

# Mechanism and Evidence of the Impact of Foreign Investment on Foreign Trade in Jiangsu Province

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**Abstract:** Since the modernization initiatives and opening up of China, the trajectory of national economic and social development has surged forward. Highlighted in the report of the Twentieth Party Congress, through a more proactive opening-up strategy, China has orchestrated a dynamic framework of international engagement on a broader scale, spanning diverse sectors, and with increased profundity. Notably, the ascendancy of China's foreign trade has been monumental, with the trade volume skyrocketing to 39.1 trillion yuan in 2021, a staggering increment from the turn of the millennium. Jiangsu Province, a pinnacle of export-driven economic prowess in China, benefits from its strategic placement in the eastern coastal belt, leveraging both its geographical advantage and rich resources. Serving as the nerve center of the Yangtze River Delta, Jiangsu is also a crucial nexus in the "One Belt, One Road" initiative, bridging regions such as Beijing, Tianjin, and Hebei. Propelled by the collaborative spirit of the "Belt and Road" nations, the infrastructural evolution of the Jiangsu Pilot Free Trade Zone has seen exponential growth, bolstering Jiangsu's outward-focused economy. As such, a meticulous examination of foreign investment trends in Jiangsu can illuminate invaluable insights for shaping the foreign economic stratagem of the province. This, in turn, can act as a catalyst to refine China's FDI blueprint and champion a paradigm of sustainable excellence in development.

**Keywords:** Trade volume, outward focused economy, foreign investment trends, sustainable excellence in development.

## 1. Introduction

The field of FDI has garnered significant attention in recent years due to the development of China. However, there remains a gap in the literature concerning The Mechanism and Empirical Study of the Impact of Foreign Investment on Jiangsu Province on Foreign Trade. This paper aims to address this gap by analyzing the status of foreign investment in Jiangsu. Therefore, it can provide an important reference

for its foreign economic policy and help further optimize the structure of FDI in China and promote high quality development.

## 2. Research Method

This study employs a quantitative research design, focusing on the database from National Bureau of Statistics of China.

Table 1.

Total imports and exports of foreign enterprises (thousands of US dollars)																
Area	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Shanghai	3.87E+08	3.25E+08	3.17E+08	3.33E+08	3.17E+08	2.86E+08	3.01E+08	3.1E+08	2.89E+08	2.9E+08	2.92E+08	2.5E+08	1.87E+08	2.18E+08	1.93E+08	1.53E+08
Jiangsu	4.24E+08	3.61E+08	3.75E+08	4.08E+08	3.77E+08	3.26E+08	3.37E+08	3.5E+08	3.39E+08	3.58E+08	3.85E+08	3.47E+08	2.6E+08	3.03E+08	2.8E+08	2.31E+08
Zhejiang	1.03E+08	78444074	82566463	86987989	80854880	75285914	84142304	96771663	99769252	1.03E+08	1.08E+08	92396993	69291480	83506892	71073255	57271093
Total exports of foreign-funded enterprises																
Area	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Shanghai	1.41E+08	1.19E+08	1.24E+08	1.34E+08	1.29E+08	1.24E+08	1.31E+08	1.41E+08	1.37E+08	1.39E+08	1.42E+08	1.26E+08	97015090	1.14E+08	97747908	75946240
Jiangsu	2.41E+08	2.02E+08	2.16E+08	2.24E+08	2.11E+08	1.87E+08	1.94E+08	1.99E+08	1.94E+08	2.05E+08	2.15E+08	1.92E+08	1.47E+08	1.75E+08	1.56E+08	1.24E+08
Zhejiang	63079020	48668565	50445571	53211231	50674056	50386708	56649695	62579833	62064153	62981080	65286977	58137144	44779380	54221444	47214946	37952865
Total imports by foreign-funded enterprises																
Area	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Shanghai	2.46E+08	2.06E+08	1.93E+08	1.98E+08	1.88E+08	1.63E+08	1.7E+08	1.69E+08	1.52E+08	1.51E+08	1.5E+08	1.24E+08	89687060	1.04E+08	95387481	77527386
Jiangsu	1.82E+08	1.59E+08	1.6E+08	1.84E+08	1.65E+08	1.39E+08	1.43E+08	1.51E+08	1.45E+08	1.53E+08	1.7E+08	1.55E+08	1.13E+08	1.29E+08	1.25E+08	1.07E+08
Zhejiang	39437900	29775509	32120891	33776758	30180823	24899206	27492609	34191829	37705099	40205942	42638931	34259848	24512100	29285447	23858309	19318228
Total investment of foreign-invested enterprises (millions of US dollars)																
Area	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Shanghai	1215537	1033395	955229	884911	798239	734246	661273	530467	457933	413768	377353	339385	308400	293991	257032	225500
Jiangsu	1430860	1369729	1173515	1056042	965819	879868	782154	718131	666376	625000	572851	508106	444400	415930	382030	324300
Zhejiang	667322	589264	500693	445788	373415	319870	291813	262881	240408	217810	201919	183233	164000	158255	145658	125700

Data were collected from the internet and analyzed through Cointegration analysis and Granger causality test and other methods.

For the main part, there is a comprehensive and exhaustive literature review is conducted to provide an in-depth understanding and analysis of the currently available theoretical research on the impact of FDI on foreign trade. This will include an examination of the dominant viewpoints, as well as a discussion of the various possible influences and outcomes. The goal of the literature review is to establish a

theoretical framework and identify the key variables that influence the relationship between FDI and foreign trade. It is planned to use statistical analysis and econometric methods, particularly vector autoregressive (VAR) models. This will involve collecting data on FDI and foreign trade in Jiangsu Province, and then building and optimizing models to empirically test the impact of FDI on foreign trade in Jiangsu Province. The results of the model will be used to determine the specific impact of such investment on foreign trade, as well as the likely size and direction of the impact.

### 3. Research Content

With the in-depth development of economic globalization, foreign investment (FDI) and international trade development is very rapid, on the dynamic relationship between FDI and international trade research has received increasing attention. Due to the differences in the level of economic development of countries make the dynamic relationship between the two in the performance of the regions are not the same. Mundell used a more static analysis method to explore the substitution relationship between FDI and international trade, the study shows that a commodity can be traded or invested to enter the other country's market, so that the investment will replace the trade, and in the two countries of resources and technology level is similar, this substitution effect is particularly obvious. technology levels are close, this substitution effect is particularly obvious[1]. On the other hand, elaborated the substitution effect of FDI on trade from a dynamic perspective, and argued that OFDI by firms accompanies the product life-cycle movement and is a substitute for the firm's export mode. In the product life cycle movement, due to the standardization of products and technology, enterprises will be subject to the competitive pressure of local enterprises in foreign markets, which is the enterprise will consider OFDI instead of exporting to protect the enterprise's market in foreign countries[2].

Compared with foreign studies, domestic research on FDI and trade structure started late. Wang Ying and Liu Sifeng use regression methods to examine the interaction between the export scale and export structure effects of China's outward FDI from 1990 to 2005, and the study shows that outward FDI not only promotes the increase of export scale, but also optimizes the export structure[3]. Foreign direct investment (FDI) in Jiangsu province is regional differences and is mainly due to the soft environment, including market size and potential, external dependence, agglomeration economy, labor costs, tertiary industry per capita and infrastructure, market size and potential, openness to the outside world, agglomeration economy and other factors, as well as industrial structure upgrading and infrastructure improvement, is its FDI in recent years The main reason for the significant improvement of its performance, but also its future investment promotion needs to be improved[4]. Wang Yuyi, Sun Benzhi total net exports of foreign trade as an explanatory variable, selected GDP, the RMB exchange rate, the actual utilization of foreign investment, foreign direct investment (FDI), and the completion of foreign cooperative operations. The above factors together constitute a comprehensive model that affects the foreign trade of Jiangsu Province[5]. To summarize, there are still many positive impacts, and can bring more employment opportunities This text explores the dynamic relationship between foreign direct investment (FDI) and international trade. Some scholars have studied the relationship between the two, but no one has focused on Jiangsu Province, however, the study found that FDI can replace part of the trade, promote the increase of export scale and optimize the export structure. In China, especially in Jiangsu, the growth of FDI is influenced by factors such as market size, industrial structure upgrading and infrastructure, and it can increase employment opportunities.

This research can be divided into three parts, theoretical research, empirical research and policy research. First, it is necessary to deeply understand and summarize the economic theories of the relationship between FDI and foreign trade

from the existing literature, to clarify their basic principles and assumptions, and how they can be applied to the situation in Jiangsu Province. It is important to note that the theories should be coherent in a rigorous logical relationship to construct a complete theoretical framework that can describe the impact of FDI on foreign trade. Then, based on the constructed theoretical framework, analyze the specific channels through which FDI may have an impact on foreign trade in Jiangsu Province. For example, it is necessary to describe in detail how the introduction of technology improves the production process, increases production efficiency, and ultimately affects foreign trade; how FDI increases production capacity by increasing capital investment, and how it changes the industrial structure, optimizes resource allocation, and further affects foreign trade. Find and collect data on FDI and foreign trade for each county in Jiangsu Province, which may include official statistics, as well as possible other data sources. Data should be collected as completely as possible and the quality of the data should be ensured. Then, organize the data into a format suitable for statistical analysis. Select statistical methods that are appropriate to the research question and type of data. For example, if the data are time series data, methods such as analysis of cointegration and Granger causality tests may need to be used. The data is then analyzed using statistical software to produce empirical results. On the basis of quantitative analysis, it is necessary to interpret the statistical results and try to quantify the extent of FDI's impact on Jiangsu Province's foreign trade.

### 4. Key Issues to Be Solved

The necessity of smoothness test: the smoothness of time series data is a key prerequisite when conducting empirical research on dynamic relationships. Therefore, it is necessary to determine whether the FDI and foreign trade data of Jiangsu Province are smooth to ensure the validity of the subsequent cointegration analysis and Granger causality test. Specific impact of FDI on Jiangsu Province and its extent: it is necessary to clarify the specific impact of foreign direct investment on Jiangsu Province and the extent of the impact through empirical research, for example, whether the FDI affects the volume of foreign trade in Jiangsu Province, and the intensity of the impact.

### 5. Technological Roadmap and Issues to Be Addressed

One of the pivotal prerequisites for conducting empirical research on dynamic relationships is ensuring the smoothness of time series data. Specifically, when examining the relationship between FDI and foreign trade data in Jiangsu Province, it is essential to determine the smoothness of the data. This ensures the validity of ensuing tests such as the cointegration analysis and Granger causality test. A vital area of focus is the quantification and characterization of the effect of foreign direct investment on Jiangsu Province, especially its magnitude. Empirical studies are required to discern, for instance, whether FDI influences the volume of foreign trade in the province and, if so, the intensity of this impact. A synthesis of pertinent literature, both domestic and international, will be undertaken, focusing especially on the interplay between foreign direct investment and foreign trade. Drawing from these established studies, a solid theoretical framework and research hypotheses will be articulated to

foster a profound comprehension of the subject. Relevant economic datasets, encompassing foreign direct investment, foreign trade, and other associated indicators, will be amassed for Jiangsu Province, encompassing recent years. This will encapsulate an array of publicly accessible economic markers, in addition to specialized datasets as required. Econometric models, particularly the vector autoregressive (VAR) models, will be employed to dissect the ramifications of FDI on Jiangsu's foreign trade quantitatively. Designed to account for potential confounding variables, the model aims to expound upon observed transformations as accurately as feasible. A detailed interpretation of model outcomes will follow, shedding light on the pivotal determinants and processes underpinning the influence of FDI on Jiangsu's foreign trade. Each variable's impact will be meticulously dissected, in tandem with their interconnections, to furnish a holistic understanding of the research topic. The VAR model, a prime instrument for scrutinizing dynamic interrelationships amid multiple time series variables, is represented as:

$$\text{VAR}(p): Y_t = c + A_1(y_{t-1}) + A_2(y_{t-2}) + \dots + A_p(y_{t-p}) + e_t$$

Herein, VAR(P) symbolizes the pth order VAR model, with  $Y_t$  encompassing the focus variables (like FDI and foreign trade). Constants are represented by  $c$ , while  $A_1, A_2, \dots, A_p$  are matrices of parameters awaiting estimation.  $e_t$  is the error term. Prior to deploying the VAR model, a smoothness test, notably the unit root, is indispensable. This transformation of variable smoothness assessment into a unit root evaluation precedes the cointegration analysis as delineated by Engle and Granger in 1978, conducted via the ADF test:

$$\text{Model 1: } \Delta Y_t = \alpha Y_{t-1} + \sum_{i=1}^{\alpha-1} \gamma_i \Delta Y_{t-i} + \beta_t$$

$$\text{Model 2: } \Delta Y_t = \theta_0 + \alpha Y_{t-1} + \sum_{i=1}^{\alpha-1} \gamma_i \Delta Y_{t-i} + \beta_t$$

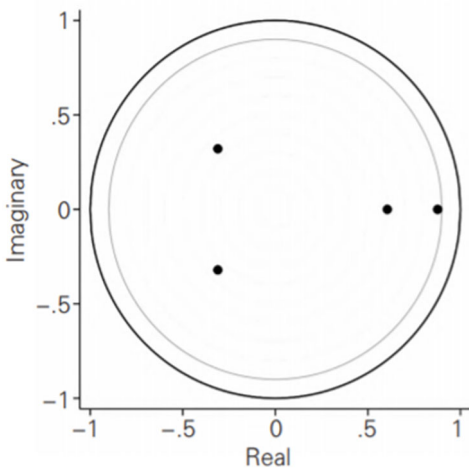


Figure 1. Panel VAR model stability test

## 6. Conclusion

This paper significantly augments the ongoing discourse surrounding the intricate relationship between foreign investment and its subsequent effects on Jiangsu Province's foreign trade, as explored by me. By delving into the mechanisms and presenting an empirical study, we've elucidated the multifaceted dynamics that interlink these economic phenomena. As we navigate an era of rapid globalization and economic interdependency, understanding such connections becomes paramount for regions like Jiangsu, which stand at the crossroads of local aspirations and global economic currents.

However, as with any research, ours is not without its limitations. The complex interplay of global markets, local policies, and socio-economic variables means that there's always more to uncover. In particular, a granular, in-depth data analysis focusing on FDI's specific nuances within Jiangsu could yield even richer insights. This could involve investigating sector-specific FDI impacts, analyzing the role of key international players in Jiangsu's foreign trade landscape, or exploring the temporal shifts in FDI patterns and their repercussions.

Furthermore, given the ever-evolving nature of global economics, it's imperative that such studies are continually updated to remain relevant. Jiangsu's economic landscape today might be vastly different in a decade, influenced by global trends, technological advancements, and policy shifts. Hence, ensuring that our empirical research remains a living document, adaptable and responsive to changes, is crucial.

In sum, while this paper serves as a valuable touchstone in the literature, it is our hope that it also acts as a springboard, prompting further investigations and fostering a deeper understanding of Jiangsu's pivotal role in the global economic tapestry.

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