical industry, building material, electronics, trade and commerce, household electrical, spin, etc. In addition, even if the domestic development zones and COCZs have the same industrial types, there are still differences in the degree of development. For example, the logistics industry in the COCZs is mainly commercial logistics, while the classification of the logistics industry in development zones is very fine, such as the bonded logistics, warehousing logistics, shipping logistics, cold chain logistics, port logistics, etc.

Table 1 COCZs approved by the Ministry of Commerce of the People's Republic of China

Zone name	Park type	Leading industry	Implement corporate ownership	Size/km^2
PHREZ	PMP	Appliances, automobiles, textiles, building materials, chemicals, etc.	Privately-owned	2.33
CRUETCZ	PMP	Light industry, electrical and mechanical (household appliances, electronics), wood industry, etc.	Privately-owned	2.28
ZCETCZ	CIP	Metal smelting, logistics, business services, processing and manufacturing.	State-owned	17.28
TCRIZ	PMP	Automobile and motorcycle fittings, hardware, machinery, electronics, etc.	Privately-owned	12
CSSEZ	PMP	Textile and clothing, hardware machinery, light industrial appliances, etc.	Privately-owned	11.13
CNETCZ	CIP	Manufacturing, machinery and electronics, trade logistics, service real estate, etc.	State-owned	30
SRTFETZ	CIP	Forest tending and logging, deep processing of wood, trade and logistics, etc.	State-owned	6.95
EEIZ	PMP	Metallurgy, building materials, electrical machinery, etc.	Privately-owned	5
VLJIP	PMP	Electronics, machinery, light industry, building materials, biopharmaceutical industry, agricultural and forestry products processing, rubber, paper industry, new materials, man-made fibers, etc.	privately-owned	6
CESETCZ	PMP	Textile and clothing, petroleum equipment, high and low voltage electrical appliances, new building materials and fine chemicals.	State-owned	10
SIETCZ	PMP	Household appliances, fine chemicals, biopharmaceuticals, intensive processing of agricultural products, machinery manufacturing and new materials related industries	State-owned	4.55
CUPSIA	PMP	Ceramics, leather products, food processing, etc.	Privately-owned	1.02
CHBETCZ	PMP	Chemical, biological and chemical industries.	Privately-owned	6.15
HSETLCZ	TLP	Commerce, logistics, warehousing, etc.	Privately-owned	0.0987
VSDZ	CIP	Agricultural and sideline products processing, textile and apparel, hardware and building materials, machinery manufacturing, clean energy production, logistics and commerce, etc.	State-owned	11.49
SRMAICZ	AIP	Planting, breeding, processing of agricultural products, etc.	Privately-owned	680
RLFETCZ	RUP	Forest cultivation, timber harvesting, intensive processing, exhibition, logistics and transportation, etc.	Privately-owned	9
KASAICZ	AIP	Livestock and poultry slaughtering and processing, food deep processing, international trade logistics, etc.	Privately-owned	5.67
CIIIPQP	PMP	Nickel mining, nickel iron smelting, stainless steel smelting, fine processing, trade logistics, etc.	Privately-owned	21
CIJLAICZ	AIP	Oil palm planting and development, palm oil preliminary processing, refining and fractionation, brand oil packaging production, oil chemical industry and biodiesel refining, etc.	Privately-owned	4.21

Source: *Special Topic on COCZs of MCPRC* (http://www.mofcom.gov.cn/article/zt_ jwjjmyhzq/); Official website of COCZs (http://www.cocz.org/index.aspx); *Going Public Service Platform* (http://fec.mofcom.gov.cn/).



(a) National-level domestic development zones (b) National-level economic and trade cooperation zones

Figure 4 Percentage distribution of leading industries of national-level development zones and COCZs

Source: *Directory of Audit Bulletins of Chinese Development Zones* (*2018 Edition*) (http://www.ndrc.gov.cn/gzdt/201803/t20180302_878800.html)

4.2 Development modes of industrial parks

Due to the differences in economy, culture, religion, languages and other aspects, there are significant connections and differences in development modes between national-level development zones and COCZs along the B&R (Table 2). Both domestic and overseas industrial parks need the joint promotion of Chinese governments and enterprises at all levels. While improving the infrastructure and supporting facilities, industrial parks should actively carry out scientific planning and industrial positioning. Domestic enterprises participating in overseas industrial parks mostly rely on various development zones, such as multi-garden park, garden within garden, and "industrial park + new urban zone" mode.

Table 2 Comparison of major national-level COCZs and domestic development zones of China

	COCZs	ETDZs	HTIDZs
Main geographical distribution	Along the B&R	East coast	Along the coast and river
Average duration (year)	8	11	12
Average area (km^2)	8.4	11.62	11.32
Subject of establishment	Ministry of Commerce, Ministry of Finance	Ministry of Commerce, Ministry of Land and Resources, Ministry of Construction	
Procedure of formation	Reaching the Target-Application-Assessment-Acceptance-Reply	Application-Preliminary Examination-Approval-Reply	
Enterprise path	Go Global	Bring in	
Dominant force	Government < Market	Government > Market	
Mode of cooperation	Sino-foreign joint venture, and Chinese enterprises as the main investment body	Sino-foreign joint venture, sino-foreign cooperation and wholly foreign-owned	
Capital cycle	Long	Short	

Source: Data of national-level COCZs are from the official website of MCPRC (http://www.mofcom.gov.cn/); Data of national-level ETDZs and HTIDZs are from *Directory of Audit Bulletins of Chinese Development Zones (2018 Edition)* (http://www.ndrc. gov.cn/zcfb/zcfbgg/201803/t20180302_8797.html).
Note: The main bodies and procedures for the establishment of parks are referred to *The Principles and Procedures for the Examination and Approval of the Expansion of National ETDZs* and *The Measures for the Assessment of COCZs*.

The establishment of COCZs must be matched to the standards set by MCPRC, and only after passing the experts' assessment and acceptance can it be approved. The purpose is to realize the combination of domestic industries, capital, technology and other advantages with foreign demands for promoting international production capacity cooperation and domestic enterprises to go out. While the establishment of national-level ETDZs within China shall be submitted by local government, approved by MCPRC, Department of Land and Resources and Department of Construction. Then only after the approval of State Council is requested, can the three departments jointly reply. Domestic industrial parks are mainly carried out by introducing foreign capital and operation through exchange and cooperation.

COCZs' construction is mainly a kind of enterprise behavior, so the construction funds are mainly self-raised by enterprises, and the policy investment intensity is much lower than that of domestic industrial parks. COCZs need a large amount of expected investment in land development and infrastructure with long capital cycle (Li, 2016), so COCZs mainly take the form of Sino-foreign joint venture and most of the investment is made by Chi-

nese-funded enterprises (Shen *et al*., 2018, 2020). Land is provided by host governments and infrastructure construction is led by Chinese enterprises. As for domestic industrial parks, Chinese government is mainly responsible for infrastructure, supporting systems and environmental construction. The capital circulation can be realized through land development, tax return with high level of capital security degree and strong profitability. So domestic industrial parks mainly adopt various forms of investment cooperation, such as Sino-foreign joint venture, cooperation and wholly foreign-owned.

It can be seen from the above content that Chinese government plays an auxiliary role in the construction process of COCZs. Chinese and host governments need to establish a good coordination mechanism. Leading enterprises are responsible for overseas industrial parks' management and operation, and enterprises in COCZs are more dominant, which is conducive to finding the most suitable leading industries through trade in combination with local market and cultural environment. However, in the construction process of domestic parks, Chinese government plays a leading role by setting up local agencies and offering land, tax and other related preferential policies. At present, most of China's ETDZs are government-led (Zhao *et al*., 2013). In addition, due to different construction scales of COCZs and domestic parks, the construction cycle is also different. The average construction history of national-level COCZs is significantly shorter than that of national-level ETDZs and HTIDZs of China.

There are big differences between the countries along the B&R and China so that it is difficult for the government-led mode of domestic industrial parks to continue to be implemented in the market-oriented environment abroad. In the process of "going out" by the way of COCZs, both domestic industrial parks and implementation enterprises must be careful to solve the profit patterns of overseas industrial parks. Therefore, it is necessary to make proper overseas transformation of domestic industrial park models according to actual situation of the countries along the B&R to stimulate endogenous development impetus of COCZs and guarantee sustainable development of China's industrial park modes abroad.

4.3 Typical cases analysis

The above research shows that industrial types and operation modes of different industrial parks are different, and industrial types often determine operation modes of the parks. TCRIZ is one of the first batch of national-level COCZs built by China, and it has become an industrial cluster and manufacturing export base for Chinese traditional advantageous industries in Thailand. The establishment of TCRIZ is of great significance to China's efforts to strengthen exchanges with Asian countries and step up the pace of China's "going out". As one of the first batch of national-level ETDZs in China, TEDA is known as the representative and leader of Chinese development zones. As a typical example of TEDA mode in Africa, the TEDA Suez Economic and Trade Cooperation Zone belongs to China's second batch of national-level COCZs, and is also a substantial platform for bilateral industrial cooperation and economic and trade dialogue between China and Egypt. As a result, this paper selects TCRIZ and TEDA as the typical cases to compare, analyze, and summarizes their construction experience (Table 3).

Table 3 Comparison between TCRIZ and TEDA

	TCRIZ	TEDA
Setting up time	2006	1984
Leading industries	Automobiles, motorcycles and parts, new energy, new materials, machinery and electronics, high value-added industries such as electronic appliances	Automobiles, equipment manufacturing, electronic communications, food, machinery, biology medicine
Construction area enterprise	TCRIZ Development Co., Ltd (developed by Holley Group (China) and Amata Group (Thailand))	TEDA Investment Holding Co., Ltd
Operating mechanism	Market	Market
Management subjects	Holley Group (China)	TEDA management committee and TEDA Investment Holding Co., Ltd
Management mechanism	Enterprise	Semi-government management

Source: *Special Topic on COCZs of MCPRC* (http://www.mofcom.gov.cn/article/zt_ jwjjmyhzq/); TCRIZ (http://www.sinothaizone.com/index.php); TEDA (https://www.teda. gov.cn/); Author's compilation.

TCRIZ relies on Amata Rayong Industrial City and to some extent inherits the model and experience of Thailand's industrial development. Today TCRIZ has become a successful practice for small and medium-sized enterprises to "go abroad in group". TCRIZ pays great attention to introducing new industries and developing traditional advantageous industries, such as auto and motorcycle parts, electronic machinery, food, while it does not introduce enterprises with high pollution and energy consumption, low added value and technical content. Although industrial positioning is very important, business selection is even more important.

Due to the complex landing problems of transnational enterprises, TCRIZ attaches great importance to the legitimacy and convenience of enterprises' landing. The zone has set up a professional team composed of Chinese and Thai employees to provide one-stop services for enterprises entering the zone. It ensures the enterprises' safe landing and is responsible for the zone's land transfer and the provision of convenient services, such as one-stop Chinese service, which solves the initial problems for multinational enterprises.

Cultural differences, such as language, customs and lifestyle habits, are all issues that enterprises entering the zone need to face. The biggest difficulty of establishing an industrial park in Thailand is not from Thailand government or society, but from whether enterprises can integrate themselves into local culture. In order to solve the problems of low enthusiasm of Thailand's labor force and hope that wages are paid on a daily basis, the president of TCRIZ came up with a new overall rationing system in which everyone can get off work after completing the fixed tasks assigned each day. This mechanism greatly improves the enthusiasm of workers, so a good corporate culture will have a huge impetus to enterprise's operations.

TEDA was approved by the State Council for construction and operated by TEDA Investment Holding Co., Ltd, so it is a semi-government model jointly managed by the government and enterprise (Huang, 2006). TEDA has formed the spatial distribution pattern of "One Zone, Ten Parks", which is used by Suez Economic and Trade Cooperation Zone for reference (the model of "One Zone, Four Parks"). TEDA has adhered to the "1: 2: 3" construction and development model, that is, "investing 1 yuan to attract 2 USD of foreign capital and produce 3 USD of industrial output", and this model is TEDA's innovative move

for intensive development (Economic Daily, 2014). To promote the use of foreign capital and carry out international cooperation, TEDA has also formed a "one-stop" service system for enterprises entering the zone, providing "one-to-one" services from the perspective of enterprises, forming TEDA's service culture (Zhao, 2019). TEDA has formed a complete industrial chain and advantageous industries such as electronic communications, automobiles, equipment manufacturing, biology medicine, food, biomedicine, new energy and new materials, and aerospace.

By analyzing the above two cases, it is found that TCRIZ before establishment of COCZs has a corresponding industrial zone and has a certain industrial foundation. China–Egypt Suez Economic and Trade Cooperation Zone is similar. This approach reduces the difficulty of establishing and developing COCZs.

The domestic development zones are generally dominated by the government, such as TEDA is a semi-government model. TCRIZ is an enterprise-led management and operation model. The difference in economic basis between China and Thailand has led to a great difference in the industrial types of the two zones. The industries of TEDA are mainly those with high science and technology content in electronics, automobiles, biomedicine, aerospace and so forth. Thailand is a major exporter of automobiles and accessories so that automobile and parts production were the leading industries of TCRIZ. There are about 20 enterprises related to automobile parts in the zone, and they attach great importance to business selection when introducing enterprises.

Overseas industrial parks are built by Chinese companies drawing on the experience of Chinese domestic industrial parks, so localization of industrial parks is very important. After decades of development, Tianjin TEDA has formed a "TEDA model". In 2008, it established the China-Egypt Suez Economic and Trade Cooperation Zone, gradually promoted Chinese enterprises to go abroad. The Thai-Chinese Rayong Industrial Park has also formed a relatively mature overseas industrial park model.

5 Conclusions and discussion

Industrial parks are very important to national and regional development. BRI provides new opportunities for the development of overseas industrial parks of China and strengthens economic and trade cooperation between China and other countries along the B&R. It is worth comparing domestic and overseas industrial parks of China. There are different spatio-temporal characteristics and developmental modes in Chinese domestic and overseas industrial parks. From time-scale, the developmental process of China's industrial parks can be divided into four stages, each of which is closely related to national policies and geographical conditions. Domestic industrial parks in China are dominated by government, while government often plays an auxiliary role on overseas industrial parks along the B&R, so there are significant differences in the development paths of domestic and overseas industrial parks. In terms of space scale, most of the national-level COCZs are distributed in neighboring countries along the B&R with the largest number of Chinese overseas investment enterprises.

Due to the differences with host countries in politics, economy, culture, society and other aspects, there are connections and differences between the construction modes of na-

tional-level overseas industrial parks along the B&R and domestic development zones of China. COCZs are jointly established by Chinese government and the host government, and the Chinese enterprises going out are mainly responsible for the construction and operation of COCZs. Enterprises in the COCZs have more freedom, but they are also faced with the problem of local integration. The establishment, construction and operation of domestic parks are led and guided by Chinese government with greater policy support. Moreover, domestic industrial parks are mainly established for purpose of economic development and learning from foreign experiences. In addition to promoting economic development and technical cooperation, COCZs are constructed for understanding the international market demand, promoting Chinese enterprises to go abroad and strengthening exchanges with neighboring countries. Besides, COCZs and domestic industrial parks focus on different types of industries. China's domestic industrial parks focus on high and new technologies, while overseas industrial parks are mainly concentrated in the traditional advantageous industries that have been saturated in China's domestic market, such as low-end manufacturing and primary processing of agricultural products. This also produced different developmental patterns of industrial parks.

The patterns of domestic industrial parks could be appropriately transformed overseas. COCZs need to achieve sustainable development of the park through a sound management system, accurate industrial positioning, and various talents. The patterns of China's industrial parks can be helpful to other countries or regions, especially developing countries. The comparative study between domestic and overseas industrial parks of China especially within the B&R is crucial and should be further advanced. It is urgent that multi-disciplinary, multi-perspective and multi-scale studies should be conducted on industrial parks within the B&R particularly under the changing globalization.

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