

The Role of China's Pilot Free Trade Zones in Promoting Institutional Innovation, Industrial Transformation and South-South Cooperation



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FOREWORD

The pace and breadth of China's economic integration, structural transformation and reduction in poverty over the last four decades is unprecedented. Among the multiple factors that have driven this achievement, China's economic policy formulation is critical to understanding its success. China's reform and opening up began with a series of policy experiments in both the urban and rural areas, with the more successful outcomes extended and the less so revisited or abandoned altogether, an approach which has been replicated across sectors and over subsequent decades.

Experimentalism and pragmatism, two basic features of China's economic policy formulation, have been fully integrated in the country's Pilot Free Trade Zones (FTZs) strategy, which started from Shanghai in 2013, against the background of the Global Financial Crisis. Since the first FTZ in Shanghai, the number of zones has expanded to 21. Despite their title, the scope of China's FTZ goes far beyond trade (and investment) promotion to include a variety of policy dimensions; government functions and services, manufacturing sector upgrading, services sector opening, financial deepening, skills development and green city development. South-South Cooperation and many others have all been introduced into those 21 FTZs for "experimentation". Consequently, *institutional innovation* is defined as the essence of the FTZs strategy.

This publication aims to discuss the genesis, features and performance of the FTZs strategy. It also presents comparative analysis between FTZs and other special economic zones in other economies in the region. Furthermore, the volume examines the role of FTZs in promoting local SDG progress, industrial development, and South-South cooperation through three case studies.

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LIST OF ABBREVIATIONS

AfCFTA	African Continental Free Trade Area
ASEAN	Association of Southeast Asian Nations
BRI	Belt and Road Initiative
CBECZs	Cross-Border Economic Cooperation Development Zones, China
CBZs	Comprehensive Bonded Zones (China)
COMTRADE	United Nations Comtrade database
ETDZs	Economic and Technological Development Zones (China)
FDI	Foreign Direct Investment
FIAS	Multi-Donor Investment Climate Advisory Service of the World Bank Group
FTZ	Free-Trade Zone
GATT	General Agreement on Tariffs and Trade, United Nations
GDP	Gross Domestic Product
HIDZs	High-Tech Industries Development Zones (China)
MOFCOM	Ministry of Commerce, China
NDRC	National Development and Reform Commission, China
R&D	Research and Development
RCEP	Regional Comprehensive Economic Partnership
SEZs	Special Economic Zones
UNCTAD	United Nations Conference on Trade and Development
US\$	US Dollar
WCO	World Customs Organisation
WIPO	World Intellectual Property Organisation
WTO	World Trade Organisation
Yuan, RMB	Chinese currency

INTRODUCTION

Development is, at its core, a transformational process, combining a series of interactive and cumulative linkages to create a virtuous cycle of increased resource mobilization, faster capital accumulation, greater employment, higher incomes, expanding markets, and more investment (UNCTAD, 2016). For developing countries, integration with neighbouring economies and beyond is essential, providing access to new markets, investment opportunities and more advanced technologies, including most recently through participation in global and regional value chains. But integration is also associated with risks and is not automatically translated into productivity growth and structural transformation.

Developing countries hence need appropriate strategies to manage integration and the policy space to ensure that they benefit from the integration process. But what exactly? The answers vary across countries and development stages and depend on a constantly changing global context. A one-size-fits-all solution does not exist. Instead, policy makers need to learn, explore, test, and adjust to evolving circumstances. China's Pilot Free Trade Zones (FTZs) are one such experiment.

The Global Financial Crisis (GFC) shocked the world economy profoundly in 2008-2009 and left a lasting impact. From 2005-2010, the average annual growth rate for developing and advanced economies were 6.57% and 0.77%, respectively. But for the period of 2010-2015, annual average growth of developing region dropped to 5.37%, and developed countries saw an increase to 1.64%. For the period of 2015-2020, the rates fell further to 3.43% (developing countries) and 1.19% (developed countries). FDI flows and trade growth rates were also sluggish. Global FDI has never returned to pre-GFC level.

China introduced its Pilot FTZs in September 2013, as part of its response to the external uncertainties triggered by the GFC, to explore new ways to deepen China's reform and opening up¹. Since then, China has established 21 FTZs involving 51 cities.

From a global perspective, FTZs, on the one hand, are analogous to special economic zones (SEZs). SEZs carry varying names in the respective countries' legislation (such as industrial hubs, export-processing zones, industrial parks, and innovation hubs, etc.), but all aim to facilitate industrial activity through fiscal and regulatory incentives and infrastructure support is a common feature (UNCTAD, 2019).

But, on the other hand, FTZs are also distinct from typical SEZs. The core function of FTZ is institutional innovation to improve government service, expand integration (notably in the services sector), advance reform and encourage technology R&D for industrial transformation through policy tests and experiments.

In the last decade, the 21 pilot FTZs have catalyzed China's development strategies update, deeper economic integration, trade and FDI promotion, and industrial high-quality development. According to the Ministry of Commerce (MOFCOM)², regarding **institutional innovation**, China has implemented over 3,400 "pilot reform assignments" in 21 FTZs and has replicated 302 institutional innovations at national level; in terms of facilitating **industrial transformation**, FTZs, through reforms in trade, investment, financial, science and technology policies, have promoted "high quality industrial agglomeration development"; regarding the **services sector**, FTZs have also supported development of financial and shipping services. In 2022, covering less than 0.4% of land space, FTZs contributed 18.1% of FDI inflow and 18.1% of imports and exports of China. Along the strong growth of trade and FDI in FTZs, the makeup of Chinese exports has shifted towards technologically intense goods, such as electrical, computer, vehicles and machinery, highlighting the advances in technological capability. FTZs have also reinforced China's economic cooperation and integration with other regional developing economies particularly with ASEAN

1 Notification from the State Council on Overall Programme of China (Shanghai) Pilot Free Trade Zone. https://www.gov.cn/zwqk/2013-09/27/content_2496147.htm

2 Statements from MOFCOM, Ministry of Transportation, and State Administration of Foreign Exchange, in the press conference of State Information Office on 28th September 2023 https://www.gov.cn/zhengce/202309/content_6906861.htm

members (South-South Cooperation), which therefore has created the synergies with the country's integration initiatives such as Regional Comprehensive Economic Partnership (RCEP), ASEAN-China Free Trade Agreement (ACFTA), and Closer Economic Partnership Arrangements (CEPA), etc.

This report firstly aims to provide empirical evidence on the genesis of Chinese pilot FTZs, their rationale, purposes, then examine the role of FTZs in promoting China's industrial transformation and external economic relations, through case studies. The comparative insights between FTZs and 1) China's other development zones such as Economic and Technological Development Zones (ETDZs) and High Tech Industrial Development Zones (HIDZs) ; 2) industrial hubs in other Asian economies (South Korea, Singapore, Malaysia, and Vietnam) will also be briefly discussed.

The report will be organized as follows: Chapter 1 will review the background, nature, and governance of Pilot FTZs, which is followed by Chapter 2 focusing on Chinese Pilot FTZs and economic catch-up. Chapter 3 analyzes the effect of FTZ in advancing industrial development, using the example of AI industry in Shanghai FTZ (Lin-gang Special Area). Chapter 4 presents a case on the role of FTZs in promoting China's economic cooperation and integration with ASEAN economies (South-South Cooperation), and the concluding section presents key findings, a brief comparison with the industrial hubs in other Asian economies, and suggestions for future research.

CHAPTER 1. CHINESE PILOT FTZS: BACKGROUND AND FEATURES

1.1. Background and progress

The first Pilot FTZ in Shanghai was established in September 2013, when the world was recovering from the Global Financial Crisis (GFC) but was still struggling to return to a strong and sustained growth path (UNCTAD, 2013). International trade in goods and services did not resume the rapid growth of the years preceding the crisis. FDI saw a sharp decline of 18% in 2012, following three consecutive years of weak growth after the GFC.

A slowing world economic growth with export market contraction presented challenges for China as well. China's growth was supported by a large stimulus package after the GFC, and remained above 9% from 2008-2011, but dropped to below 8% in 2012. In response to the external uncertainties and domestic challenges including over-capacity in some sectors, food security, rising debt levels, structural unemployment, and environmental degradation, the Chinese government identified three key dimensions for its economic policies, namely "stabilizing growth, transforming structure, and advancing reform". Launching the Pilot FTZ initiative was part of the strategy to explore effective ways to bolster economic growth through deepening economic reform.

Against such background, the first FTZ directive, *Masterplan of China's Pilot Free Trade Zone (Shanghai)*, was issued by the State Council on 18 September 2013. Since the inception of the first FTZ in Shanghai, China has established a total of 21 Pilot FTZs: in Guangdong, Tianjin, and Fujian in 2015; in 2017, an expansion to regions in central and western parts of China, including Liaoning, Henan, Hubei, Chongqing, Sichuan, Shaanxi and Zhejiang. In 2018 came Hainan. Then in 2019, China approved the establishment of Pilot FTZs in Shandong, Jiangsu, Guangxi, Hebei, Yunnan, and Heilongjiang. In 2020, the latest batch of FTZs were approved in Beijing, Hunan, and Anhui. Those FTZs involve 51 cities in 21 provinces including the entire Hainan Island. (see table 1 in the appendix)

During this process, the Chinese government established a governing mechanism named *Joint Meeting Mechanism of Inter Ministries on the Work of Pilot FTZs (Joint Mechanism)* under the State Council. Around 30 ministries or agencies at national level are included in this *Joint Mechanism* including MOFCOM, National Development and Reform Commission (NDRC), Ministry of Finance (MOF), People's Bank of China (PBC), General Administration of Customs, and the State Administration for Market Regulation, etc. MOFCOM plays a coordinating role in the *Joint Mechanism* through its specific Department on FTZs coordination. At the local level, provincial or municipal governments are responsible for the implementation and development of respective FTZs. Such governance structure indicates higher vitality and sensitivity of FTZs than that of other development zones in China. In contrast, ETDZs and HIDZs fall directly under MOFCOM and the Ministry of Science and Technology, respectively, not the State Council.

1.2. Broad goals, experimental approach and local specificities

Overarching goals

Despite the name “free trade”, the policy scope of FTZs is very wide, beyond just trade policies. In the *Master Plan of Shanghai FTZ* issued by the State Council, the overall mission of Shanghai FTZs was exploring “new ways” and “new experience” for deepening reform and opening up of Chinese economy. Through institutional and policy innovation and experimentation, FTZs aim to achieve broader goals combining policy innovation and scaling up. Table 1 summarizes those key features of all Pilot FTZs.

First, the government has recognized the need for reforming and improving government services to match international market economy standards for supporting economic and business development, which are essential for an internationally competitive economy. Institutional innovation was anchored in benchmarking the best practices and international standards. And there has been increasing emphasis on the selected piloted institutional innovations based on scalability and replicability, a critical aspect of policy learning.

Secondly, China also realizes that it needs to further advance its industrial transformation and upgrading, including attracting investment, talent, and technology, both foreign and domestically, into high-tech industries and R&D to foster an innovation-driven economy.

Thirdly, in response to the sluggish global trade and FDI growth since the GFC, China has looked to test various policies with respect to FDI and services sectors, including the pre-establishment treatment, negative list management approach, reforming management of exchange rate regime, further opening-up of services sectors such as financial services, insurance services, transportation services, and other business services.

Local specificities

In addition to the somewhat common framework of institutional innovations, all Pilot FTZs have regional specializations based on a province's competitive positioning. Identifying the peculiarities of local conditions and positioning on regional advantages and peculiarities has been emphasized. As such, the 21 pilot FTZs are not identical and are not based on generic prescriptions. Table 1 summarizes the key local features of each FTZs.

For example, Shanghai FTZ focuses on its status as an international and global financial and logistical hub, including the regional headquarters of leading multinational corporations, comparable to Hong Kong and Singapore, and its innovation and technological leadership strength. The Hunan Pilot FTZ focuses on China-Africa economic relations and the Guangdong-Hunan regional economic corridor. Yunnan and Guangxi Pilot FTZ has concentrated on cross-border economic cooperation with neighboring ASEAN countries. Success has been uneven, and a range of factors shape outcomes. A comparative perspective of the Pilot FTZs is vital to ensure that lessons are learnt from all Pilot FTZs, including failed, partially successful and successful ones. Both success and failure are present in all policy design and implementation phases. Therefore, this report, undertakes two case studies on the policy framework and effects of FTZs in Shanghai (Lin-gang Special Area) on AI industry, and several FTZs such as Guangxi on economic cooperation with ASEAN economies.

1.3. Pilot FTZs and other development zones in China

The pilot FTZs initiative follows, to some extent, four decades of experience and knowledge of using development zones as a primary tool for opening and reform, but also differ from other zones in several aspects.

Development zones were part of the original industrial policy framework and involved significant policy learning through piloting and phasing in. China's economic opening up process started from the establishment of four special economic zones (SEZs) in Shenzhen, Zhuhai, Shantou (three in Guangdong Province) and Xiamen (one in Fujian Province) in 1979. Later in 1988, Hainan Province became the fifth SEZ. In the early stage, the focus of the SEZs was to attract FDI to build processing trade and accumulate export revenues. The five SEZs had historical connections with neighboring Hong Kong, Macau, and Taiwan Province of China, which were newly industrial economies with capital, technology, market network and management experiences. Establishing SEZs were soon proven a very successful policy decision, particularly in Shenzhen, which gave the Chinese leadership the confidence to expand development zones further. In 1984, 14 coastal cities (such as Tianjin and Guangzhou) were identified as "opening up cities," which allowed them to adopt economic policies to integrate in global markets, though with less preferential policies than the four SEZs.

In the Chinese economic policy context, SEZs specifically refer the five cities/province, which normally cover a whole city or even larger area. China didn't build more SEZs after Hainan but has established smaller size development zones such as "economic and technological development zones" (ETDZs) and "high-tech industrial development zones" (HTDZs) across the country.

National ETDZs were initially established in coastal cities and later in central and western China. By mid-2023, over 230 ETDZs spearheaded China's emergence as a manufacturing and export powerhouse. The focus on ETDZs has matured since 2012, which has shifted from expansion towards industrial upgrading and developing the technological intensity of industries. Provincial and city administrations have played a decisive role in expanding ETDZs, and about 2,000 provincial-level development zones have been created.

In 1988, the government launched national high-tech industrial development zones (HIDZs) in selected cities, such as Beijing and Shanghai, with better infrastructure and a network of research institutions and universities. These gradually expanded at the national level. In 2023, 179 high-tech parks focused on developing innovation and technological capability, nurturing talent, and offering a world-class infrastructure and innovation ecosystem. An additional 23 indigenous innovation demonstration zones were built to boost local innovation. In the government's 14th Five-Year Plan, a target of 50 new high-tech zones was to be made between 2020 and 2025.

In addition to ETDZs and HTDZs, which were responsible for the lion's share of China's productive transformation, diverse types of development zones were developed to address specific challenges and goals, including the bonded area and export-processing zones focusing on improving customs and logistics, primarily within existing ETDZs. The new area development and Pilot FTZs were introduced in the 2010s (Table 2).³

From the start, Chinese development zones shared a common foundation and features (see Table 2). All zones served the overall opening up and reform strategy and industrial policy framework aligned with specific stages of development.⁴ Five-year plans and longer-term development strategies outlined these plans. Focusing on industrial transformation and technological capability, the attraction of productive investment, export growth and the competitiveness of the overall economy has guided all development zones to provide the required industrial ecosystem. Beyond the function of promoting economic integration

3 See Lin, Xu, Xia (2020); Kuo and Zhang (2020); Yin (2020); Zheng and Aggarwal (2020).

4 See Oqubay, Cramer, Chang, and Kozul-wright (2020) for theoretical underpinnings and empirical evidence on industrial policy.

and industrial capacity building, the improvement of governance systems were also part to the purpose of those development zones and were supported by well-designed experiments and a phased approach to allow experience acquisition. A complex set of governance systems and policy tools were used, including directives from the State Council and ministries. Second,

The introduction of Pilot FTZs certainly followed the generally successful lessons from China's practice of development zones. But establishing the FTZs was not an end per se, which may undertake a broader and more significant mission than previous development zones such as ETDZs and HTDZs.

First, the aim was to improve governance systems and economic governance through continuous institutional innovations. For example, in the policy framework of Shanghai FTZ, the first "task and measure" is transforming government function and reforming government service approach, including enhancing inter-agency coordinating, improving administration transparency, building information platform. The policy framework emphasized the government function should transformed from "pre-approval" centered approach to monitoring-regulating centered approach. In Qingdao FTZ, digital technologies such as AI and big data have been applied to establish a smart enterprise registration system. It is envisaged that this will drive much more transparent, efficient and convenient government service which is essential for sustained economic growth and integration into the world economy.

Second, the Pilot FTZs aim to accelerate industrial upgrading through the shift towards an innovation-driven economy, advancing innovation and R&D capacity, and developing high-tech industries. Promoting FDI and improving trade facilitation management for this purpose have also been included in the plan of many FTZs. This looked similar to the purpose of ETDZs or the five Chinese SEZs. Industrial development and upgrading are the shared feature for the ETDZs and FTZs. But for ETDZs, one of the key approaches is to facilitate China's participation in the Global/Regional Value Chains through for example processing trade (Zhang, et.al, 2022). Therefore, FDI promotion based on preferential treatment is a key feature of many ETDZs. While for the FTZs, the focus is using more comprehensive and innovative policy measures, which is far beyond FDI promotion, to build advanced manufacturing sectors that has been identified by national plans, particularly for the FTZs in Shanghai, Hubei, Jiangsu, Anhui amongst others. Though promoting GVCs has been referred occasionally, the path in promoting industrial "high quality development" is building "featured industrial agglomeration", advancing "integrated industrial innovation", and "optimizing enabling environment for industrial development" including facilitating freer flow of factors such as capital, technologies, talents, and data through reforms in various policy areas.⁵

Third, the Pilot FTZs highlight further opening of the services sector and financial integration, such as removing restrictions on logistics and shipping services, starting the banking sector's opening, expanding Chinese RMB for currency settlement and cross-border registration, and testing new management of capital flow. The opening of services included developing e-commerce and digital platforms as the dominant trading modality. For example, in Qingdao Area of Shandong FTZ, through building smart port, shaping agglomeration of shipping service factors (including port service, shipping financial services, ship management and examinations), improving the government's maritime administration, Qingdao has consolidated its advantages in global shipping industry including rank as the most efficient container port in the world. The container throughput in 2022 reached 25.67 million TEU, representing 8.3% growth from the previous year, which made it the world's fifth container port.⁶

5 Statement from MOFCOM official in the press conference of State Information Office on 28th September 2023
https://www.gov.cn/zhengce/202309/content_6906861.htm

6 <https://loydslist.com/one-hundred-container-ports-2023>

CHAPTER 2. PILOT FTZS AND CHINESE ECONOMIC CATCH-UP

The pilot FTZs and the other development zones were not isolated or stand-alone entities and are part of China's broader economic policy framework. Conducting a thorough assessment of the direct contribution of FTZs to China's overall economic growth remains challenging, given that the dispersion of the zones, variation of the policies, experimental features and data availability. But observing several key aspects of Chinese economic catch-up such as industrial transformation, trade, FDI, and innovation can help to understand the role of FTZs which will give an overall background paving the way for the in-depth case studies in chapter 3 and 4.

2.1. Facilitating industrial transformation strategy

China has updated its industrial strategy in recent years, focusing further on smarter and greener industry. In the ongoing 14th Five-Year Plan, under the overarching "manufacturing powerhouse strategy", two key policy documents have been issued: *Industrial Green Development Plan and Smart Manufacturing Development Plan*.

In the 14th Five-Year Plan and those associated documents, China identifies wide ranges of advanced manufacturing and R&D priorities, such as: high-end new materials, smart manufacturing and robotics, smart factories and supply chains, significant technological equipment (high-speed train, aerospace equipment, etc), biomedicine and high-end medical equipment, new energy vehicles, developing low-carbon technologies, etc.

In addition, the industrial transformation was accompanied by a strategy of infrastructure development, which significantly accelerated industrial and economic agglomeration and sped up regional and urban development. For example, the government expanded high-speed railway lines from 11,000 km to over 42,000 km (national, regional and intercity) between 2013 and 2022, which shrank space and travel time, contributing to a more efficient economic system. Over 10,000 km of urban rapid rail transit and a metro system supporting urban mobility and industrialization was built during this period.

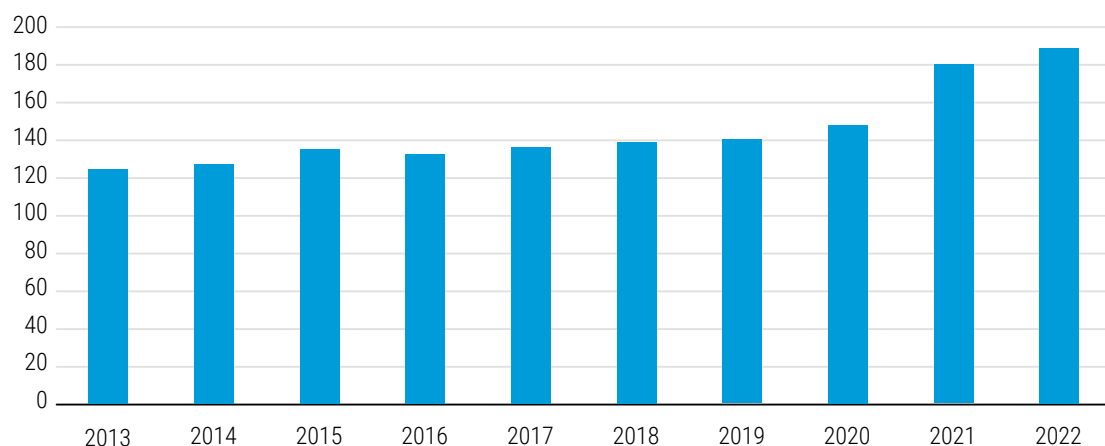
Against the backdrop of the industrial transformation strategy at the national level, the policies implemented in the Pilot FTZs have also seen the increasing component of manufacturing and industrial development, as we can see in the FTZs of Anhui, Hubei, Shanghai (Lin-gang New Area), and Zhejiang, etc. FTZs can help to attract talents and encourage R&D in targeted sectors, foster agglomeration of certain industries, and even facilitate inter-city or province economic corridors to support industrial development. In addition to the manufacturing sector, FTZs have also underpinned the development of services sector, particularly in e-commerce, international logistics, shipping and financial services, which are the priorities in FTZs framework as we discussed in Chapter 1. In Chapter 4 and 5, the report shows how the FTZs helps industrial development, both manufacturing and services, in Shanghai (AI) and Qingdao (shipping) through case studies.

2.2. Growth of FDI and international trade

FDI and trade promotion is an integral part of the FTZs function since it aims to build deeper integration with the global economy. Over the last decade, China's real GDP (in 2015 price of USD) increased from US\$9.62 trillion in 2013 to over US\$16.28 trillion in 2022. Between 2013 and 2022, institutional innovations and changes by pilot FTZs contributed to transformation, entailing the building of a globally competitive and innovation-driven economy. This can be measured from the performances of FDI inflow into China, trade growth, innovation capabilities in R&D, and services sectors such as the digital economy and internationalization of RMB.

Regarding FDI attraction, FDI inflow (measured in current price USD) to China increased from US\$123.9 billion in 2013 to US\$189.1 billion in 2022, a 52.6 per cent increase, with a significant jump in 2021. FDI outflow grew from US\$107.9 billion to 146.5 billion in the same period. The total stock of FDI for the period was close to US\$ 3.8 trillion for inward and 2.9 trillion outward. (see Figure 1).

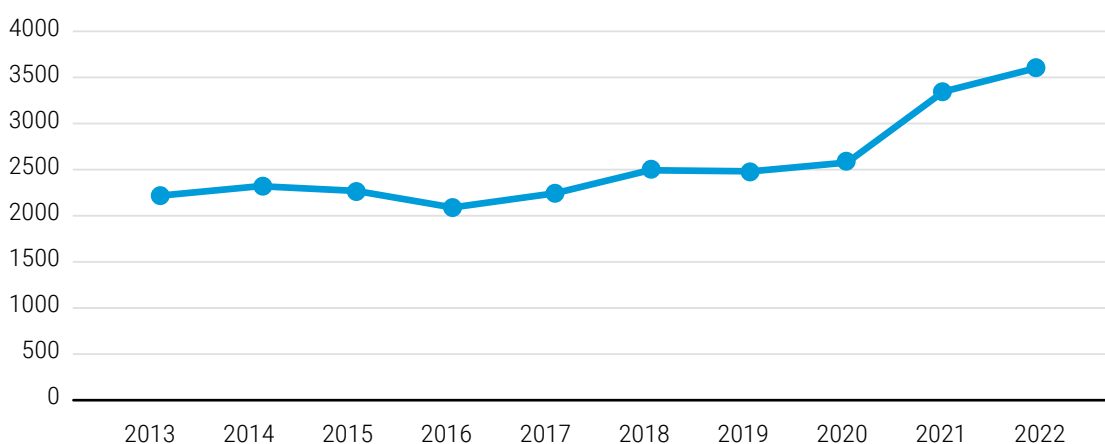
Figure 1: Annual inflow of foreign direct investment (FDI) to China from 2013 to 2022 (in billion US\$ at current price)



Source: UNCTADstat.

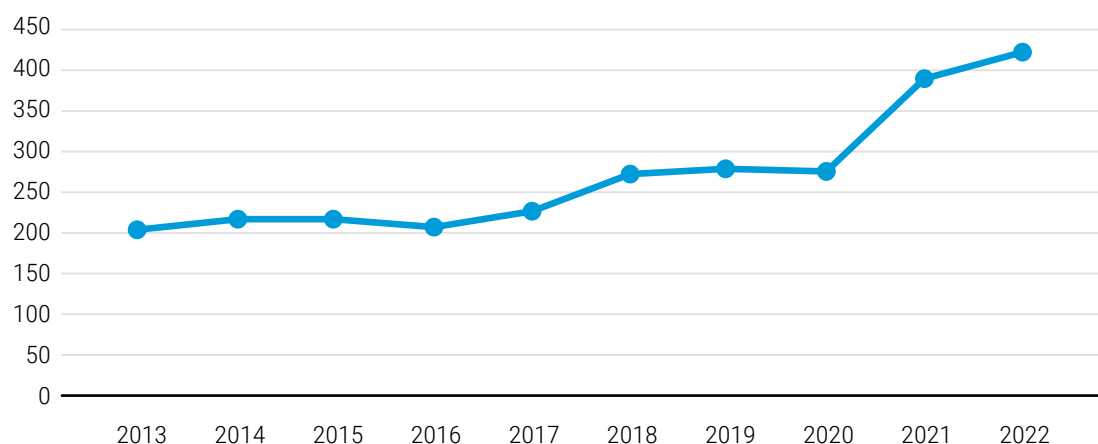
Chinese exports of goods increased from US\$2.21 trillion in 2013 to US\$3.6 trillion in 2022, growing 62.7 per cent. The composition of goods has shifted towards more technology-intensive goods and away from light manufacturing. While this growth rate is lower than the expansion between 2000 and 2006, the trend is positive given the global economic slowdown after the GFC and the COVID-19 global pandemic and cascading crises. The growth in 2021 and 2022 was exceptionally high, up 39 per cent from 2020 (see Figure 2). The exports of services have even grown faster from 207 billion USD in 2013 to 424.1 billion USD in 2022, growing over 100 per cent.

Figure 2: Exports in goods between 2013 and 2022 (in billion US\$ at current price)



Source: UNCTADstat.

Figure 3: Exports in services between 2013 and 2022 (in billion US\$ at current price)



Source: UNCTADStat.

2.3. Innovation and technology capability

Innovation has been an important focus of efforts. The share of GDP expenditure on research and development increased from 1.9 per cent in 2012 to 2.6 per cent in 2022, a significant increase (see Figure 3). In 2022, China spent three trillion RMB (US\$450 billion) on research and development, ranking second in the world. In terms of R&D personnel, it almost doubled in numbers, from 3.25 million in 2012 to over six million in 2022. In The Global Innovation Index, provided by the World Intellectual Property Organization (WIPO) to give insight into the quality of institutions and innovation capability, China has progressed in its overall ranking – from 34th in 2012 to 11th in 2022.

Regarding institutions (political, regulatory quality, business environment), the index shows that China ranked 121 out of 141 countries in 2012, but it has jumped to 42 by 2022, delivering positive outcomes in institutional innovation. However, it also indicates that China has a long way to go regarding governance systems. The index further shows a solid foundation in infrastructure and improved human capital and research from 84th to 20th during the same period. Like all global indices, the measurement has limitations and bias.

In a nutshell, China's Pilot FTZs have gone along with the expansion and advancement of industrial transformation, trade, foreign investment, innovation capabilities of China over the last decade.⁷ In 2022, these 21 Pilot FTZs achieved a total import and export value of 7.5 trillion RMB, representing a year-on-year growth of 14.5%. The actual utilization of foreign investment reached 222.52 billion RMB, with a year-on-year increase of 4.5%. Despite occupying less than 0.4% of the total area, Pilot FTZs contributed 17.8% of the total import and export value and 18.1% of the actual FDI⁸.

Beyond the figures, FTZs have advanced China's economic reform and improved government services system that have contributed to building better doing business environment. According to MOFCOM,

7 The State Council's directive (2023b) underlines the system opening and continuous reform priorities, including: "Promoting the innovative development of trade in goods; promoting the freedom and facilitation of trade in services; facilitate the temporary entry of business personnel, promote the healthy development of digital trade; increase efforts to optimise the business environment; improving the risk prevention and control system."

8 State Council Information Office, http://www.scio.gov.cn/live/2023/32694/xgbd/202309/t20230926_771178.html

in the last decade, Chinese government assigned over 3400 policy tests in the 21 FTZs, in which 302 institutional innovation outcomes have been replicated at national level.⁹

A lot of concrete examples from the FTZs could also showcase the impact of FTZs in advancing China's economic catch-up. For example, Sichuan FTZ promoted the industry of aviation maintenance and manufacturing in the Province. It has attracted several key enterprises, including Airbus, AMECO, Sichuan International, and Sichuan Airlines Maintenance Base, which has been able to provide maintenance service to internal clients in the FTZ area. Another example is Tianjin FTZ that performed well in FDI promotion. By 2022, the FDI stock in the FTZ area was USD 14.43 billion, which accounted for about 40% of the total FDI stock of Tianjin city. And in Guangxi FTZ, through the measures of “green channel” for imported fruits, it has facilitated the imports of perishable agricultural products from ASEAN economies. In Chapter 3 and 4, we'll examine the role of FTZs more deeply through case studies.

For the next step, MOFCOM has outlined key work priority lists for the of 21 FTZs from 2023-2025 which cover policy areas such as building exchange platform of financial assets (Shanghai and Jiangsu FTZ), world bio-medical science agglomeration (Shanghai FTZ), creating a global supply chain management center (Guangzhou FTZ), innovative medical and health service (Tianjin), new IP protection mechanisms (Zhejiang FTZ), green manufacturing hub (Hubei) to deepening economic and trade cooperation with RCEP economies, especially ASEAN economies¹⁰.

9 According to the statement of MOFCOM official at the press conference of State Information Office https://www.gov.cn/zhengce/202309/content_6906861.htm

10 The details of the policy priorities can be downloaded from the MOFCOM official site https://www.gov.cn/zhengce/zhengceku/202306/content_6887578.htm

CHAPTER 3. CASE 1: DEVELOPMENT OF AI INDUSTRY IN LIN-GANG SPECIAL AREA OF SHANGHAI FTZ

Shanghai is China's first FTZ, which has been expanded twice. The first phase (2013-2014) was launched on a land area of 28.8 square kms and later expanded to 120 square km, comprising two ports, an international airport, a financial district, and high-tech parks (see Table 1). Shanghai FTZ covers very broad policy area from government service, financial sector reform, services opening up, trade facilitation through Single Window approach, FDI management reform featured by *Negative List* and pre-establishment treatment, and high-tech industry development. This case focuses on the AI industry development in Lin-gang Special Area in Shanghai FTZ.

3.1. AI industry development in Shanghai FTZ

At city level, Shanghai identifies AI industry as an important driver for its economic development. The *Overall Plan for Lin-gang Special Area* positions the Area as a demonstration zone where AI application should be accelerated in more scenarios and the development of new industries and new business formats such as intelligent vehicles, intelligent manufacturing, and intelligent robots.

Since its inception, Lin-gang Special Area has attracted domestic and international resources dedicated to innovation, built cutting-edge industrial clusters such as the AI cluster for key core technology breakthroughs, and pushed the output value of AI enterprises above the designated size in Shanghai to exceed RMB 380 billion in 2022¹¹. The rapid AI industry development are benefited from the advantages of Lin-gang Area in “digital city, future cars, and smart manufacturing” which helps to build whole-area AI scenario and attract AI enterprises¹².

3.2. Policy and Measures

Lin-gang has issued preferential policies and measures that facilitate the development of enterprises in many ways, including the introduction of tax incentives, facilitation of the receipt and payment of foreign exchange funds; platform construction in the AI industry; expansion of the scenarios where AI can be applied; improvement of support for data, computing power, algorithms and other factors.

First, introducing tax incentives and streamline the receipt and payment of foreign exchange funds to enhance capital flow. The Lin-gang Special Area implements preferential policies, such as the introduction of tax credits and simplification of cross-border fund transactions, providing ample financial support for the development of the AI industry.

Lin-gang applies a reduced corporate income tax rate of 15% to qualified enterprises in the region engaged in production and R&D in key sectors such as integrated circuits, AI, biomedicine, and civil aviation. This reduced tax rate remains valid for the first five years after the establishment or settlement of the enterprises. The area also offers a subsidy to offset the difference in individual income tax payable by overseas talents working in the region with high-end or highly sought-after skills.

11 Mediareport from JiefangDaily on the Government briefing to Shanghai Municipal People's Congress on three advanced innovative industries: <https://www.shanghai.gov.cn/nw4411/20230426/b6697d596dbd4eb49db7b5783bfce514.html>

12 Media report on Building AI High-land and Smart Vehicle Industry in Lin-gang Area, <https://news.cnstock.com/industry,rdjj-202302-5023200.htm>

In terms of streamlining the receipt and payment of cross-border funds, the Lin-gang FTZ Area issued rules introduce nine capital account reform measures and four current account facilitation measures. These measures focus on promoting the reform and innovation of the cross-border investment and financing system, implementing government reforms that simplify processes, delegate authority, and enhance government services, and improving the efficiency of market-oriented resource allocation.

Second, Lin-gang has attracted numerous AI enterprises by supporting the development of platforms for research and development, services, and more. This support helps AI enterprises enhance their scientific and technological innovation capabilities and improve their ability to serve these enterprises.

To boost the research and development capabilities of businesses, Lin-gang has implemented a series of policies to promote platform construction in the AI sector. One policy in 2020 aids the creation of open-source deep learning platforms. These platforms assist companies in developing independent and controllable AI open-source frameworks and building open-source and public platforms that prioritize deep learning frameworks. Another policy, released in July 2021, emphasizes the need to continually strengthen the leadership of high-end industries like AI and develop AI open-source and public platforms. It suggests making full use of the scientific and technological innovation resources of companies, universities, and research institutes to create technical platforms for vision and voice recognition technologies and establish an industrial chain covering both the platform and application.

These policies encourage eligible enterprises, colleges and universities, scientific research institutes, and industry associations in Lin-gang to build AI service platforms catering to global needs. These platforms provide AI enterprises with services in technology, markets, capital, import and export trade, law, taxes, and other areas. These organizations can also create platforms that gather demands for AI technologies from various industries and services and publish solutions provided by AI enterprises.

Third, expanding AI application scenarios in Lin-gang Area. Such efforts make the technology more useful and further supports the development of the AI industry. Among these policies, Lin-gang supports demonstration applications in diverse scenarios. It implements the “Lin-gang Special Area AI+” program that seeks to make the area a forerunner in applying the latest AI achievements from around the world and build innovative applications that could be usable worldwide¹³. Lin-Gang is seeking breakthroughs in ICVs, service robots, interactive terminals, intelligent wearables and drones to scale up high-end intelligent terminals and to expand demonstration AI application scenarios by focusing on intelligent manufacturing, smart cities, and digital security scenarios.

Finally, Lin-gang has stepped up efforts to promote data opening, computing power development, and algorithm open source. It proposes to provide basic assistance for technological R&D by supporting the construction of public AI data sets and the establishment of high-quality and open AI training data sets, standard testing data sets and other resource pools targeted at basic theoretical fields such as AI core algorithms, deep learning and autonomous and collaborative control and at core and key technologies such as smart chips, human-machine interaction and data mining in key research directions such as computer vision, natural language processing, intelligent voice, and unmanned driving to meet the R&D requirement on key products.

Meanwhile, Lin-gang leverages the advantage brought by its system innovation, accelerating the construction of major digital infrastructure such as the international data port, the new Internet exchange center and the supercomputing center to develop key areas in AI industry. It conducts pilot security assessment of cross-border data flow and establishes data security management mechanisms such as data protection capability certification, data circulation backup review, cross-border data circulation and transaction risk assessment. Through multiple explorations, the Lin-gang approach is “based on scenario innovation pilot with the combination of risk self-assessment and security assessment”. These efforts

13 The local government policy in Lin-gang Area on the Notification on Various Policy Measures in Developing AI Industry in Lin-gang Area of Shanghai FTZ, <https://www.lingang.gov.cn/html/website/lg/index/government/file/1481569923306450946.html>

ensure secure and controllable cross-border data flow while providing large-scale and high-quality data sets for the development of the AI industry.

The development of the AI industry made Lin-gang realize that AI enterprises are concerned more about whether their computing power requirements can be met than about the supporting policies such as subsidies. Answering the call of companies engaged in this industry, Lin-gang announced plans in June 2023 to establish a diverse computing power supply system with intelligent computing power as the mainstay, basic computing power and supercomputing power as cooperative side wings by 2025, after completing such major tasks as improving the computing power supply capacity, optimizing the computing power resources allocation, consolidating the computing power support foundation, and accelerating the application in multiple industries and multiple scenarios. Lin-gang applies AI algorithms in an all-round manner, supports enterprises to conduct research on basic core technologies such as core algorithms and key common technologies, and transforms industry data into industry know-how via algorithms to empower the development of the whole industry.

3.3. AI industry development in Shanghai FTZ

The industrial policies in Lin-gang Special Area has accelerated the development of AI industry in the Area. For example, the policies have attracted SenseTime, one of the “Four AI Tigers” in China, to place its intelligent computing center and intelligent vehicle segment in Lin-gang. Once in operation, this intelligent computing center will become one of the largest AI computing centers in Asia, which will reduce the entry barriers to large-scale AI applications in different industries and allows the AI industry to continuously forge ahead.

Facilitating the cross-border flow of foreign exchange funds is also an important step of Lin-gang. According to Shanghai Zhizhen Intelligent Network Technology Co., Ltd., a company engaged in technological R&D in the AI sector, the facilitation policy of “expanding the use of capital income account” provides a alternative to the pain points of enterprises in the return of raised funds and the use of funds by agreement-based controlled enterprises. Offering loans to non-affiliates allows domestic agreement-based controlled enterprises to use overseas financing funds in a more convenient manner. It can help enterprises transfer the raised funds back to China after going listed abroad in 2023 and use the funds for production.

With the policies to support the platform construction in the AI industry and to improve the support of data, computing power, algorithms and other elements for the development of the AI industry, Lin-gang officially commenced the construction of the “Dishui Lake AI Innovation Port” in August 2022. Gathering upstream and downstream enterprises in the AI industry, it plans to attract 20,000-30,000 professionals and 500 enterprises in the industry and increase the industrial scale to RMB 50 billion in three years¹⁴. More than 40 key projects in the AI industry had established there on the same day as the commencement of the port. These projects not only cover many popular fields such as smart chips, unmanned driving, robotics, computing power and algorithms, and digital twins, but also involve leading enterprises in many segments such as graphics engine, automotive electronics and AI chips.

As of July 2023, Lin-gang had established scientific and technological R&D platforms such as Lin-gang Scientific and Technological Innovation Platform for Key technologies in Intelligent Systems, new scientific and technological innovation transformation platforms such as Shanghai Lin’gang Artificial Intelligence Lab, and computing power service platforms such as China Telecom Lin-gang Intelligent Computing Platform. It has also established 8 data centers, including SenseTime’s Artificial Intelligence Data Center (AIDC), Yovole Network, and Information Flying Fish. So far, there’re more than 100 enterprises engaged in AI technology in Lin-gang.

¹⁴ The Administrative Committee of Lingang new Area.

<https://www.lingang.gov.cn/html/website/lg/index/government/file/1559242270135414785.html>

Lin-gang Special Area allows more developers to participate in the transformation of AI technologies that drives the development of key application fields such as intelligent plants, smart transportation and smart cities, and makes significant contributions to the construction of an AI innovative application demonstration zone with regional features, promoting improvement and scale development of the AI industry. It also enables linkage and mutual empowerment between the AI industry and other cutting-edge industries such as integrated circuits, ICV and biomedicine so as to realize the digital transformation of the whole city. For example, ICV is the largest AI terminal in Lin-gang Special Area.

CHAPTER 4. CASE 2: PROMOTING ECONOMIC COOPERATION AND INTEGRATION WITH ASEAN

ASEAN and China are largest trading partner for each other. The trade or broader economic cooperation has been strengthened through two FTA agreements: China-ASEAN FTA in 2010 and RCEP in 2022, while China's Pilot FTZs have offered additional impetus to this South-South regional economic partnership.

4.1. Efficient Market Connectivity to Expand Trade

An essential part of the Pilot FTZs policies are trade- and FDI-related, which allows more active economic integration notably with regional economies such as ASEAN.

First, Pilot FTZs improve the efficiency of economic and trade exchanges between China and ASEAN economies. For example, to smooth the cross-border cargo vehicle flow in Friendship (Youyi) Pass on the China-Vietnam border, The Chongzuo Area of Guangxi FTZ has pre-emptively formulated an anti-congestion policy to guarantee smooth cargo flows. The method includes establishing the trade center in Puzhai as a channel for agricultural products like durian. In addition, it uses a smart logistics control platform to enable automatic early warning of abnormalities so that timely adjustment can be conducted. It also promotes the upgrade of the online intelligent auxiliary inspection system to realize unmanned system operations in the whole process from the entry of imported (exported) vehicles to pending inspection, docking for inspection and exit. The turnover efficiency of inspection parking spaces has been increased by 35%, greatly improving the efficiency of import and export customs clearance¹⁵.

Logistics in this region have improved dramatically. In the first eight months of 2023, China imported about 1.25 million tons of fruits (over 6.5 billion RMB in terms of value) such as durian and jackfruit from ASEAN countries through the Puzhai passage of Friendship (Youyi) Pass¹⁶.

Second, pilot FTZs promote better integration of rules and standards to reduce the institutional costs of trade between China and other developing countries. Currently, the signing and execution of RCEP presents an important opportunity. China has taken relevant measures in the FTZs in Shanghai, Guangdong, Tianjin and Fujian, such as specifying the acceptable scope of "minor errors" in certificates of origin under preferential trade agreements and promoting continuous optimization of customs clearance processes with RCEP members, including ASEAN.

In November 2022, Shandong FTZ and Wanding Development Co., Ltd. in Thailand signed a project agreement on the construction of the "ASEAN Digital Trading Platform of Agricultural Products,"¹⁷ The two sides will build a digital trading platform (with total investment at about 500 million USD) for agricultural product transactions between China and ASEAN countries and establish an online digital integrated service platform and a system for offline warehousing and logistics in the supply chain, to reduce the cost of agricultural product trade. Once put into operation, this platform is expected to serve 100 enterprises engaged in import and export of agricultural products and to push the import and export volume of agricultural products to exceed US\$1 billion each year.

15 From official website of local government of Guangxi: <http://pxzhbsq.gxzf.gov.cn/xwzx/yqdt/t17014896.shtml>

16 From official website of local government of Guangxi: <http://pxzhbsq.gxzf.gov.cn/xwzx/yqdt/t17167131.shtml>

17 From official website of local government of Shandong: http://www.jinan.gov.cn/art/2022/1/25/art_81014_4905492.html

Third, pilot FTZs leverage their advantages as the forerunner, actively explore and accelerate the development of new formats and new modes of foreign trade such as cross-border e-commerce, market procurement, integrated foreign trade service enterprises, bonded maintenance, offshore trade and overseas warehouses, and continuously expand the space for trade development with other developing countries.

For example, Zhejiang FTZ has taken initiative to deploy overseas warehouses in ASEAN and other regions, positioning Ningbo as one of the fastest runners in cross-border e-commerce and overseas warehouse development in China, which also supports the rapid development of economy and trade between Ningbo and ASEAN. In 2022, the import and export volume between Ningbo and ASEAN reached RMB 149.48 billion, up 19.6% on a year-on-year basis.¹⁸ Another example would be the Chongqing FTZ, who promotes the development of new business formats such as market procurement trade through the new land-sea channel in the west and opens new cross-border trade channels.

4.2. Investment Facilitation.

China has transformed its foreign investment management landscape and greatly improved the investment liberalization and facilitation level to encourage more developing countries to invest and build cooperative bonds with China.

Pilot FTZs have attracted more enterprises from developing countries to invest in China. China introduced the Negative List on Foreign Investment Access to Shanghai FTZ in 2013, this document has been revised 7 times, with the special management measures contained therein reduced from 190 in the first version to 27 in the 2021 version. As a result, investment access restrictions have been lifted in many industries and no restrictions are imposed in manufacturing. FTZs have also introduced more flexible foreign exchange and capital account management to offer better convenience to foreign investors.

All of these measures provide an impetus for other developing countries, including ASEAN, to invest in China. Statistics show that ASEAN investment in China has continued to grow in recent years, increasing from US\$ 7.95 billion in 2020 to US\$ 10.58 billion in 2021, and the growth rate in 2022 reached 8.2%.¹⁹

Also, in July 2023, Qianhai & Shekou Area of Shenzhen, China (Guangdong) pilot FTZ, held the ASEAN-China Greater Bay Area Economic Cooperation (Qianhai) Forum, which intended to help ASEAN enterprises better understand and participate in the construction of the Greater Bay Area. The value of contracts signed at the forum reached RMB 12.10 billion, and the contracts covered industrial park construction, digital economy, agricultural cooperation, etc. In addition, Pilot FTZs in Guangxi and Yunnan make active use of their geographical advantages to promote cross-border industrial cooperation with Vietnam and Myanmar and to attract more enterprises from Southeast Asia and South Asia to enter the Chinese market.

As of July 2023, the cumulative bilateral investment between China and ASEAN countries has amounted to over US\$ 380 billion, with more than 6,500 enterprises directly invested by China established in ASEAN²⁰.

18 Ningbo Municipal Development and Reform Commission. http://fgw.ningbo.gov.cn/art/2023/1/19/art_1229020105_58962622.html

19 Economic and Commercial Office of the Mission of the People's Republic of China to the Association of Southeast Asian Nations. <http://asean.mofcom.gov.cn/article/o/r/202201/20220103239743.shtml>

20 The State Council Information Office of China. https://www.gov.cn/lianbo/fabu/202308/content_6900154.htm

4.3. Promote Industrial and Innovation Cooperation

In recent years, Pilot FTZs have promoted industrial cooperation models in industrial sector through “Two Countries Twin Parks” mode, which has introduced innovative economic and trade cooperation model between China and other developing countries. “Two Countries Twin Parks” refers to a production capacity cooperation method with which two sovereign countries set up parks to pursue linkage development in each other’s territory. This model has developed rapidly in pilot FTZs.

For example, the Qinzhou Port Area of the Guangxi FTZ promotes the upgrading and development of the “Two Countries Twin Parks” cooperation mechanism between China and Malaysia and continuously deepens and expands international cooperation with ASEAN. This mechanism has expanded from Malaysia to Singapore, Indonesia, Brunei and other countries, and the scope of cooperation has expanded from ASEAN’s traditional specialties like edible bird’s nest, rubber, durian and others to finance, green chemicals, new energy materials, palm oil and secondary metals.

Also, since the Chinese government approved the establishment of the China-Indonesia and China-Philippines Economic and Trade Innovation-driven Development Demonstration Parks in early 2023, the Fujian FTZ has been exploring to make a “point-to-point” policy and system breakthrough at the park level. The goal is to make greater breakthroughs in the industrial, economic and trade cooperation of “Two Countries Twin Parks” under the support of more open and targeted policies and systems.

CONCLUSIONS

This report has outlined the rationale and progress of the FTZs strategy, its role in promoting industrial transformation and China's engagement with the global economy, including through greater South-South cooperation.

Pilot FTZs have multiple goals in which institutional innovations play a vital role and have been the priority of the political leadership, considered as “important strategic measures” for China's further development. Through institutional innovation, China has experimented broad policy measures aiming to deepen its reform and opening up, improve government service and doing business environment that matches international high level standards. Pilot FTZs are not uniform, and each has a specific mission aligning with each location and region's peculiarities and competitive positioning.

FTZs include a lot of investment and trade facilitation policy. By doing so, they on the one hand drive the trade and FDI in the last decade. Furthermore, through more comprehensive and innovative policy measures to support the selected industries, both modern services and advanced manufacturing sectors, FTZs have boosted China's industrial transformation, as we have shown in analysis and case studies. This is also a key difference of the FTZs from other development zones in China, in which preferential treatment rather than institutional innovation is the core of the policy framework.

From regional perspective, China's Pilot FTZ also differ with industrial hubs in some other Asian countries, such as the Republic of Korea, Singapore, Malaysia, and Vietnam. China was a latecomer to development zones compared to the Republic of Korea and Singapore, which evolved in the late 1960s, and Malaysia in the 1970s, but was a forerunner to Vietnam, which pursued industrial hubs in the early 1990s. These four economies all fall within the Asia-Pacific region but exhibit different contexts. Terminologies used in these countries have been context-specific and specified by particular legislation. However, no model similar to the Pilot FTZs has been used in these economies. For example, the industrial complex was used in Korea as a general term, with industrial parks in Singapore, free trade zones in Malaysia and industrial zones in Vietnam as generic terms, while specialized industrial hubs focusing on different industries or innovation hubs have also been used.

Promoting foreign investment was not a key priority in the Republic of Korea. The country relies more on domestic firms, primarily chaebols, which was the primary driver of export-led industrialization and significant investors in strategic priority industries, in both Korean and in overseas markets.

Singapore has focused on building the most dynamic and effective government institutions—both promotional and regulatory agencies—and has emerged as a prominent pro-business economy.²¹ However, state and government-linked organizations play vital roles.²² Given its pioneering position, Singapore has excelled in services industries such as logistics and international financial hubs. The cooperation in economic governance between China and Singapore has been profound on multiple fronts, including the reform of state-owned enterprises. Institutional innovations applied by the Pilot FTZs in Shanghai have drawn from Singapore as a source of best practices and international standards in opening the services sector and promoting investment and trade facilitation.

Malaysia has primarily used free and export-processing zones to promote export-oriented industrialization.²³ However, compared to its peers, such as Singapore and South Korea, the industrial transformation and

21 Korea had 901 industrial parks comprising 40 national level, 434 local level, six urban high-tech, and 421 agri-industrial parks (Oqubay, 2020; Kim and Song, 2020; Sonn and Kim, 2020)).

22 Singapore has industrial parks, comprising mainly technology hubs, business hubs, and Jurong Petrochemical Hub (Oqubay, 2020; Yeo, Giap, Yam, and Loo, 2020).

23 Malaysia had over 500 industrial estates of diverse sizes, of which 40 per cent were built by the government. Penang had a concentration of export processing zones (Rasiah and Krishnan, 2020).

development of innovation capabilities have not been comparable. It has applied business-friendly policies and export facilitation for prolonged periods. Arguably, the ambition for institutional innovation were incomparable, while Malaysia has developed a business environment that meets international practices.

Vietnam initiated its Doi Moi economic reforms from a centrally planned socialist economy towards a market economy later than China in 1986.²⁴ The economic dynamism of the Pacific Rim and China's rise as the world's manufacturing powerhouse, and its proximity to Japan and South Korea have allowed Vietnam to benefit from having role models and established supply chains.

In comparative terms, through the case study in this report that have presented evidence and insights on the role of FTZs in promoting industrial transformation, several quick points may help to summarize some similarities and differences between FTZs and industrial hubs in other selected Asian economies.

First, both China and other Asian economies introduced various measures and reforms. For China, institutional innovation is at the heart of Pilot FTZs including improving government services. Singapore has also introduced some similar policies in economic governance, managing foreign investment, and building a vibrant services sector (international finance, corporate services, logistics) while focusing strategically on manufacturing and innovation.

Second, regarding the management and promotion of FDI, the Republic of Korea has relied little on FDI, while Singapore, Malaysia, and Vietnam focused on promoting FDI. Despite the focus on the attraction of FDI, the role of SOEs has been eminent. China and the four countries pursued a development path where the state played a strategic position, but SOEs continue to play critical roles in Singapore, China, and Vietnam. At the same time, the Republic of Korea relied on the private sector, especially the chaebols.

Third, the approaches showed variation in the application of development zones or industrial hubs. The Pilot FTZs were a unique development in China and catalyzed its opening and reforms. Singapore, the Republic of Korea and Malaysia don't focus very much in this regard, as they operated in a more liberalized economy from the 1960s.

In summary, China's Pilot FTZs shared similarities with the country's previous development zones and industrial hubs in other Asian economies in terms of trade and FDI promotion, industrial development, etc, but is also distinct. FTZ particularly place institution innovation at the core of its policy framework and adopt more comprehensive framework in advancing industrial transformation, managing the balance of deeper integration and policy space, and reform government function and services. The overall official data from the Government and case studies presented in this paper have both shown the general positive results of FTZs in the last decade. From regional and international perspective, China's FTZs can offer a reference point to other developing countries that want to strengthen integration but manage associated risks, improve government services and business environment, and upgrade industries (manufacturing and services) through encouraging innovation and proper investment policies.

Given China is a large economy with complex government system and differences across the provinces/cities, those 21 FTZs have different policy focus in different local context. This report only includes two cases which are still not sufficient to show the whole picture. The detailed examination and assessment of each FTZ in future studies would offer more interesting insights.

²⁴ Vietnam had 326 industrial parks distributed in 63 provinces. Most are industrial zones, with seventeen coastal economic zones and a few border gate economic zones (Tu-Anh and Anh-Tuan, 2020).

APPENDIX

Table 1: A summary matrix of specialization of the 21 Pilot FTZs

Pilot FTZs	Year	Specialization
Phase I	2013	
China (Shanghai) Pilot FTZ ²⁵	29 September 2013	International financial centre Financial services, corporate headquarters, international logistics hub, advanced manufacturing, high-tech innovation Logistics hub: Waigaoqiao Bonded Area, Waigaoqiao Bonded Logistics Park, Yangshan Bonded Port Area, Pudong Airport Comprehensive Bonded Area 5 Areas (Waigaoqiao Bonded Area, Waigaoqiao Bonded Logistics Park, Yangshan Bonded Port Area, Pudong Airport Comprehensive Bonded Area).
Phase II	2015	
China (Guangdong) Pilot FTZ	21 April 2015	Economic hub and deep cooperation with Hong Kong and Macau A new highland of modern industry and a comprehensive service hub: Nansha New District Area of Guangzhou An experimental demonstration window for the opening up of the financial sector, an important base for world trade in services and an international hub port: Qianhai-Shekou Area of Shenzhen Culture and education opening pilot area and international business service leisure tourism base: Hengqin New District Area of Zhuhai Three Areas (Nansha New Area, Qianhai Shekou Area, Hengqin New District Area)
China (Fujian) Pilot FTZ	21 April 2015	Trade and economic hub, with a focus on Taiwan Cross-straits manufacturing and emerging industries: Xiamen Area, Advanced manufacturing base: Fuzhou Area, Tourism and trade hub across Pingtan Area, Three Areas (Pingtan Area, Xiamen Area, Fuzhou Area)
China (Tianjin) Pilot FTZ	21 April 2015	Modern services and innovation hub Shipping logistics, international trade, financial leasing: Tianjin Port Area R&D and high-end manufacturing industries: Tianjin Airport Area Financial innovation: Binhai New District Central Business District Three Areas (Tianjin Port Area, Tianjin Airport Area, Binhai New Area)
Phase III	2017	
China (Liaoning) Pilot FTZ	1 April 2017	Logistics hub and emerging industries Port and shipping logistics: Dalian Area Advanced manufacturing: Shenyang Area Modern services and emerging industries: Yingkou Area Three Areas (Dalian Area, Shenyang Area, Yingkou Area).

²⁵ This paper reads it as Shanghai Pilot FTZ, and the same for the other Pilot FTZs, for easier reference.

Pilot FTZs	Year	Specialization
China (Zhejiang) Pilot FTZ	1 April 2017	Economic and service hub Digital economy, new AI, fintech innovation hub: Hangzhou Area Retail and logistics hub and BRI platform: Jinyi Area Advanced manufacturing, R&D, services hub: Sothern Zhoushan petrochemical trading hub: Northern Zhoushan Island Green petrochemical hub: Zhoushan Outlying Islands Area International shipping and logistics hub: Ningbo Area Three Areas (Zhoushan Island area, Zhoushan Island Northern Area, Zhoushan Island Southern Area)
China (Henan) Pilot FTZ	1 April 2017	High-tech and services hub Advanced manufacturing and cross-border e-commerce: Zhengzhou Area Services and creative industries hub: Kaifeng Area R&D and high-tech manufacturing: Luoyang Area Three Areas (Zhengzhou Area, Kaifeng Area, Luoyang Area)
China (Hubei) Pilot FTZ	1 April 2017	High-tech and innovation hub High-end and green technology: Xiangyang Area R&D and ICT services: Wuhan Area High-tech and biotechnology hub: Yichang Area Three Areas (Wuhan Area, Xiangyang Area, Yichang Area)
China (Chongqing) Pilot FTZ	1 April 2017	Trade hub, BRI, western development High-end and emerging manufacturing: Liangjiang Area Trade and logistics hub: Xiyong Area Multi-modal logistics and services hub: Guoyuangang Area Three Areas (Liangjiang Area, Xiyong Area, Guoyuan Port Area)
China (Sichuan) Pilot FTZ	1 April 2017	Economic, technological hub and BRI belt High-end manufacturing, R&D, and logistics hub: Chengdu Tianfu New District Area Distribution and logistics hub: Chengdu Qingbaijiang Railway Port Area Modern services and logistics hub: South Sichuan Port Area Three areas (Tianfu New Area, Qingbaijiang Railway port Area, South Sichuan Lin-gang Area)
China (Shanxi) Pilot FTZ	1 April 2017	Advanced manufacturing and agricultural hub New technology industries and aviation logistics: Central Area Logistics and financial hub: Xi'an International Port Area Agricultural and BRI belt: Yangling Demonstration Zone Area Three Areas (Central Area, Xian International Port Area, Yangling Demonstration Area)
Phase IV	2018	
China (Hainan) Pilot FTZ or Port	13 June 2018	Establishing Pilot free trade zones on the whole island of Hainan; accelerating the construction of a new open economic system; accelerating the innovation and development of the service industry; accelerating the transformation of government functions; strengthen the establishment of major risk prevention and control systems and mechanisms; uphold and strengthen the party's overall leadership over the construction of the pilot free trade zone.

Appendix

Pilot FTZs	Year	Specialization
Phase V	2019	
(1) China (Shandong) Pilot FTZ	August 2019	International technology and service hub International logistics maritime hub: Qingdao Area High-tech and advanced manufacturing: Yantai Area Three Areas (Jinan Area, Qingdao Area, Yantai Area)
(2) China (Jiangsu) Pilot FTZ	August 2019	Innovation and technology hub High-tech and international innovation: Suzhou Area International Innovation Hub: Nanjing Area Asia-Europe logistics hub and gateway: Lianyungang Area Cooperation with BRI countries Three Areas (Nanjing Area, Suzhou Area, Lianyungang Area)
(3) China (Guangxi) Pilot FTZ	August 2019	Manufacturing and trade hub Modern services and digital economy hub: Nanning Area International logistics and green technologies hub: Qinzhou Port Area Building a new channel for international land and sea trade facing ASEAN Three Areas (Nanning Area, Qinzhou Port Area, Chongzuo Area)
(4) China (Hebei) Pilot FTZ	August 2019	Manufacturing and services hub High-tech industries and digital economy: Xiong'an Area International logistics and aviation hub: Zhengding Area Maritime and energy hub: Caofeidian Area Aviation technology and logistic hub: Daxing Airport Area Four Areas (Xiongan Area, Zhengding Area, Caofeidian Area Daxing Airport Area)
(5) China (Yunnan) Pilot FTZ	August 2019	South and Southeast Asia regional economic hub Cross-border tourism and education hub: Honghe Area High-end manufacturing and services hub: Kunming Area Cross-border economic hub: Dehong Area Three Areas (Kunming Area, Honghe Area, Dehong Area)
(6) China (Heilongjiang) Pilot FTZ	August 2019	Advanced economic hub Emerging industries and technological hub: Harbin Area Cross-border economic hub: Heihe Area Energy and trading hub: Suifenhe Area Three Areas (Harbin Area, Heihe Area, Suifenhe Area)
Phase VI	2020	
China (Beijing) Pilot FTZ	21 September 2020	Innovation-driven economy and international business hub R&D and cutting-edge innovations: Scientific Innovation Area Business services, international finance, Culture creativity Biotechnology: High-end Industries Area Digital trade, Cultural trade, Business exhibition, Medical industry: International Business Services Area (airport economy) Three Areas (the Science and Technology Innovation Area, the International Business Service Area, the high-end industrial Area)

The Role of **China's Pilot Free Trade Zones** in Promoting Institutional Innovation,
Industrial Transformation and South-South Cooperation

Pilot FTZs	Year	Specialization
China (Hunan) Pilot FTZ	21 September 2020	Inland economic and logistics, Africa-China cooperation hub Advanced manufacturing hub: Changsha Area Logistics hub: Yueyang Area Heavy industries and logistics hub: Chenzhou Area Three Areas (Changsha area, Yueyang Area, Chenzhou Area)
China (Anhui) Pilot FTZ	21 September 2020	Advanced manufacturing hub High-end manufacturing: Hefei Area Advanced and emerging technology hub: Wuhu Area New and rare materials manufacturing hub: Bengbu Area Three Areas (Hefei Area, Wuhu Area, Bengbu Area)

Source: State Council and MOFCOM

Table 2: Taxonomy of Chinese development zones

Typology	Total no.	Focus
National-level development zones		
Special economic zones (SEZs)	5 ²⁶	An initial experiment of opening up and reform, focusing on attracting foreign investment. Pioneering market reform mechanisms were adopted in these SEZs. It offered innovations, learning, and the confidence to pursue opening up and reforms.
National economic and technological development zones (ETDZs)	230 ²⁷	It was initiated in 1984 to develop the manufacturing, technological, and export sectors. They are primarily concentrated in Eastern and Central China. A primary driver in China's rise as the manufacturing powerhouse.
National high-tech industrial development zones (HTDZs)	177 ²⁸	It was initiated in 1988 to develop science, innovation, technology and high-tech industries. They are mainly concentrated in larger cities and the Eastern and coastal regions.
New area development (NEP)	19 ²⁹	High-quality urban development. It was implemented in selected cities and is expected to scale up widely.
Comprehensive Bonded Zones CBZs	156 ³⁰	Facilitate customs process and exports. Distinct types are included in this taxonomy, including export processing zones, bonded zones, and free zones. A significant focus has been on the facilitation of trade and reforming customs.
Cross-border economic cooperation zones (BECZ)	19 ³¹	Facilitate border cooperation
Pilot free trade zones (FTZs)	21 ³²	Launched in 2013, these focus on institutional innovation and deepening opening up and reform.
Sub-total	627	

Source: UNCTAD compilation from sources (Ministry of Commerce, Ministry of Science and Technology, and other publications).

26 Data Sources: https://www.gov.cn/xinwen/2021-07/27/content_5627807.htm?eqid=d7379d1500137499000000664647565.

27 Data sources: https://www.gov.cn/yaowen/liebiao/202306/content_6888606.htm.

28 Data sources: <http://v.people.cn/n1/2023/0224/c413792-32630618.html>.

29 Data Sources: https://www.gov.cn/xinwen/2021-07/27/content_5627807.htm?eqid=d7379d1500137499000000664647565.

30 Data sources: <http://www.customs.gov.cn//customs/xwfb34/mtjj35/4270451/index.html>

31 Include 17 border economic cooperation zones.

Data sources: <https://m.gmw.cn/baijia/2022-06/16/35816263.html>

32 Data sources: https://www.gov.cn/xinwen/2021-12/28/content_5664885.htm

SELECTED REFERENCES

- Best, H. Michael (2001). *The New Competition* (Cambridge, Massachusetts: Harvard University Press).
- Best, H. Michael (2020). "The economics of innovation and behind cluster dynamic processes," in Arkebe Oqubay and Justin Yifu Lin, eds., *The Oxford Handbook of Industrial Hubs and Economic Development* (Oxford: Oxford University Press), pp. 64–76.
- Breschi, Stefano, and Franco Malerba (2005). *Clusters, Networks and Innovation* (Oxford: Oxford University Press).
- FIAS (2008) *Special Economic Zones: Performance, Lessons Learned, and Implications for Zone Development* Washington DC: The World Bank Group.
- Guardian (2023) China leading the US in technology race in all but a few fields, think tank finds. Daniel Hurst. 2 March.
- Jacobs, Jane (1969). *The Economy of Cities* (New York: Vintage Books).
- Kaldor, Nicholas (1967). *Strategic Factors in Economic Development* (Ithaca, New York: Cornell University Press).
- Kim, Sanghoon, and Hah-Zoong Song (2020) 'A Review of Industrial Clusters, Industrial Policy, and Industrialization in South Korea', Arkebe Oqubay and Justin Yifu Lin, eds., *The Oxford Handbook of Industrial Hubs and Economic Development* (Oxford: Oxford University Press), pp 650-672.
- Kou, Zonglai, and Jun Zhang (2020) 'Industrial Hubs in 'Sphinx' China', Arkebe Oqubay and Justin Yifu Lin, eds., *The Oxford Handbook of Industrial Hubs and Economic Development* (Oxford: Oxford University Press), pp 574-591.
- Kou, Zonglai, and Jun Zhang (2020). "Industrial hubs in 'Sphinx' China," in Arkebe Oqubay and Justin Yifu Lin, eds., *The Oxford Handbook of Industrial Hubs and Economic Development* (Oxford: Oxford University Press), pp. 574–591.
- Lee, Keun (2019). *The Art of Catch-up: Barriers, Detours and Leapfrogging in Innovation Systems* (Cambridge: Cambridge University Press).
- Li Yin (2020) 'Innovative Firms and High-tech Industrial Hubs in China', Arkebe Oqubay and Justin Yifu Lin, eds., *The Oxford Handbook of Industrial Hubs and Economic Development* (Oxford: Oxford University Press), pp 592-606.
- Lin, Justin Y., Jiajun Xu and Junjie Xia (2020). "'Explaining reform and special economic zones in China,'" in Arkebe Oqubay and Justin Yifu Lin, eds., *The Oxford Handbook of Industrial Hubs and Economic Development* (Oxford: Oxford University Press), pp. 559–573.
- Lin, Justin Y., Jiajun Xu, and Junjie Xia (2020) 'Explaining Reform and Special Economic Zones in China'. Arkebe Oqubay and Justin Yifu Lin, eds., *The Oxford Handbook of Industrial Hubs and Economic Development* (Oxford: Oxford University Press), pp 559-573.
- Lin, Yifu Lin (2015) ' "One Belt and One Road" and Free Trade Zones—China's New Opening-up Initiatives', *Frontiers of Economics in China*. 10(4): 585-590. <https://doi.org/10.3868/s060-004-015-0026-0>
- Marshall, Alfred (1920) *Principles of Economics*, 8th edition. London: Macmillan.
- Mathews, John (2015). *Greening Capitalism: How Asia is Driving the Next Great Transformation* (Stanford, California: Stanford University Press).

- Meng, Guangwen, and Douglas Z. Zeng (2019) 'Structural transformation through free trade zones: the case of Shanghai', *Transnational Corporations*. Volume 26, Number 2. UNCTAD.
- Ministry of Science and Technology (2013) China's National Science and Technology Programs. China Science and Technology Newsletter. No. 2021. Special Issue. 10 November.
- Ministry of Science and Technology (2015) Medium- and Long-Term Plan for Science in Technology (MLP) (2006-2020).
- NDRC and MOFCOM (2023) The "Special Management Measures for Foreign Investment Access (Negative List) (2021 Edition). People's Republic of China Order, No. 47. 1 January 2022. Accessed on 1 October 2023. https://www.gov.cn/zhengce/zhengceku/2021-12/28/content_5664886.htm <http://www.mofcom.gov.cn/>
- Ohlin, Bertil (1933). *Interregional and International Trade* (Cambridge, Massachusetts: Harvard University Press).
- Omi, Kenji (2019) 'Extraterritoriality' of free zones: The necessity for enhanced customs involvement'. September. World Customs Organisation. WCO Research Paper No. 47
- Oqubay, Arkebe (2020a). "Industrial hubs and economic development: a literature review," in Arkebe Oqubay and Justin Yifu Lin, eds., *The Oxford Handbook of Industrial Hubs and Economic Development* (Oxford: Oxford University Press), pp. 15–39.
- Oqubay, Arkebe (2020b). "Industrial hubs as development incubators: Asian pioneers," in Arkebe Oqubay and Justin Yifu Lin, eds., *The Oxford Handbook of Industrial Hubs and Economic Development* (Oxford: Oxford University Press), pp. 523–558.
- Oqubay, Arkebe (2022) 'African industrial hubs and industrialisation: diversity, unevenness and strategic approach', *Transnational Corporations: Investment and Development*. Vol. 29, Number 1. United Nations Publication.
- Oqubay, Arkebe, Christopher Cramer, Ha-Joon Chang and Richard Kozul-Wright, eds. (2020). *The Oxford Handbook of Industrial Policy* (Oxford: Oxford University Press).
- Porter, Michael (1990). *The Competitive Advantage of Nations* (New York: Free Press).
- Rasiah, Rajah, and Gopi Krishnan (2020) 'Industrialisation and Industrial Hubs in Malaysia', Arkebe Oqubay and Justin Yifu Lin, eds., *The Oxford Handbook of Industrial Hubs and Economic Development* (Oxford: Oxford University Press), pp 701-722.
- Saxenian, AnnaLee (1996). *Regional Advantage: Culture and Competition in Silicon Valley and Route 128* (Cambridge, Massachusetts: Harvard University Press).
- State Council (2023b) Notice of the State Council on Several Measures for Promoting System-based Opening Up in Qualified Pilot Free Trade Zones and Free Trade Ports. 29 June 2023. https://www.gov.cn/zhengce/content/202306/content_6889026.htm
- State Council of the People's Republic of China (2023) Several Measures for Promoting System-based Opening Up in Qualified Pilot Free Trade Zones and Free Trade Ports. 1 June. No. 9.
- State Council of the People's Republic of China (2023a) Circular of the State Council on Printing and Distributing the Overall Plan for the China (Shanghai) Pilot Free Trade Zone Guofa [18 September 2013] No. 38. Accessed on 1 October 2023. https://www.gov.cn/zwgk/2013-09/27/content_2496147.htm
- Teifenbrun, Susan (2015) 'US Foreign Trade Zones and Chinese Free Trade Zones: A Comparative Analysis', *Journal of International Business and Law*. Volume 14, Issue 2. Article 2.
- The Financial Times (2023a) White House unveils ban on US investment in Chinese tech sectors. 10 August.

- The Financial Times (2023b) Rishi Sunak weighs following Joe Biden on curbing tech investment in China. 10 August.
- Tu-Anh, Vu-Thanh, and Do-Thien Anh-Tuan (2020) 'Industrial policy and the evolution of industrial hubs in Vietnam', Arkebe Oqubay and Justin Yifu Lin, eds., The Oxford Handbook of Industrial Hubs and Economic Development (Oxford: Oxford University Press), pp 723-748.
- UNCTAD (2013), Trade and Development Report, (New York and Geneva: United Nations)
- UNCTAD (2016), Trade and Development Report, (New York and Geneva: United Nations)
- UNCTAD (2019) World Investment Report: Special Economic Zones (New York and Geneva: United Nations).
- World Customs Organisation (2019) 'Extraterritoriality' of Free Zones: The Necessity for Enhanced Customs Involvement. September. WCO Research Paper No. 47. Kenji Omi,
- Xinhua (2023) A decade on, China's free trade zones become pacesetters for further reform and opening-up. 3 August. Accessed on 1 October. <https://english.news.cn/20230802/36819b305df14085925ae69afdb16478/c.html#:~:text=The%2021%20FTZs%20continued%20to,with%20the%20Ministry%20of%20Commerce.>
- Yao, Daqing, and John Walley (2015) 'The China (Shanghai) Pilot FTZ: Background, development and preliminary assessment of initial impacts'. National Bureau of Economic Research. NBER Working Paper 20924.
- Yeo, George, Tan Khee Giap, Tan Kong Yam, and Wilfred Loo (2020) 'An Evidence-based Analysis of Industrial Hubs: The Singapore Narrative', Arkebe Oqubay and Justin Yifu Lin, eds., The Oxford Handbook of Industrial Hubs and Economic Development (Oxford: Oxford University Press), pp 673-700.
- Young, Allyn (1928). "Increasing returns and economic progress," The Economic Journal, 38(152), pp. 527-542.
- Zhang, Liu, Jiang, & Han, 2022, Strengthen the structural transformation of the Belt and Road partner countries: Global value chain integration and upgrade, UNCTAD project policy paper, https://unctad.org/system/files/official-document/BRI-Project_RP12_en.pdf
- Zheng, Yu, and Aradhna Aggarwal (2020) 'Special Economic Zones in China and India: A Comparative Analysis', Arkebe Oqubay and Justin Yifu Lin, eds., The Oxford Handbook of Industrial Hubs and Economic Development (Oxford: Oxford University Press), Pp 607-622.

