

Overview China's Pilot Free Trade Zone Construction and Economic Globalization

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ABSTRACT

Pilot free trade Zones (PFTZ) are an important strategy of China's opening to the outside world. The construction of pilot free trade zones is a test for actively docking with high-standard international economic and trade rules, and an experiment field for reform and opening-up. Implementing a series of preferential policies in pilot free trade zones, exploring the success and experience, learning the lessons of failure, pilot free trade zones undertake the heavy task of first trial, replication and promotion throughout the countrywide. By September 2020, China had set up 21 pilot free trade zones with 260 innovative achievements. Firstly, this paper discusses the function orientation, development status, existing problems, development countermeasures and preferential policies of pilot free trade zones. Secondly, it analyzes the influence of the establishment of pilot free trade zones on regional economy, electronic economy and industrial structure. Thirdly, on the base of different theories, the author makes an in-depth analysis of pilot free trade zones. Then DID model, synthetic control method, counterfactual method and other research methods are employed to verify the impact of the establishment of pilot free trade zones. Finally, this paper discusses the impact of the establishment of pilot free trade zones on domestic and international economy from a variety of perspectives. This paper attempts to analyze China's pilot Free trade zones from a variety of perspectives, research methods and dimensions, so that scholars can have a more comprehensive and in-depth understanding of the valuable experience of China's pilot free trades construction, and provide useful reference for the construction of pilot free trade zones in the future.

Keywords: Pilot Free Trade Zones; Used Theories; Research Methodologies; Research Perspectives

1. INTRODUCTION

With the development of economic globalization and regional economic integration, the global competition is becoming more and more fierce. As the world economic power, China not only strives to find new drivers for domestic economic growth, but also actively conforms to high-standard international economic and trade rules and implements the strategy of pilot free trade zones [71]. The report to the 19th National Congress of the Communist Party of China (2017) emphasized that pilot free trade zones should be given greater autonomy in reform and explore the construction of free trade ports [102]. The establishment of pilot free trade zones is a test of high-standard international economic and trade rules, with the purpose of implementing a series of institutional innovations in the free trade zones and replicating and promoting the successful experience nationwide [131]. Up to now, China has set up 21 pilot free trade zones in six batches, covering coastal, inland and border provinces, realizing a deepening process from coastal to inland, from eastern to central and western regions, and from developed to less developed regions [129]. With the construction of China's Pilot Free Trade Zones, related research has also been carried out. This paper will make an overall review and prospect of pilot free trade zones and economic globalization.

2. LITERATURE REVIEW

Reviewing the previous studies, it is found that the research of domestic and foreign scholars on free trade zones has produced fruitful results, and the existing research is mainly carried out in four aspects: the research of China's pilot free trade zones, the theories used in the study; the research methodologies of pilot free trade zones, the research perspectives of pilot free trade zones.

2.1 Functional orientation, development status, existing problems and countermeasures

Scholars have conducted insightful research on pilot free trade zones from different perspectives which is mainly reflected in several aspects: functional orientation, development status, existing problems and countermeasures, institutional & technological innovation, institutional dividend or positioning of pilot free trade zones and the impact of the construction of pilot free trade zones on economy. Some scholars [58] believes that the functional orientation includes two aspects: economy and government management system [55]. Zhao and Sang [108] made a qualitative analysis of the functional orientation of pilot free trade zones [124]. By comparing Chongqing and Shanghai pilot free trade zones, Yang (2018) found that the two pilot free trade zones had obvious heterogeneity in the construction basis and functional positioning, and proposed the development strategy of Chongqing pilot free trade zone [107]. Meng and Liu [71] analyzed the functions of pilot free trade zones by the three-level index system evaluation model [70]. Huang (2014) pointed out that the Shanghai Pilot Free Trade Zone is the experimental field of reform and opening-up, which undertakes two functions of "economic upgrading" and "promoting reform"[38].

Du, Xu, and Yin (2020) discussed the development path of pilot free trade zones [20]. Orenstein (2011), Du, Xu and Yin (2020) summarized the development history and current situation of pilot free trade zones, and discussed the role played by pilot free trade zones, existing problems and future development direction [75][20]. Chen et al. (2018), Xu, Lei, and Xing. (2020) conducted empirical studies on the future development prospects of enterprises in Hainan Pilot Free Trade Zone and the development status of six pilot free trade zones [13][106]. Li and Cao (2019) analyzed the development status and practice of pilot free trade zones, sorted out the functional positioning of pilot free trade zones, put forward the main policies of pilot free trade zones, and proposed that free trade ports are a major upgrade of pilot free trade zones [51]. Miyagiwa (1986) believed that the special preferential policies, which is brought by the establishment of pilot free trade zones, could increase the welfare of the region and improve the concentration of production factors [72].

Many experts and scholars have also conducted in-depth and comprehensive discussion on the existing problems, reasons and countermeasures in the operation of pilot free trade zones. Chen (2016), Zhang et al. (2018) summarized the achievements gained and problems encountered of pilot free trade Zones, and put forward suggestions for the further development of pilot free trade zones [14][119]. Wu and Xie (2019) proposed that the dividend effect of the policies of Shanghai, Guangdong, Fujian and Tianjin Pilot Free Trade Zones has not been fully released, and the policies of various pilot free trade zones need to be further optimized [101]. Liu and Ma (2020) pointed out the existing problems in the system construction of pilot free trade zones through case analysis, and put forward relevant suggestions [63]. Ren (2016) compared and analyzed the similarities and differences between China's pilot free trade zones and foreign free trade zones from the aspects of their establishment purpose, degree of liberalization, customs supervision mode and industrial structure, and put forward countermeasures and suggestions for the innovation of trade and investment policies [79].

2.2 Institutional Innovation & Technological Innovation

Several researchers put forward the operating characteristics of pilot free trade zones, and proposed that the relevant countries can fully paly the positive effect of pilot free trades on economic growth only by optimizing management mode and reducing trade and investment barriers [68]. Wang, Wang, and Deng [198] point out that the tax innovation policy of Fujian Pilot Free Trade Zone can effectively improve the local tax revenue [98]. Some scholars sort out the financial innovation cases of four pilot free trade zones in Tianjin, Shanghai, Guangzhou and Fujian, it is concluded that financial innovation needs to focus on serving the real economy and do a good job in top-level design [18]. To sum up, financial innovation has played an important role in the construction and development of pilot free trade zones.

However, Xie and Ren (2019) pointed out that financial system innovation in pilot free trade zones has a profound impact on financial openness and innovation, and the continuous improvement of financial system innovation index and speed, expansion of scope and increase of innovation methods will also be accompanied by the weakening of financial risks and dividends, which will restrict the level of financial innovation [105]. Wang, Zhang, and Zhou (2014) discussed that the innovation of Shanghai Pilot Free Trade zone is mainly reflected in the financial system, trade supervision, administrative management system and service industry and so on [95]. Liu and Wang (2018) pointed out that the establishment of Shanghai Pilot Free Trade Zone could greatly improve Shanghai's innovation capability [59]. Li (2017) believes that the government of pilot free trade zones is not only the subject of behavior but also the subject of innovation [54]. Therefore, the government of pilot free trade zones should strengthen the transformation of functions, make reasonable use of the dividends of the system of pilot free trade zones, create a good environment for innovation activities, and promote the development of innovation capacity in the zones. Liu and Wang (2018) empirically analyzed the impact of the establishment of Shanghai Pilot Free Trade Zone on the number of patent grants by using counterfactual methods [54]. Gao and Li (2019) analyzed the impact of the construction of pilot free trade zones on regional innovation development by difference-in-differences model [28]. Based on the data of China's A-share listed companies from 2012 to 2018, Lv, Sun, and Qi (2020) built A multi-period differential model to analyze how institutional innovation in pilot free trade zones affects the total factor productivity of regional enterprises [67]. Tan and Yan (2020) selected the data of Shanghai and Shenzhen A-share listed companies from 2012 to 2018 to analyze the impact of the establishment of China's pilot free trade zones on enterprise technological innovation through building multi-period differential model [87].

2.3 Preferential Policies

Kouparitsas (1997) , Feils, and Rahman (2008) pointed out that the construction of pilot free trade zones can promote the development of industries, improve the total factor productivity of enterprises, stabilize the relationship between trading member countries, and thus increase national welfare[43][23]. Yao and Whalley (2016) analyzed the institutional dividends and policy effects which is brought about by the establishment of pilot free trade zones [110]. Zhao, Hu, and Liu (2021) pointed out that now most of the pilot free trade zones are implementing "inclusive" institutional innovation, resulting in institutional homogeneity and shallow layer. In the later stage, the level of opening-up to the outside world should be improved in an all-round way through preferential and reciprocal institutional innovation [126]. Chen, Xiao, and Zou (2019) select the data of 286 prefecture-level cities in China from 2009 to 2017, the PSM-DID analysis method is used to explore the policy effects of pilot free trade zones from three dimensions of "policy dividends"[16].

2.4 Foreign Investment and Trade Facilitation

The establishment of pilot free trade zones reduces the negative list restrictions on foreign investment, which is conducive to the flow of foreign capital, facilitates the influx of capital, and facilitates investment facilitation. Xiang and He (2016) demonstrated that the policies of pilot free trade zones can promote the development of capital flow and outbound investment by the difference-difference model and panel data policy evaluation method through empirical analysis [103]. Huang (2018) analyzed the dynamic impact of the pilot policy of Shanghai Pilot Free Trade Zone on the regional FDI attraction [37]. Han and Bo (2019) adopt the provincial panel data from 2004 to 2016 to analyze the impact of the establishment of pilot free trade zones in Shanghai, Tianjin, Guangdong and Fujian on cross-border capital flows. In short, the establishment of pilot free trade zones is conducive to the "introduction" of international capital and the "going out" of domestic capital, promoting the two-way flow of international capital and promoting high-quality economic development [31].

After the establishment of pilot free trade zones, measures such as trade facilitation, financial and investment liberalization have been implemented in the zones, which has improved the transformation of trade mode and import and export output. Yao and Whalley (2016) proved that exchange rate fluctuations and economic liberalization policies would accelerate the process of capital liberalization through example analysis [110]. Tiefenbrun (2013) believes that pilot free trade zones play a vital role in increasing exports, improving industrial competitiveness, attracting foreign direct investment and promoting economic growth [89]. Castilho, Menéndez and Sztulman (2019) made use of the census data, mic-rodé composition and counterfactual simulation of the Manaus Free Trade Zone and found that the special financial incentives in the free trade zone could stimulate the production of regional intermediate goods, and then increase the income level of regional residents [10]. Chen and Hu (2019) built a DID differential model and selected the data of Shanghai, Guangdong, Fujian and Tianjin Pilot Free Trade Zones from 2001 to 2017 as samples to empirically analyze how the establishment of pilot free trade zones affected trade flows and trade modes [12]. Zhang, Duan, and Yan (2020) analyzed the influence of the establishment of pilot free trade zones on opening-up and taking 32 large and medium-sized coastal cities as samples [118].

Wang and Zheng (2017) took Guangdong Pilot Free Trade Zone as an example to verify the treatment effect of the establishment of pilot free trade zones on different trade modes, and explained the influence mechanism on the transformation of trade modes from a policy perspective [93]. Zeng and Xu (2022) constructed an empirical model to verify the impact of the establishment of pilot free trade zones on the quality of China's export agricultural products [116]. Fu and Yi (2020) selected the import and export trade data between Beijing and other countries from 2003 to 2016 to empirically analyze the impact of the construction of Tianjin Pilot Free Trade Zone on Beijing's import and export trade [26]. Xie, Wang, and Fan (2022), taking Shanghai Pilot Free Trade Zone as an example, empirically analyzed the impact and mechanism of the establishment of pilot free trade zones on the quality of Chinese enterprises' export products [104]. It is clearly found that the establishment of pilot free trade zones has significantly promoted the quality improvement of export products of enterprises in the region, which verifies the important role of pilot free trade zones in the high-quality development of export trade. Sun, Hu, and Fang (2019) verified the impact of China's pilot free trade zone strategy on the quality of imported food from the perspective of regional free trade. The results show that China's free trade zone strategy has improved the quality of imported food in China [85]. Luo, Luo and Liu (2014) constructed a trade gravity model and used bilateral trade samples of four major economies and 21 economies to analyze the impact of free trade areas and related variables on total trade volume and export/import flows [66]. However, other scholars have also proposed some factors that restrict trade development from pilot free trade zones [94].

Based the above research, it can be clearly seen that previous experts and scholars have conducted in-depth research and achieved fruitful results in the functional positioning, development status and operation characteristics of pilot free trade zones, trade facilitation, financial facilitation, institutional innovation, institutional dividend, existing problems and countermeasures.

2.5 The Impact of Pilot Free Trade Zones on the Economy

The construction of pilot free trade zones has played a key role in promoting the high-quality regional economic development in the surrounding areas. Experts and scholars have also studied the impact of pilot free trade zones on regional economic development from multiple perspectives. Many experts (Miyagawa ,1986; Romer,1986; Ederington,2008; Melitz, 2003; Sheng, 2017) believes that pilot free trade zones can make full use of geographical advantages and hinterland advantages to attract foreign investment, in order to promote the development of regional economy [72][82][21][69] [83]. Miyagawa (1986), Ramcharran (2017), Helpman (1987), Rodrik (1988), Wignaraja (2014), Ying & Fan (2018) and others discussed the coordinated development of pilot free trade zones and regional economy from multiple perspectives [72][77][32][81] [100][113].

Han and Bo (2019) analyzed the impact of the establishment of pilot free trade zones on cross-border capital flows[31].Lawanson and Agunbiade (2018) pointed out that the convergence and systematic coordination of government policies can effectively guarantee the coordinated development of pilot free trade zones and regional economies [46]. Ying and Fan (2018) analyzed the regional economic growth impacts of the four pilot free trade zones in Shanghai, Tianjin, Fujian and Guangdong based on panel data [113]. According to the provincial panel data from 2007 to 2017, Gao and Li (2019) analyzed the impact of the establishment of pilot free trade zones on regional innovation and development and its impact path [28]. Ye (2020) selected provincial panel data from 1995 to 2018 and tested the effect of regional economic growth [111]. Taking the Shanghai Pilot Free Trade Zone as an example, Xiang and He (2016) demonstrated that the policies of pilot free trade zones can promote the development of capital flow and outbound investment [103]. Based on the provincial panel data from 2006 to 2018, Feng,Xu and Han (2019) analyzed and studied the impact of the establishment of Shanghai and Zhejiang Pilot Free Trade Zones on the economic growth of the Yangtze River Delta and its spillover impact from four different dimensions of GDP, trade, investment and industrial added value respectively by using the difference-in-differences method and the counterfactual method [24].

Sun and Shang (2016), Jiang and Zhang (2018), Kang (2020), Fang and Wang (2020) and Jin (2019) studied the strong spillover effect and siphon effect of the establishment of Tianjin Pilot Free Trade Zone on the whole Beijing-Tianjin-Hebei region from different perspectives. Naturally, it has also played a good driving role in the coordinated development of the Beijing- Tianjin-Hebei region [86][40][42][22][41]. Feng, Xu, and Han (2019) proposed that the establishment of pilot free trade zones in Shanghai and Zhejiang significantly accelerated the economic growth in the zones, and the two pilot free trade zones had a positive effect on the economic growth of the surrounding areas [24]. In addition, some scholars have believed that the establishment of inland pilot free trade zones can lead and demonstrate the surrounding economy, thus promote the development of regional economy [92] [34] [27].

2.6 Impact on High-quality Economic Development

Experts and scholars attach great importance to the relationship between pilot free trade zones and high-quality economic development. Innovation, coordination, green development, openness and sharing are the five new concepts of high-quality economic development. Firstly, innovation is the first driving force for high-quality economic development. Scholars have discussed the impact of the establishment of pilot free trade zones on the level of regional economic innovation ability [43] [65] [115] [109][104]. Secondly, Green development has become a universal form. Ren (2018) emphasized that to achieve high-quality economic development, it is necessary to reduce environmental pollution and carbon emissions, strengthen ecological environment remediation, develop green economy, and develop environmental protection and ecological industries [78]. Zhou, Zhang, and Fei (2022) explored the path of green and high-quality development of China's pilot free trade zones based on data from 18 pilot free trade zones in China in 2020[128]. Chang & Lai (2023) points out that Pilot Free Trade Zones (PFTZs) are an important strategy for promoting green modernization and high-quality development in China [11]. Thirdly, Openness has become the only way. Zhang, Duan, and Yan (2020) selected the panel data of 32 large and medium-sized coastal cities from 2006 to 2017 to verify the impact of the establishment of pilot free trade zones on the opening-up. The results show that the establishment of pilot free trade zones has a significant positive impact on opening-up. Coordination becomes an endogenous feature [118]. Zhang and Yang (2020) pointed out that the construction of pilot free trade zones is a major strategic measure for China to comprehensively deepen reform, as well as an important exploration and practice to promote the development of regional adjustment in China [121]. Zhao and He (2022) tests the influence of pilot free trade zones on the quality of economic growth and the Guangdong-Hong Kong-Macao Greater Bay Area, pilot free trade zones and the second batch of pilot free trade zones have had a relatively stronger role in promoting high-quality economic growth [125]. However, the research on coordination and sharing of pilot free trade zones needs to be further improved.

2.7 Pilot Free Trade Zones and Digital Economy

Selected the data of China's listed enterprises from 2007 to 2018 as samples to empirically test the endogenous correlation mechanism between the establishment of pilot free trade zones and enterprises' digital transformation. The study finds that the establishment of pilot free trade zones can significantly accelerate the digital transformation of enterprises [80]. Li (2021) pointed out that pilot free trade zones have the industrial advantages of digital economy development and the mission of institutional innovation, and play a leading role in the development of digital economy [48]. Li and Han (2022) believe that the rapid development of the digital economy has brought new opportunities for pilot free trade zones to deepen the reform of investment and trade facilitation, facilitate the transformation and upgrading of the manufacturing industry, and promote the coordinated development of the region [49].

The establishment of pilot free trade zones has promoted the transformation and upgrading of industrial structure. Melitz (2003) discussed the effect of trade liberalization on promoting the flow of production factors from low-end to high-end and the current situation of economic agglomeration in pilot free trade zones through the removal of trade barriers to optimize regional industrial structure [69]. Li and Zhao (2019) showed that Shanghai PFTZ could significantly contribute to the upgrading of industrial structure [50]. Nie (2019) explained that pilot free trade zones can accelerate the rationalization of industrial structure with the help of import quality effect and professional division effect [73]. Liang, Liu, and Cui (2020) believe that the implementation of investment facilitation measures in pilot free trade zones will cause fundamental changes in the investment structure, thus promoting the rapid formation of a new industrial structure [58]. Zhi, Huang, and Chen (2021) believe that the construction of pilot free trade zones will play a positive effect on role in promoting the optimization and upgrading of regional industrial structure [127].

To sum up, based on the research of previous scholars, it can be clearly seen that the establishment of pilot free trade zones has a spillover effect and diffusion effect on the surrounding areas, which drives the high-quality regional economic development. Digital economy is a new economic form to deepen the reform of investment and trade facilitation, and promote the pilot free trade zone development. The establishment of pilot free trade zones promotes the optimization and upgrading of industrial structure, and the optimization and upgrading of industrial structure will also accelerate the development of pilot free trade zones.

2.8 Underpinning Theories

Scholars analyze the construction and development of pilot free trade zones based on a variety of different theories. Yu and Fang (2020) viewed from the theoretical perspectives of gradual reform, industrial agglomeration and opening-up, respectively to analyze the logical mechanism of the construction of pilot free trade zones [114]. Chen (2016) Combined with the theory of growth pole and Shanghai Statistical yearbook data, analyzed the connection between Shanghai port logistics and Shanghai Pilot Free Trade Zone [15]. Zou (2022) analyzed the influence of China's pilot free trade zones on regional economic growth based on the theory of unbalanced growth, spillover effect, trade effect, siphon effect and scale economy effect [130]. Zhang (2018) studied the innovation in pilot free trade zones and creates some discussions on the methods of deepening the reform, by employing the institutional innovation theory, regional economic growth theory and policy experiment theory [122]. Ning (2020) Empirically evaluated the economic effect of the establishment of Guangdong Pilot Free Trade Zone based on economic growth theory, free trade theory and international investment theory [74]. Peng (2017) utilized growth theory and free trade zone theory and employed empirical model to clarify the impact of pilot free trade zones on economic growth [76]. Wang (2018) employed free trade theory and economic growth disequilibrium theory to analyze the impact of inland pilot free trade zones on regional economic development [92]. Hong (2018) based on free trade theory, institutional economics theory and regional economic growth theory to verify the impact of the establishment of China's Pilot Free Trade Zones on regional economic growth [33]. Li (2020) used relevant theories of free trade zones and regional innovation to analyze the path of promoting regional innovation through the establishment of pilot free trade zones [56].

3. Research Methodology

Ashenfelter (1978) firstly introduced Difference-in-Differences (DID) method into the field of economics by the late of 1970s [3]. Many scholars have reviewed the recent advances in the theory and research of DID method [8][39][47]. DID is widely used to evaluate the effect of public policies or projects on econometric [4][5][19][1][25]. Scholars such as Liu, Zhang, & Cheng (2018) selected the panel data of 250 prefecture-level cities in China from 2005 to 2013 as the sample and used the DID model to study the impact of high-speed trains on urban real estate prices [64]. Zhang et al. (2020) used a DID model to explore the impact of highway on local economic growth, and found that the opening of highway significantly stimulated the county economy [123].

In recent years, DID model has been widely applied to evaluate the impact of FTZ policy on economy, industrial structure upgrading, import & export and technology innovation etc. For example, Li, Liu, and Kong (2021) employ DID model, with the establishing of PFTZ as a policy shock, select the data of 16 port-listed companies in China from 2010 to 2016, and evaluate the influence of the PFTZs policy on the operating performance of the port-listed companies [52]. DID is adopted extensively to assess the economic impact of the establishment of pilot free trade zones [119][117][24][111].

Gao and Li (2019) adopt the difference-differences method to analyze the impact of the establishment of pilot free trade zones on regional innovation and development [28]. Based on the provincial panel data from 2006 to 2018, Feng, Xu and Han (2019) used the difference-differences method and the counterfactual method to test the impact of the establishment of Shanghai and Zhejiang Pilot Free Trade Zones on the economic growth of the Yangtze River Delta [24]. Xiang and He (2016) employ the difference-differences model and panel data policy evaluation method to certify that the policies of pilot free trade zones can promote the development of capital flow and outbound investment [103]. Li and Ye (2021) selected the panel data of provinces, autonomous regions and municipalities from 2005 to 2019, and used the multi-time difference-in-differences method and mediating effect model to empirically analyze the policy effect of pilot free trade zones on regional industrial structure. The research shows that pilot free trade zones have a positive effect on the upgrading of regional industrial structure, and there are regional differences [57]. Tan and Yan (2020) selected the data of A-share listed companies in Shanghai and Shenzhen from 2012 to 2018 and used the multi-stage DID model to test the impact of the establishment of China's pilot free trade zones on corporate technological innovation and its transmission mechanism [87]. Zhang, Duan, and Yan (2020) used the DID model to quantitatively analyze the impact of the establishment of pilot free trade zones on opening-up [118]. Some other scholars use the different-differences method to analyze the impact of the establishment of pilot free trade zones on the import and export products of enterprises [104][85].

According to the previous researches, DID method is widely used in the evaluation of policy effects, mainly because by comparing the differences between the control group and the treatment group, the exogenous characteristics of the explanatory variables are played and the endogeneity is avoided. The emergence of the problem ensures the unbiased estimation of policy effect assessment, which can effectively reflect the net effect of policy implementation. Abadie, Diamond, and Hainmueller (2010) first proposed the synthetic control method (SCM) in the process of analyzing the economic cost of political conflict and the economic impact of cigarette control programs [1]. In recent years, foreign scholars have used the synthetic control method to analyze the policy effects of political, economic and monetary integration [7][9][29][2]. At the same time, the synthetic control method has also been widely concerned by domestic scholars, and has been frequently employed in the policy impact assessment of domestic economic and social problems [96][62][84][17][36]. Han and Bo (2019), and Huang (2018) employ synthetic control method to analyze the dynamic impact of pilot free trade zone policies on regional FDI attraction [30][35]. Wang, Fang, and Yu (2020) used the synthetic control method to explore the dynamic mechanism of China's pilot free trade zones construction promoting regional economic growth [90]. Li and Li (2019) evaluated the policy effect of Shanghai Pilot Free Trade Zone on industrial structure upgrading by using synthetic control method based on provincial quarterly data in China [53]. Liu and Wang (2018) empirically analyzed the influence of the establishment of Shanghai Pilot Free Trade Zone on the innovation level of Shanghai by using synthetic control method [59].

Abadie et al. (2010) proposed the counterfactual analysis method which has been widely used in many policy evaluation studies [1]. Some domestic scholars have used counterfactual method to evaluate the impact of the establishment of pilot free trade zones on regional economy [6] [113] [101] [99]. Li and Zhao (2019) used the counterfactual method to evaluate the impact of the construction of pilot free trade zones on industrial structure [50]. Wang and Zheng (2017) took the Guangdong Pilot Free Trade Zone as an example, calculated the treatment effect of the establishment of pilot Free Trade zones on different trade modes based on the "counterfactual" analysis method, and explained the influence mechanism on the transformation of trade modes from the perspective of policy [93]. In addition, scholars also use other models to analyze the impact of the establishment of pilot free trade zones on economy. For example Liu, Wang, and Guo (2021) applies the Super-SBM model to evaluate and analyze the overall technical efficiency (OTE), pure technical efficiency (PTE), and scale efficiency (SE) of the ports in six typical China's PFTZs from 2010 to 2017 to reveal their development status [61]. Fu and Yi (2020) selected the import and export trade data of Beijing and other countries from 2003 to 2016, and

used the extended gravity model to empirically analyze the impact of the construction of Tianjin Pilot Free Trade Zone on Beijing's import and export trade under the background of Beijing-Tianjin-Hebei economic integration [26]. Liu and Li (2020) analyzed the development status of financial innovation during the construction of Tianjin Pilot Free Trade Zone, endogenized financial innovation into the Cobb-Douglas production function, and empirically analyzed the impact of financial innovation in Tianjin Free Trade Zone on Tianjin's economic development by establishing a regression model [60]. Wu and Xie (2019) used the HCW method and the ranking test method to evaluate the economic effects and effectiveness of the policies of Shanghai, Guangdong, Fujian and Tianjin Pilot Free Trade Zones from the perspective of multiple indicators, and conducted the robustness test of the time placebo method on the results [101].

3.1 Research perspective

Experts and scholars have studied pilot free trade zones from multiple perspectives. Based on the perspective of institutional innovation, Wang, Fang, and Yu (2020) explored the effect and dynamic mechanism of China's pilot free trade zones construction in promoting regional economic growth by using the difference-in-differences and synthetic control methods [90]. From a dynamic perspective, Zhang et al. (2018) selected provincial panel data from 2009 to 2017 to empirically analyze the economic growth effect of the establishment of pilot free trade zones [120]. Xiang and He (2016) took the Shanghai Pilot Free Trade Zone as an example and examined the impact of the establishment of Shanghai Pilot Free Trade Zone on the capital flow in Shanghai from the perspective of natural experiment [103]. Zeng and Xu (2022) analyzed the impact of the establishment of pilot free trade zones on the quality of China's export agricultural products and its internal mechanism by using the methods of PSM-progressive DID and mediating effect test from the perspective of heterogeneity of agreement provisions [116]. From the perspective of national treatment, Yang (2014) pointed out that China (Shanghai) Pilot Free Trade Zone had established the models of "pre-establishment national treatment" and "negative list," which had economic and political effects [108]. Wang and He (2021) based on the perspective of the new development pattern of double circulation, proposed that China's pilot free trade zones should actively promote key innovations such as package authorization, free trade alliance, port zone cooperation and North-South linkage, digital trade + information technology, cross-border e-commerce + live delivery of goods, and comprehensively deepen reform through high-level opening-up. It will be formed a virtuous cycle of interconnected markets, integrated industries, enhanced innovation and linked rules, and closely linked the building of a new development pattern with the building of pilot free trade zones [97]. Based on the perspective of trade facilitation, Kuang (2015) analyzed the innovation of the implementation mode of Shanghai Pilot Free Trade Zone since its establishment one year ago, so as to improve the degree of trade facilitation and realize the gradual transformation of regulatory concept, regulatory focus and regulatory means [45]. Some other scholars examined the impact of the construction of pilot free trade zones on regional economic growth from the perspectives of import and export [112], industrial added value [88], and fixed asset investment [91].

4. Conclusion

To sum up, this paper extensively analyzes China's Pilot Free Trade Zone construction and economic globalization from multiple dimensions. From the analysis of this paper, it can be clearly seen that the construction of China's Pilot Free Trade zones has well aligned with major national strategies, made important contributions to the high-quality regional economic development, promoted the development of China's international trade, accelerated the adjustment and transformation of economic structure, and created new advantages for China in international competition. The implementation of preferential policies and measures in pilot free trade zones has expanded foreign investment, further enlarged the field of opening to outside world, thus deepening the reform and opening-up. It is hoped that governments at all levels will establish

unified management agencies, streamline regulatory departments, learn from foreign experience, improve laws and regulations, improve the development of pilot free trade zones, and improve people's well-being. However, due to the establishment of China's pilot free trade zone only 10 years, the literature and data is so limited that the research of contents, scopes and depth of this paper is not deep, so it is necessary for later scholars to do further research.

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