Structural transformation through free trade zones: the case of Shanghai

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Launched in 2013, the Shanghai Pilot Free Trade Zone (FTZ) was intended to serve as a platform for testing China's new policy to facilitate more open trade and further open up its services sectors, such as finance, through easing restrictions on foreign and domestic companies. By 2018, it had attracted over 50,000 member companies. This paper provides an overview of global free economic zones (FEZs), or special economic zones (SEZs), and a detailed study of the Shanghai Pilot FTZ and its success factors and challenges. It draws out lessons that may be applicable to other developing countries.

Keywords: Free economic zones, free trade zones, structural transformation, services sector liberalization, Shanghai Pilot Free Trade Zone

1. Introduction

There are many terms for economic zones, such as special economic zone, export processing zone (EPZ), science-based park, free trade zone, and so on. For the purpose of this paper, the generic term free economic zone (FEZ) is used to refer to the various economic zones in Shanghai, such as the economic and technological development zones (ETDZs), Pudong New Area (a special economic zone), EPZ, high-tech industrial park, bonded zone, pilot free trade zone (FTZ), and so on (Meng, 2003).

As part of a country's industrial policies, an FEZ is supposed to complement market forces by helping to overcome market failures. The empirical research by Aghion et al. (2015) shows that industrial policies that are allocated to competitive sectors or that foster competition in a sector increase productivity growth. An FEZ is intended to overcome some important market failures and government coordination failures,

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which include a malfunctioning land market, deficient industrial infrastructure (power, water, gas, telecommunication, waste treatment, etc.) needed for industrial agglomeration, and a poor regulatory and business environment caused by coordination failures within governments or between government and the private sector (Zeng, 2016b). Strictly speaking, an FEZ approach is needed only when all these failures exist at the same time; otherwise an industrial park might be sufficient in cases where the regulatory or business environment is not the main constraint on investment, but rather deficiencies related to available and reliable sustainable infrastructure and investor services.

Since the first modern economic zone was established in Shannon, Ireland in 1959, zone development has exploded. Despite the emergence of new programmes in the countries of Eastern and Central Europe, the Middle East and Africa, zone activity is relatively concentrated in Asia and the Pacific, Latin America, and Central and Eastern Europe and Central Asia. UNCTAD's World Investment Report, which provided an analysis of economic zones in 2019 found 5,400 zones in operation across 147 countries, up from 4,000 five years ago (UNCTAD, 2019).

Successful zones can generate many benefits, such as the attraction of foreign direct investment (FDI), the generation of jobs and exports, and potential spillover effects (Zeng, 2011). However, establishing an FEZ is a high-risk, high-reward undertaking; it involves heavy public investments and government coordination and requires strong implementation capacity. Globally the performance of FEZs is mixed, with top performers mostly in Asia (especially East Asia) and zones in other regions generally not performing as well. There are many "white elephants" as well. In Africa, an exception is Mauritius, which transformed its economy through an EPZ in the 1970s. Today more and more African countries have launched FEZ programmes (Zeng, 2016a).

In China, the experience with FEZs as policy tools for achieving development objectives has been generally successful. In Shanghai, as in other regions, different types of FEZs were established in different phases. The development of Shanghai FEZs can be divided into three stages, in terms of their time sequence: ETDZs, comprehensive FEZs and pilot FTZs. The development and evolution of the different types of FEZs is briefly analyzed and evaluated in the next section.

2. Literature review and research questions

A zone represents a divergence from traditional import-substitution policies. EPZs, as one type of FEZ, are normally fenced-in estates with strict customs controls; most of the products (normally over 80 per cent) created in these zones must be exported. This model has been successful in many countries, such as the Republic

of Korea, Taiwan Province of China, China, Viet Nam, Bangladesh, Mauritius, the Dominican Republic and El Salvador (Farole and Akinci, 2011). Many new EPZs have been created since those. By 1986, according to the International Labour Organization (ILO), 176 EPZs were operating in 47 countries; and by 2019 the number had grown to 5,400 zones in 147 countries (UNCTAD, 2019). Zones are typically established with the aim of achieving one or more of four policy objectives (Madani, 1999; Cling and Letilly, 2001; Meng, 2005; FIAS, 2008; Zeng, 2011; Farole and Akinci, 2011; Fuller and Romer, 2012): (1) attracting FDI and promoting exports and industrialization; (2) serving as pressure valves to alleviate large-scale unemployment; (3) supporting a broader economic reform strategy; and (4) acting as experimental laboratories for the application of new policies and approaches.

Many economists believe that FEZs can achieve industrial development in an efficient and effective way (Zeng, 2010; Lin and Monga, 2010; Meng, 2015a). In particular, investing in them can (1) provide a bundling of public services in a geographically-concentrated area; (2) improve the efficiency of limited government funds or budgets for infrastructure; (3) facilitate cluster development, or the agglomeration of certain industries; and (4) enhance urban development by providing facilities conducive to improved living conditions for both basic wage workers and highly-skilled technical workers, taking advantage of economies of scale in the provision of environmental services, such as water treatment plants and solid waste treatment plants. Thus, the zones can be conducive to both job creation and income generation, and potentially, to protecting the environment and promoting both green growth and eco-friendly cities (Lin and Wang, 2014).

As one of the important FEZ types, free trade zones have captured the interest of many researchers. FTZs, if implemented properly, could bring economic and welfare effects through a more liberalized environment. However, these benefits are not guaranteed due to the negative effects caused by market and trade distortions as well as possible failures. Hamada (1974) used the Heckscher–Ohlin or two-countries, two-factor and two-commodities trade model to analyze the economic implications of a duty-free zone, where products are exempted from duties. Grubel (1982) examined the costs and benefits of regulations and suggested that FEZs could act as both a substitute and complement to whatever deregulation or reform is achieved, and improves welfare through the expansion of trade and through specialization, and that it affects the supply of jobs, technology and entrepreneurship. However, he also pointed out that FEZs may reduce welfare through the locational diversion of trade and investment and the generation of negative externalities. Hamilton and Svensson (1982) analyzed the relationship between foreign capital in a host country and in its free zone and found that with regards to sector-specific capital, the flow of capital into the protected sector decreases welfare, and vice versa. Miyagiwa (1986) explored the condition under which the establishment of an FTZ can improve welfare regardless of the relative factor intensity of a zone-based

industry. The relative factor intensity of an FTZ is crucial in determining the change in welfare following economic growth and foreign investment.

Warr (1989) examined the benefits and costs of EPZs in Indonesia, the Republic of Korea, Malaysia, and the Philippines, and the relationship between the welfare effects of EPZs and the host country's economic policies, and concludes that when the domestic economy is distorted, the EPZ confers limited welfare gains, and EPZs are far from the "engines of development" that some countries had initially expected. Gupta (1994) compared a duty-free zone with a non-duty-free zone in a small open economy and found that expanding the duty-free zone policy by reducing import duties on intermediate goods in a sector ultimately lowers the level of output of that sector, raises the level of unemployment, lowers national income (social welfare) and increases economic inequality. However, if the tariff on the final product is reduced in that sector, it produces the opposite result.

Ge (1995) analyzed the direct and indirect impacts of urban enterprise zones on regional economies and suggested that the establishment of urban enterprise zones is a beneficial and effective policy instrument that could be used in promoting urban renewal and regional economic growth. Facchini and Willmann (1999) used the Dixit-Norman approach to study the gains from duty-free zones and concludes that introduction of a duty-free zone leads to Pareto gains over autarky and that its welfare effect depends on the redistribution mechanism accompanying free trade. Tiefenbrun (2013) delves into the business benefits and tax advantages of FTZs in the United States and abroad and suggests that FTZs could play a significant role in economic growth by increasing exports, attracting foreign direct investment, and enhancing industry competitiveness.

In the existing literature, only little consideration has been given to the development and evaluation of various types of FEZs in Shanghai as a whole (Meng et al., 2018). This paper adds more recent experiences and lessons from Shanghai, especially the Shanghai Pilot FTZ, which was set up in 2013, and it tries to answer the following questions: (1) What are the key lessons of Shanghai's FEZ experience? (2) Is Shanghai's case relevant to low-income countries, such as those in Africa?

3. Shanghai's early experiment with FEZs

In 1983, following the examples of FEZs in other regions under China's open-door policy, especially Guangdong and Xiamen provinces, the Shanghai municipal government officially set up the Minhang Development Corporation to start the establishment of the Minhang Development Zone. In 1984, the government set up the Caohejing Electronic Industrial Zone, and in 1985, it started the Shanghai Hongqiao United Development Company to take charge of the construction

and management of the Hongqian Development Zone. Following the central government's policy of further opening coastal cities and gradually establishing ETDZs, the Shanghai Minhang ETDZ and the Hongqiao ETDZ were approved as national-level ETDZs in 1986. Two years later, the Caohejing ETDZ was also approved. They were granted many preferential policies from both the central and the local government in matters of land and infrastructure utilization, as well as taxes and the like.

Since the 1990s, these original three development zones not only maintained their economic growth and yielded fruits in institutional innovation, but also underwent transformation and diversified development in their spatial structure, which made them one of the pillars supporting the social and economic development and the reform and opening up of Shanghai. At that time, the location of reform and opening up in China formed a T-shaped pattern, along the coast from south to north and along the Yangtze River from east to west. Located in the center of this T-shaped pattern, Shanghai was in a strategic position to lead the whole country economically. More space was needed for its further development if it was to become an international metropolis and Yangtze River Delta urban agglomeration integrated with the world economy.

To fulfill the new development objectives set by the central government and its own development needs, Shanghai began to develop and construct the Pudong New Area in 1990. As a comprehensive FEZ, the Pudong New Area consists of financial development zones, bonded zones, new and high-tech industrial parks, EPZs, and the like.

Thanks to its strategic location, good management, diversified industries and various preferential policies, the Pudong New Area became the core zone of social and economic development and policy innovation in Shanghai from its establishment. Major economic indicators of the Pudong New Area have multiplied, accounting for an increasing proportion in the city. From 2000 to 2014, its GDP increased 6.7 times, its tax revenue 21 times, and its import and export value 9.5 times. Moreover, its share of Shanghai GDP, tax revenue, and import and export value increased 7.48, 15.33, 11.07 and 10.07 percentage points.

With the global economic slowdown after the 2008 crisis and China's rebalancing of its economic development model, it was important to promote the high-end services sector through further economic reforms. Shanghai was again chosen as a test ground for this new development model. Establishing the Shanghai Pilot FTZ was a necessity in order to face the new global economic challenges, deepen reform and opening up, gain experience for China's industrial upgrading, deal with the "New Normal" and promote Shanghai to become an international economic, finance, trade and shipping center (Meng, 2015b).

4. Shanghai Pilot FTZ, Phase I (2013–2014)

In 2009, an expert from the Chinese Association of Productivity Science visited Shanghai and investigated "Possibilities and Necessities of Establishing Shanghai FTZ" and reported it back to the central Government. By the end of 2012, then-Premier Wen Jiabao approved it in principle. In July 2013, Premier Li Keqiang presided over the executive meeting of the State Council, where the *Overall Plan of Establishing China (Shanghai) Pilot Free Trade Zone* was affirmed, and soon after, the plan was officially approved by the State Council.

The general goal of the FTZ was to accelerate the transformation of governmental functions, promote the opening up of services industries and institutional reform of foreign investment management, develop a headquarters economy and new forms of trades, and test capital account convertibility and financial sector liberalization.

In addition, it sought to set up a classification regulation mode for goods, form policy supporting a system of investment and innovation, cultivate a business environment for internationalization and legalization, and build the Shanghai FTZ into an international zone with convenient investment, liberal currency exchange, efficient and easy regulation, and a normative legal environment, thus providing a new idea and way for China to open wider to the outside world.

On September 29, 2013, the China (Shanghai) Pilot FTZ was officially launched. It included four special customs regulation areas: the Waigaoqiao Bonded Area, the Waigaoqiao Bonded Logistics Park, the Yangshan Free Trade Port Area and the Pudong Airport Comprehensive Bonded Area, covering an area of 28.78 km2 and formed by "Four Areas and Three Ports" (table 1).

After more than a year of operation, the Shanghai Pilot FTZ had achieved significant results in economic development and institutional innovation.

4.1. Economic growth

In 2014, except for fixed investments the main economic indicators – total industrial output, total income, revenue, total volume of exports and imports, tax revenue, FDI, employment – all increased greatly compared with 2013 (table 2). A total of 160 overseas investment projects were completed and the cumulative investment from Chinese enterprises reached US$3.8 billion. In addition, the Pilot FTZ also met the intermediate objectives in investment, trade and finance.

4.2. Promoting the negative list

With respect to investments, foreign and national investors are treated equally; foreign investors are governed by the negative list. In 2014, over 90 per cent of

Table 1. Scope of China (Shanghai) Pilot Free Trade Zone

Zone	Area (km²)	Function and Industry	Primary Targets
Waigaoqiao Bonded Area	10.10	International trade center	1) Enhancing transformation of government functions and focusing on management during and after the trading process 2) Opening service and financial industries wider 3) Exploring to set up management mode of negative list 4) Create legal environment for foreign investment
Waigaoqiao Bonded Logistics Park	1.03	Shipping logistics center	
Yangshan Free Trade Port Area	14.16	International shipping service area	
Pudong Airport Comprehensive Bonded Area	3.59	International air services and modern business functional area	
Lujiazui Finance and Trade Zone	34.26	Function: Financial system led by Chinese and foreign banks, insurance companies, trust and investment corporations, security companies and fund companies	1) Investment administration system focusing on the negative list 2) Trade administration system focusing on trade facilitation 3) Financial innovation system aimed at opening capital account convertibility and financial service 4) Supervision system during and after the trading process focusing on transforming government functions 5) Legal and policy guarantees
Jinqiao Export Processing Zone	20.48	Base of processing and manufacturing industry under special customs supervision	
Hangjiang High-Tech Zone	37.20	Function: industrial model combining processing and manufacturing with R&D of new and high-tech products	

Source: Website of China (Shanghai) Pilot FTZ (http://www.china-shftz.gov.cn/Homepage.aspx).

Note: Two-level management structure for the all Shanghai FTZ:1. Leading group of Shanghai FTZ;2. Management Committee of Shanghai FTZ, which consists of Lujiazui, World Expo, Jinqiao, Zhangjiang and Bonded Zone Administrative Bureau. That means a three-part managerial system: (1) Management Committee plus Development Companies, (2) Functional Area plus Management Committee plus Development Companies, and (3) an Enterprise-oriented Management System.

new foreign enterprises in the Pilot FTZ were set up through the simplified filing and registration procedure. The first batch of 23 measures aiming at opening up services industries had been implemented, involving 368 projects in total. The second batch of 31 measures are still being implemented. There were 190 items on the negative list in 2013, but that was reduced to 139 items in 2014, a reduction of 26.8 per cent.

4.3. Promoting trade facilitation

Learning from international experience, the Shanghai Pilot FTZ has implemented more than 60 innovative measures including some addressing maritime affairs and customs inspection and quarantine, and has provided more efficient customs

Table 2. Main Indicators of China (Shanghai) Pilot FTZ (2012–2017)

Indicator	Unit	2012	2013	2014	2015	2016	2017
Total industrial output	RMB billions	72.78	64.62	57.27	390.19	431.28	492.50
Total income	RMB billions	1,284.97	1,442.44	1,609.46			
Total revenue	RMB billions	46.45	55.95	63.79			
Employees of enterprises	Thousand people	269.00	286.10	296.10			
Volume of fixed investments	RMB billions	4.84	5.10	3.04	56.31	60.79	68.03
Total volume of exports and imports	US$ billions	113.05	113.43	124.10	741.55	783.68	1350
Volume of imports	US$ billions	86.71	83.93	90.95	538.85	552.09	944.69
Volume of exports	US$ billions	26.34	29.50	33.15	202.7	231.59	405.31
Tax revenue of Tax Department	RMB billions	42.90	50.83	57.64	102.22		
Tax revenue of Customs House	RMB billions	98.88	93.77	98.26			
Newly established enterprises	Number	788.00	4,416.00	11,440.00	10,901.00	10,298.00	7,283.00
FDI projects	Number	164.00	359.00	2,057.00	3,072.00	2,760.00	1,192.00
Amount of actual FDI	US$ billions	0.55	0.70	0.62	4.82	6.18	7.02

Source: Shanghai Statistical Yearbook in 2015, 2017, China Statistics Press.

clearance services, which has produced excellent results. For example, integrated circuit manufacturers transferred part of their business to the pilot FTZ to get quicker access to production and assembly enterprises and markets. Meanwhile, the FTZ developed a number of ways to facilitate trade. First, it developed regulatory classification for bonded goods, offshore goods and non-bonded goods; second, it formed standardized and normalized procedures, based on the experience of international trade enterprises; third, it regulated various departments such as business, foreign currency, tax revenue, port-shipping and finance, and built a single-window system to provide efficient services for enterprises.

4.4. Capital account convertibility and opening of financial services industry

The pilot FTZ promotes financial innovation and supports a free trade account system and commodity trading center. Ten banks have started to open free trade accounts, and many enterprises use free trade accounts to develop trade financing, cross-border mergers and acquisitions, and cross-border trading settlements, among other activities. All of those steps greatly facilitate enterprises going global and the internationalization of the renminbi. With the opening of finance, the pilot FTZ has attracted 110 institutions and services enterprises with financial licenses. In addition to banks, it includes the Shanghai Gold Exchange, the Shanghai International Energy Trading Center, and the Shanghai International Trading Center for Financial Assets and Commodities Spot Market. Furthermore, the pilot FTZ seeks to gain experience in the management of a negative list in financial field, to strengthen supervision during and after the trading process, and to explore innovative approaches to the tax system for foreign investments and offshore businesses (Chen, 2015).

4.5. Shanghai Pilot FTZ, Phase II (2015 to 2019)

The initial Shanghai Pilot FTZ has achieved good results and accumulated a lot of experience that can be applied elsewhere. But since its area was only 28.78 km^2, it was hard to support further reforms and opening up, and not sufficiently large to help realize Shanghai's core goal of "Five Centers" (a world economic center, a financial center, a shipping center, a trade center and an innovation center). Therefore, China decided to broaden this pilot zone.

On April 30, 2015, the State Council approved the *Reform Planning of Further Deepening China (Shanghai) Pilot FTZ*. The general goal was to further improve the investment management system, focusing on the negative list; the trade supervision system, focusing on trade facilitation; the financial innovation system, aiming at opening capital account convertibility and financial services; and the supervision system during and after the trading process, focusing on transforming the governmental function. The ultimate goal was to form a world-class business environment to promote finance and trade, advanced manufacturing, and technological innovation.

The expanded SFTZ covers an area of 120.72 km^2. It includes the Shanghai Waigaoqiao Bonded Area, the Waigaoqiao Bonded Logistics Park, the Yangshan Free Trade Port Area, the Pudong Airport Comprehensive Bonded Area – four special customs supervision areas (covering 28.78 km^2) – and the Lujiazui Financial District (34.26 km^2), the Jinqiao Development Area (20.48 km^2) and the Zhangjiang High-Tech District (37.2 km^2).

Since the area increased by five times, the investment and trade policy of the FTZ could not only benefit the services industries, but also the high-tech industries. With the guidance and support of relevant line ministries and state commissions, the 2015 negative list was more open than those of 2013 and 2014 in the areas of services and advanced manufacturing industries (table 3). Comparing the negative list of 2018 with that of 2015, the industrial category decreased from 15 items to 14, and the industrial subcategory decreased from 50 items to 45. Some 18,269 companies contributed to new business registration in this area in a year; 14,943 of them were domestic enterprises, with RMB 907.8 billion in registered capital. The other 3,326 companies own US$39.6 billion in contractual foreign investment. Shanghai's annual FDI investment has reached US$2.9 billion, accounting for 57.4 per cent of investment in the whole city.

After the capital account convertibility effort achieved its first step – establishing free trade accounts in SFTZ phase I – SFTZ phase II tried to take the second step to capital account convertibility. In 2015, 44,186 free trade accounts were opened, with a total of about RMB 1.2 trillion in cross-border trade settlements, and more than RMB 6.9 billion in cross-border RMB business overseas loans. The total pool of bidirectional RMB cross-border business transactions was more than RMB 339 billion. SGE (Shanghai Gold Exchange) International started to operate, holding an accumulated turnover of 4,795 tons, accounting for 14.1 per cent of the trading volume on the Shanghai Gold Exchange.

In addition, new explorations were made in industrial forecasting, protection of intellectual property rights, information disclosure, scientific and technological innovation, and a talent service system. All these will provide new momentum for Shanghai's dynamic and innovative development.

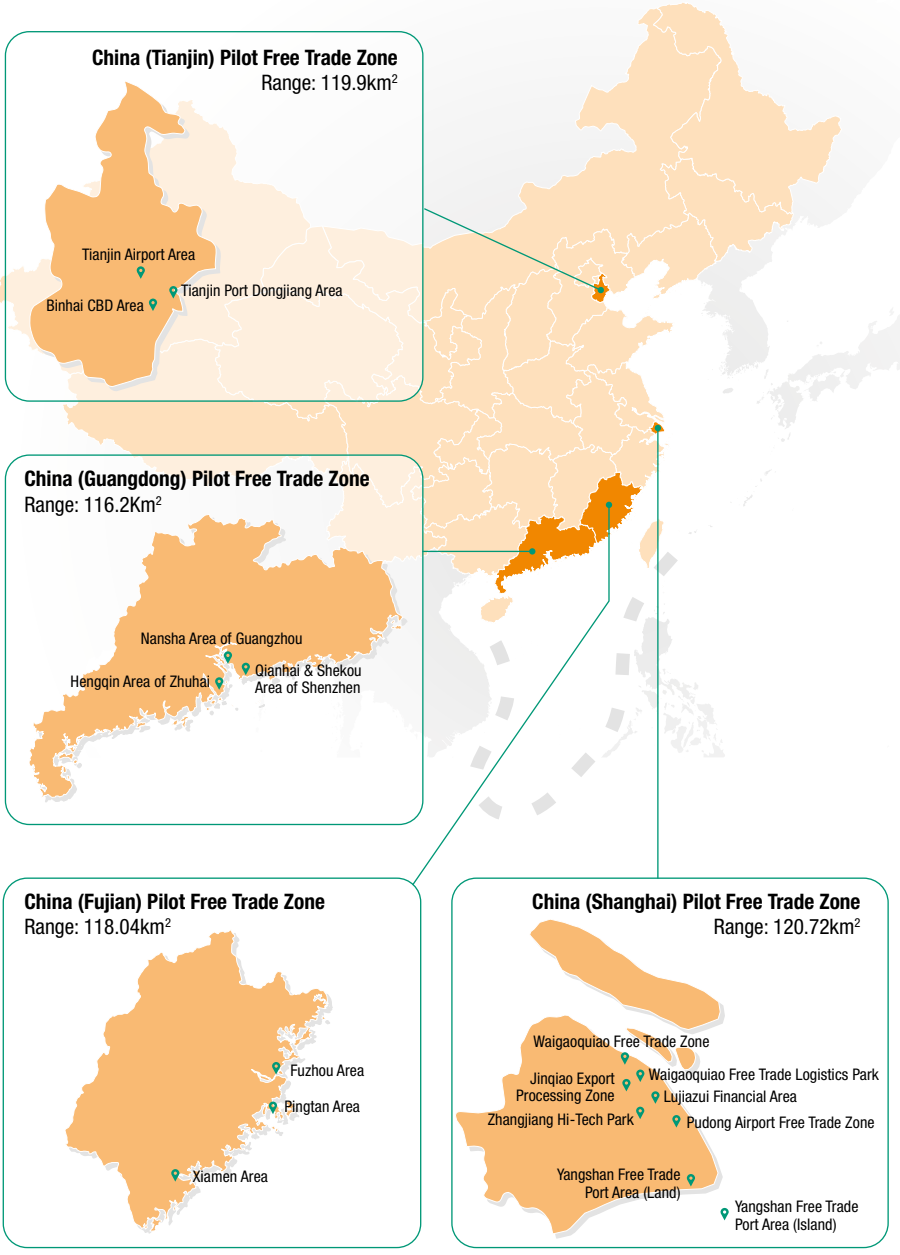
China has undergone several transitions and reforms, namely, to participate in globalization and regional integration in an active manner rather than a passive one; to combine the economic and administrative reforms rather than carrying out economic management reform alone; to open the services sector instead of the manufacturing one; to trade in both goods and services instead of goods alone; to open up towards developed countries not only developing ones, so as to meet the goals of environmental improvement, resources and energy security, overcoming the middle-income trap, and sustainable economic growth and development. To this end, the Chinese Government needs to further expand the scope of reform and opening up under the new normal economy according to the opening strategy, version 2.0. In addition to the expansion of the Shanghai Pilot FTZ, three other pilot FTZs were licensed to open in Tianjin, Guangdong and Fujian. The Shanghai Pilot FTZ serves the whole country and the world, while those in Tianjin, Fujian and Guangdong function in North China, North-East, South-East and South Asia, as well as Europe and Africa (figure 1, table 4).

Table 3. The Negative List of China Pilot FTZ, 2015 Edition

No.	Industry Categories (50)	Fields (122)
1	Agriculture, forestry, animal husbandry, fishery	(1) Seed industry, (2) fishery
2	Mining industry	(3) Exploration and development of exclusive economic zone and continental shelf, (4) oil and gas exploration, (5) exploitation of rare earth and rare metal ores, (6) metal and non-metal mining and exploitation
3	Manufacturing industry	(7) Aviation, (8) shipbuilding, (9) automobile manufacturing, (10) rail transportation equipment manufacturing, (11) communications equipment manufacturing, (12) mineral smelting and rolling processing, (13) pharmaceutical manufacturing, (14) other manufacturing
4	Production and supply of electricity, heat, gas and water	(15) Atomic energy, (16) pipe network facilities
5	Wholesale and retail	(17) Franchise
6	Transportation, storage and postal services	(18) Road transportation, (19) railway transportation, (20) water transportation, (21) public air transportation, (22) general aviation, (23) civil airports and air traffic control, (24) post
7	Information transmission, software and information technology services	(25) Telecommunication transport services, (26) Internet and other related services
8	Finance	(27) Type requirements for banking shareholder institutions, (28) qualification requirements for the banking sector, (29) banking share ratio requirements, (30) foreign banks, (31) futures companies, (32) securities companies, (33) securities investment fund management companies, (34) securities and futures trading, (35) establishment of insurance agencies, (36) insurance
9	Leasing and business services	(37) Accounting and auditing, (38) legal services, (39) statistics and investigations, (40) other business services
10	Scientific research and technical services	(41) Professional technical services
11	Management of water conservancy, environment and public facilities	(42) Animal and plant resource protection
12	Education	(43) Education
13	Health and social work	(44) Medical services
14	Culture, sports and entertainment	(45) Broadcasting, transmission, production and management of radio and television, (46) press and publishing, radio, film and television, financial information, (47) film production, distribution and screening, (48) intangible cultural heritage, cultural relics and archeology, (49) culture and entertainment
15	All industries	(50) All industries

Source: General Office of the State Council on the Issuance of the Special Management Measures on Foreign Investment Access to Pilot Free Trade Zones (Negative List) (2015), No. 23.

Figure 1. Locations of the Four Pilot FTZs in China



Note: The boundaries used on this map do not imply official endorsement or acceptance by the United Nations.

Table 4. General Information on the Four Pilot FTZs in China

FTZ Name and Total Area (km^2)	Parks in FTZ	Area (km^2)	Functions and Industries
Shanghai 120.72	Lujiazui Finance and Trade Zone	34.26	Functions: Finance and trade zone Industries: Financial institutions including Chinese and foreign banks, insurance companies, trust investment companies, securities companies and fund companies
	Jinqiao Export Processing Zone	20.48	Functions: Economic and technological development zone; customs supervision development zone Industries: High-tech businesses, including electronic information, biomedicine
	Zhangjiang Hi-Tech Park	37.20	Functions: High-tech products manufacturing primarily, as well as upgrading through manufacturing, in order to form an industrial pattern of R&D and production Industries: Biochemical and electronic information
	Four Bonded Areas	28.78	Functions: International trade logistics (two Waigaoqiao zones); international shipping (Yangshan); international air business services (Pudong Airport) Industries: Finance, international trade, logistics, storage, business
Tianjin 119.90	Dongjiang Port Park	30.00	Functions: International logistics, trade and finance Industries: Shipping logistics, international trade, finance lease and other modern services
	Tianjin Airport Industrial Park	43.10	Functions: International logistics, trade and aerospace Industry Industries: Aerospace, equipment manufacturing, new generation of information technology and other high-end manufacturing; R&D, aviation logistics and other producer services
	Central Business District	46.80	Functions: Financial innovation-oriented services Industries: Financial innovation, business and trade services, cultural creative industry
Guangdong 116.20	Guangzhou Nansha New Area	60.00	Functions: An advanced, world-class, integrated service hub Industries: Shipping and logistics, finance, international trade and high-end manufacturing industries
	Shenzhen Qianhai Shekou Area	28.20	Functions: Pilot demonstration for China's financial industry, a base for world trade services and an international hub port Industries: Emerging financial services, modern logistics, information services, technology services and other new strategic services industries
	Zhuhai Hengqin New Area	28.00	Functions: A base for international business services and leisure tourism; a new channel for the diverse economic development of Macao Industries: Tourism, business and financial services, culture, science, education and high-tech industries

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Table 4. General Information on the Four Pilot FTZs in China (Concluded)

FTZ Name and Total Area (km^2)	Parks in FTZ	Area (km^2)	Functions and Industries
Fujian 118.04	Xiamen Park	43.78	Functions: Demonstration zone for cross-strait cooperation in new industries and modern services industries, an international shipping center in South-East China, the cross-strait regional financial services and trade center Industries: International shipping, finance, trade and new industries
	Fuzhou Park	31.26	Functions: Advanced manufacturing base; platform for communication and cooperation along the 21st Century Maritime Silk Road; a demonstration zone for cross-strait services trade and financial innovation cooperation Industries: Advanced manufacturing, finance and trade
	Pingtan Park	43.00	Functions: Demonstration zone for cross-strait service industries cooperation Industries: High-end services, tourism, modern logistics, high-tech, marine

5. Success factors and challenges of Shanghai FTZ and other FEZs

Through reviewing and analyzing the development process of the Shanghai FTZ, it is clear that this pilot zone, together with other FEZs, has played a critical role in the reform and opening up and the economic development of Shanghai and China as a whole. Their success is affected by many factors, mainly including the development strategy and goal, site selection, industrial and spatial structure, management and development know-how, investment and preferential policies. These are discussed in detail in the following subsections.

5.1 Factors leading to success of the Shanghai Pilot FTZ and other FEZs

Many factors led to the success of the Shanghai FTZ and other FEZs. They include clear development strategy and goals, the right location, a reform-oriented approach, constant upgrading of strategic sectors and broad government-enterprise partnership.

a. National and regional strategies and goals

The FEZs are mainly used as a way of implementing national and regional development strategy and policy, piloting China's reform and opening-up policies, and building growth poles of economic development and urbanization.

The three stages of the Shanghai FEZs synchronize with the national and regional strategic development goals and the progress of China and Shanghai's reform and opening-up policies. This integration ensures that these zones get full support from the national and local governments. The more recent Shanghai Pilot FTZ was intended to promote China's high-end services industries and to explore ways of achieving industrial upgrading and structural transformation for China.

b. Strategic and appropriate location

Appropriate location selection is conducive to the success of Shanghai FEZs. All the zones are included in Shanghai's urban development plan and have easy access to major infrastructure such as airports, seaports, waterways and highway networks, and skilled labour forces. For example, the Pudong New Area lies in the east part of Shanghai and at the intersection of the middle point of the Chinese coast and the estuary of Yangtze River, so it boasts convenient transportation (both highways and waterways) and proximity to major markets in China, especially the Yangtze River Delta region and the regional market in East Asia. Shanghai also has a vast pool of human talent. All these favourable conditions make Shanghai an ideal location for FEZs.

c. Reform-oriented approach

Just as in the rest of China, all the zones in Shanghai have been used to test new reforms and new development models. The ETDZs and the Pudong New Area were used to conduct reforms of policies on land, taxation, finance, labour, immigration and customs. These reforms helped the Chinese government gain valuable experience in developing a market-oriented economy, which was later rolled out throughout the country. The most recent Shanghai Pilot FTZ was used to further improve the business environment through more simplified administrative procedures and to liberalize the services sector, such in trade and finance. The negative list was the first trial of such an approach in China, which represents great progress, and itself has been evolving from a long list to a shorter and shorter list, corresponding to the reform process.

d. Constant upgrading of strategic sectors and spatial pattern

On the basis of their different strengths, locations and stages, the different zones have targeted different priority sectors and spatial scale and structure. In terms of their main industries, the Shanghai FEZs can be divided into processing and manufacturing-oriented zones, science-oriented zones, trade-oriented zones, service-oriented zones and mixed zones. They also fully leveraged their brand names to boost their development potentials. With the deepening of reforms and opening up as well as the transformation of the economic growth model, each

FEZ has also transformed itself both functionally (e.g., from an economic and technological development zone to a high-tech industrial zone) and spatially (from a single zone into multiple zones).

e. Flexible management mechanism and broad public-private partnership

The management and development model of the Shanghai FEZs ensured their efficient operation and profits. The earliest EDTZ in Shanghai employed an enterprise-oriented management model, thus guaranteeing commercial flexibility in the beginning. For large zones, a mixed management model was applied, combining the strengths of government with those of enterprises. In addition, each zone established its own development corporation to take charge of the development and operation of the zone.

5.2. Challenges faced by Shanghai FTZ in its development

Despite the successful Shanghai FEZs and FTZ, they still face some challenges. These are mainly from uncertainty in the global economy and trade, the process of deepening the reforms, and insufficient spillover effects.

a. Uncertainty in the new global environment

Given the ongoing trade conflict between China and the United States, and growing trade protectionism actions, China will be forced to compete with other developing countries in manufacturing exports, which will severely affect its exports in general. Meanwhile, China faces great pressure to open up its services sector to developed countries. In this challenging environment and amid the global economic downturn, it will be particularly challenging for the FTZ and other FEZs in Shanghai, and in China in general, to maintain export-led growth and to continue the reform trajectory.

b. Deepening services sector reform

Shanghai has to further open up the services sector, especially the financial sector, to foreign investors through the Shanghai Pilot FTZ, obtain the management know-how to handle a negative list and free trade, test financial sector liberalization, and realize the goal of making Shanghai an international economic, financial, trade and shipping center as well as indigenous innovation center. These are very challenging tasks for China, and as the forerunner for economic and institutional reforms, the Shanghai FEZs, especially the Shanghai Pilot FTZ, will have to carefully manage the risks and find new ways in many uncharted waters.

c. Limited spillover effects

Despite the fact that Shanghai has attracted FDI through various FEZs since the 1980s, there are not many highly innovative Chinese firms emerging from Shanghai, and its high-tech sector seems still dominated by foreign companies. In terms of innovation capacity and strength in the emerging digital economy, Shanghai still trails Beijing, Shenzhen and Hangzhou, despite its advantages in human capital, finance and location. This raises the question, how effective are these FEZs in generating spillover effects and helping to strengthen local innovation capacity? Beyond Shanghai, many cities in China might be facing a similar challenge.

6. Major lessons learned

In reacting to the rapidly changing global and external situations, the Shanghai FTZ and all other FEZs have gone through different development stages and tested reforms in many areas. The lessons learned and the experience accumulated through this process will be widely relevant for other developing economies as well.

6.1. Building a positive business environment

The Shanghai Pilot FTZ has provided solid infrastructure such as roads, water, power, seaports and airports, to international standards, and with easy access to domestic and global markets. The zones also offer efficient public services (such as one-stop service) and both fiscal and non-fiscal incentives. In many countries, the inconvenience of transportation and communication systems and the insufficiency of energy and supporting facilities decrease production efficiency and offset the advantage of low costs. Therefore, FTZs should only be established at places with ideal locations. In this way, the concentrated infrastructure developed and constructed will meet the basic production requirements of domestic and foreign investors (Zeng, 2016a). In low-income countries, given the lack of finance, it is important to tap into private resources through public-private partnerships or let the private sector take ownership, and develop and operate the zones. In some cases, a build-operate-transfer approach could be applied. In Ethiopia, for example, a purely private zone – the Eastern Industrial Zone – has yielded very promising results. In any case, governments should still be responsible for common infrastructure, especially off-site or last-mile elements.

6.2. Pursuing a reform-oriented approach

One of the reasons that the Shanghai FTZ and other FEZs are successful is that they are all reform-oriented and were used to test new policies and new approaches

in management, trade, finance and investment policies. This may be the most important factor that makes zones in China and East Asia particularly successful (Zeng, 2010, 2011, 2019). One of the objectives of FEZs is to overcome the business environment constraints arising from legal and policy aspects, as well as inefficient government services and poor coordination. Thus, although nationwide reforms are not possible, the zone initiatives provide a way to showcase the power of reforms.

6.3. Industrial upgrading and spillover effects

FEZs or FTZs, as a means to achieve national and local development goals, play different roles in the different stages of industrialization and urbanization. In general, countries start with low-cost manufacturing and processing trade, then gradually move up to higher-end manufacturing and services industries. Therefore, it might be practical for countries in transition to start by establishing manufacturing FEZs, which have controllable risks, and then gradually expand into trade and service-oriented FTZs or high-tech parks. However, to realize the industrial upgrading, the zones need to provide market-driven skills training and technology extension services. Meanwhile, it is important to maximize the spillover effects from FDI (Zeng, 2016b, 2019). This could be achieved through local supplier programmes and incentives for FDI projects to provide training, technology and know-how to local firms. In any case, it is important not to favour FDI over domestic investment. In this regard, Shanghai and many other cities in China may not have done enough. In many cases, local firms may face more constraints on expanding their capacities than FDI.

6.4. Strategic location

FEZs should be located near ports or major infrastructure convenient for exporting. In the case of Shanghai, the FEZs have easy access to airports, seaports, waterways and highway networks, close to the major market in the Yangtze River Delta. This is important for any type of zone programme. In some developing countries, zone locations are not necessarily determined by market demand and its connectivity, but by other objectives, such as social or regional equality; in such cases, the location may be in a peripheral area with poor access to major infrastructure and markets, which gives little chance for the zone to succeed.

6.5. Starting with one or two zones first

Given the heavy financial burden and associated potential risks of FEZs, an FEZ programme should be fully tested in one or two locations before it is expanded. In

Shanghai, owing to its high capacity and relatively affluent financial resources, many zones were implemented in a relatively short time span, but in most developing countries, this is not the case. Where public resources and government capacity are limited, it is better to pilot the zone in the most desirable location where the market demand is strong. In reality, though, many countries try to implement many zones at the same time. For example, in some African countries, each state or province is given the authority to open an SEZ regardless of their capacity and location. This can be a recipe for failure. Even China started with only four or five zones in the coastal region before the approach was rolled out more broadly (Zeng, 2010, 2011).

7. Conclusion

This paper discussed the pros and cons of FEZs through a relatively recent case in China, in Shanghai, mainly through its pilot FTZ. While the Shanghai FEZs are in general successful, they also face many challenges in moving forward. These include the uncertain global economic and trade environment, difficulty in further opening up the services sector, and increasing their spillover effects. Given the increasingly competitive environment both domestically and internationally, these zones need to further strengthen their indigenous innovation capacity (Zeng, 2019).

It is also important to note that there is no one-size-fits-all approach, so Shanghai's experiences may not necessarily be transferrable directly to other countries. However, some common lessons may be applicable to other developing countries. These include building a conducive business environment through a reform-oriented approach; choosing the right location, which has good connectivity to major infrastructure and markets, and where private sector demand is strong; promoting industrial upgrading and maximizing spillover effects through skills training, technology services and local supplier programmes; and last but not least, starting with one or only a few zones to make sure they are successful before expanding more broadly.

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