The Trade Effects of Inclusive Finance-----take some countries along Belt and Road Routes as an example

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Abstract: In recent years, the issue of economic development gap has been the focus of attention of all countries. With the international economic situation more severe, this paper selects the 2014-2019 balance panel data of 30 countries along the Belt and Road to conduct an empirical study, which analyzes the effect of the development of Inclusive Finance with regard to the country's import and export trade. It can be concluded that the development of Inclusive Finance has a positive effect on the country's foreign trade and economic growth. Therefore, based on the conclusion, the paper puts forward some suggestions, like easing the financial constraints of small and micro enterprises, expanding the availability and fairness of financial services, and strengthening the cooperation and exchanges of Inclusive Finance. Moreover, hope that it can give the related countries certain theory help.

1. Introduction

The strategy of "Global Inclusive Finance Development" has prompted the financial sector in various countries to intensify reform efforts to optimize the availability and use of financial services to a certain extent. As a result, the demand for services from all sectors of society has been basically satisfied. So, countries attach great importance to the role of Inclusive Finance’s impact on economic development. Since the 1990s, the relationship between finance and trade, which is important factors in promoting economic growth, has become increasingly close under the background of the accelerated development of foreign trade. The development and improvement of Inclusive Finance has, to a certain extent, rationalized China's trade structure and enhanced the competitiveness of international economic cooperation, thus realizing China's qualitative leap in the process of economic integration.

At present, China is in the critical stage of economic transition and the implementation of inclusive financial development is particularly important. "Belt and Road" construction is of great significance to the countries along the route, but due to the different attention paid to Inclusive Finance, Inclusive Finance is unbalanced in the countries along the "Belt and Road". There is a clear gap. Therefore, this paper selects the yearbook data of 30 countries along the Belt and Road to measure and analyze the trade effects of Inclusive Finance, hoping to provide a theoretical basis for the development of China's Inclusive Finance and promote its optimization to drive China's economic growth.

2. Literature Review

2.1 Studies of Inclusive Finance

In 2005, the United Nations proposed the concept of "Inclusive Finance" in the "International Year of Microcredit" activities for the first time. What is Inclusive Finance Scholars disagree. Rangarajan (2008) [1] defined it as access to financial services at affordable prices for vulnerable groups. Camara & Tuesta (2014) [2] believed that Inclusive Finance represents the maximization of service availability and usage. At the same time, the World Bank argued that "Inclusive Finance is the share of individuals and businesses using formal financial services". In our country's "advancing Inclusive

Finance’s development plan (2016-2020)", it is clearly stated that Inclusive Finance, based on the principle of equal opportunity and business sustainability, is to provide appropriate and effective financial services at an affordable cost to all sectors and groups of the community in need of financial services (Yin Zhichao et Al, 2019) [3].

However, while most people still have doubts about Inclusive Finance, scholars at home and abroad have been discussing and analyzing it. For example, Beck et al (2007) [4] was the first to create eight indicators that reflected the different dimensions of Inclusive Finance. Sarma & Pais (2011) [5] constructed the Inclusive Financial Development Index IFI by using HDI, which includes three dimensions: the geographical penetration of financial services, the utility of use, and the product contact. Anand & Chhikara (2012) [6] used cross-country data to conclude that the Inclusive Finance Index and the Human Development Value Index increase in the same direction, and that the availability and use of financial services are negatively correlated with the poverty rate. Through empirical research, Xu Min et Al. (2015) [7] believed that Inclusive Finance’s development and urban-rural income distribution maintain a long-term equilibrium relationship. Liu Yiwen et Al. (2018) [8] used provincial data to measure the development level of Inclusive Finance in China.

In fact, for a long time, the effect of inclusive finance on economic development has been paid close attention by countries all over the world. Research by Mandira & Jesim (2010) [9] showed that the degree of development of Inclusive Finance in a country is in direct proportion to the degree of economic and social development. Jiang chun et Al [10] believed that Inclusive Finance can reduce poverty and improve income distribution. Jiang proposed that the breadth and depth of the inclusive financial system should be expanded, and that financial regulation and allocation of financial resources should be greatly improved. Li Jianjun et Al (2020) [11] pointed out that the development of Inclusive Finance can provide convenient financial services for rural areas and farmers, increase farmers' income, promote the growth of rural economy, and at the same time alleviate the pressure of excessive income gap between urban and rural areas.

2.2 Studies of Financial Influence on Foreign Trade

In 1937, Robertson proposed that "foreign trade is the engine of economic growth" and that financial and international trade can promote the economic development of a country. Therefore, the relationship between the two has been widely recognized in the academic community, and the existing empirical research has confirmed that the development of finance will indeed have an impact on international trade.

On the one hand, financial development plays a positive role in promoting international trade. For example, Manova (2008) [12] believed that higher levels of finance can expand trade. Cezar (2014) [13] considerd that the size of an industry's exports was related to the degree of development of a country's financial system. The more developed the financial system is, the more vulnerable the industry's exports are. Dong Yunfei (2019) [14] found that there was a nonlinear relationship of "inverted u" structure between the development of Inclusive Finance and the expansion of the scale of agricultural products trade. He believed that the focus should be placed on the development of Inclusive Finance and that the interaction mechanism between Inclusive Finance and agricultural products trade should be used to promote the rapid development of China's economy.

On the other hand, the different degree of financial development will bring negative influence to international trade. For example, Huang Qi (2013) [15] used the fixed effect model to analyze the influence of the interaction between export and finance in the industrial structure. Qiao Pingping (2015) [16] believed that the expansion of financial scale had little effect on comparative advantage and even the optimization of international trade structure of industrial manufactured goods. From the perspective of enterprises, Yang Lianxing et Al. (2015) [17] studied the relationship among trade, financial development, and financing constraints.

Compared with traditional finance, Inclusive Finance pays more attention to serve the low-income, small, and micro enterprises and the elderly and other vulnerable groups or special groups, emphasizing the fairness of financial services. There is a certain relationship between financial development and trade development, but after reviewing the existing domestic and international literature, we can find that Inclusive Finance's development can also have an impact on international trade. In recent years, the "Belt and Road" initiative has been expanding the scale of trade between China and the countries along the belt and road. Both sides have made remarkable achievements in capital and trade. Therefore, this paper intends to explore the impact of Inclusive Finance's development on international trade on the basis of measuring the indicators of inclusive financial development in China and the countries along the "Belt and Road", hoping to provide some theoretical basis for the development of Inclusive Finance in China.

3. Variable Setting, Model Building and Data Source

3.1 Variable Setting

In order to reflect the influence of Inclusive Finance about foreign trade, this paper selects 30 countries along the Belt and Road as the research object.

3.1.1 Explanatory variables

Based on the convenience and availability of data, this paper selects the coverage and availability of financial services as two dimensions to construct the Inclusive Finance Index System, which includes seven specific indicators as shown in Table 1. At the same time, considering that there may be some correlation between the indicators, this article reduces its dimensions through the principal component analysis, and finally gets the representative of Inclusive Finance's comprehensive level ——indicator F. That is, explanatory variable.

Table 1. Indicator System for Inclusive Financial Indicators

Measuring Dimensions	Index names	Definition
Financial Service Coverage	The Proportion of Financial Institution Loans in Total National Loans	Financial Institution Loans in Total National Loans
	The Proportion of Commercial Bank Depositors	The Proportion of Commercial Bank depositors /Total National Population
	Risk Premium	(Loan Default Probability + Loan Maturity Risk Factor)/Loss Rate After Loan Default
	Proportion of Electronic Transactions	Number of Electronic Transactions/Total Number of Financial Services Transactions
Availability of Financial Services	Private Sector Domestic Credit as a Share of GDP	Private Sector Domestic Credit/National GDP
	Automated Teller Machine Per 10,000 People	Number of Automated Teller Machine /Resident Population
	Financial Institutions Per 10,000 People	Number of Financial Institutions/Resident Population

Note: Data are derived from World Bank statistics.

3.1.2 Explained Variables

Considering the availability of data, the explained variables selected in this paper are the total annual import and export volume of each country from 2014 to 2019, aiming to describe the development of import and export trade in different countries and different years.

3.1.3 Control Variables

At the same time, this paper selects the GDP, Informatization Development Level, Net Inflow of Foreign Direct Investment, Unemployment Rate, Primary School Enrollment Rate and Urbanization Rate as the control variables that affect the development of international trade in 2014-2019. Among them, the level of economic development represents the level of development of the country; the level of information development reflects the ease of electronic transactions, and the net inflow of foreign direct investment measures the abundance of capital resources; the unemployment rate is a measure of a country's labor productivity; the primary school enrollment rate is a measure of a country's education per capita; and the urbanization rate is a measure of a country's urbanization by country.; the level of Informa ionization is measured by the security internet server per million people; the unemployment rate is expressed by the proportion of the unemployed population to the total labor force, and the urbanization rate is calculated by the proportion of the urban population to the total population.

3.2 Construction of Model

In order to avoid heteroscedasticity problem, this paper adopts natural logarithm to deal with the related variables after determining the explanatory variables and the explained variables. The regression model is as follows:

$$lnY1=\beta_0+\beta_1 ln(F+1)_{it}+\beta_2 lnInformationize_{it}+\beta_3 lnCapital_{it}+\beta_4 lnGDP_{it}+\beta_5 lnUnemployment_{it}+\beta_6 lnEnrollmentRate_{it}+\beta_7 lnUrban_{it}+\varepsilon_{it} \quad (1)$$

I and T stand for country and year;Y 1 is the explained variable, and $(F + 1)_{it}$ is used here to indicate the level of financial development of Inclusive Finance of country i in year t in order to rationalize the model; $Informationize_{it}$ represents the degree of informatization development of state i in year t; $Capital_{it}$ is the net inflow of foreign direct investment of state i in year t; GDPit is the GDP of state i in year t; $Unemployment_{it}$ is the national unemployment rate for residents of state i in year t; $EnrollmentRate_{it}$ is the primary school enrollment of state i in year t; $Urban_{it}$ is the urbanization level of state i in year t. Also, parameter β1 reflects the effect of Inclusive Finance’s development level about China's foreign trade when other things are equal, ε_{it} is a stochastic disturbance.

3.3 Data sources

Based on data availability, this paper examines the balance panel data from 30 countries along the Belt and Road from 2014 to 2019. The indicators and variables are derived from World Bank statistics.

4. Empirical Model Regression Results and Analysis

4.1 Regression Results and Analysis

By using Stata software and the use of least squares model (1) for regression analysis, regression results are shown in Table 2. Column (1) in Table 2 shows the regression results of the effect of the level of financial development on the country's import and export trade, which is only about the core explanatory variable, and column (2) shows the overall regression results after all the regression variables were added.

From the overall regression results in Table 2, it can be found that Inclusive Finance comprehensive development index is significant, with a coefficient of 0.1118, indicating that each 1% increase in Inclusive Finance development level can promote the country's import and export trade by 0.2236%. On one hand, financial development in Inclusive Finance can increase the income of low-and middle-income people, boost market demand and expand consumption. On the other hand, financial inclusion can help small and micro enterprises ease financing constraints and improve domestic financial supply disadvantage, making enterprises have more financial support, thus having a positive effect on the country's foreign trade; in addition, the development of inclusive financial mechanisms is also positive in terms of the availability and fairness of financial services, which can reduce the income disparity well. Therefore, the effect is also remarkable.

In terms of the control variables, each country’s Informa ionization development level, unemployment rate, the primary school enrollment rate and the GDP result are remarkable. Among them, the Informa ionization development level and the GDP coefficient are positive, indicating that both can positively promote the national import and export trade. The negative coefficients of unemployment and primary school enrolment suggest that both unemployment and primary school enrolment may have a dampening effect on countries' trade demand. Therefore, all countries should continue to steadily improve the level of information-based development and gross domestic product, vigorously attracting foreign investment, and at the same time they should take measures to improve the domestic unemployment rate and people's education.

Table 2. Basic Regression Results

Variables	(1)	(2)
	LnY	LnY
Ln(F+1)	0.7079^{***} (4.40)	0.1118^{**} (2.15)
LnInformationize		0.0814^{***} (5.38)
LnCapital		0.1346 (4.74)
Unemployment		-3.0000^{***} (-3.22)
EnrollmentRate		-1.0089^{**} (-1.97)
Urban		-0.0003 (-0.60)
LnGDP		0.7328^{***} (22.91)
C	7.1776 (70.61)	2.7994 (12.70)
N	180	180
R^2	0.0980	0.9300

Note: Values in brackets are standard error; *, * *, * * are significant at 10%, 5%, and 1% significant levels, respectively.

4.2 Heterogeneity Test

To test whether there is a problem of setting error in this paper, this paper introduces the level of financial development of virtual variables. Thus, a new model with interactive virtual variables is established:

$$lnY2=\beta_0+\beta_1 ln(F+1)_{it}+\beta_2 D_{it}+\beta_3 ln(F+1)\_D_{it}+\beta_4 lnInformationize_{it}+\beta_5 lnCapital_{it}+\beta_6 lnGDP_{it}+\beta_7 ln\, Unemployment_{it}+\beta_8 lnEnrollmentRate_{it}+\beta_9 lnUrban_{it}+\varepsilon_{it} \quad (2)$$

D= 1 denotes countries with high financial development level and D = 0 denotes countries with low financial development level.

The regression results in Table 3 show that the coefficients of the Composite Financial Development Index in Inclusive Finance and the coefficients of the interaction virtual variable are both significant, indicating that the development of Inclusive Finance can promote the import and export trade in countries with low level of financial development. It also proves that the regression result of heterogeneity test is basically consistent with the benchmark model. That is, the level of Inclusive Finance development will have a significant effect on the country's foreign trade. Based on this, this article does not have the error of setting error.

Table 3. Take Heterogeneous Regression Results into Account

Variables	(1)	(2)
	LnY	LnY
Ln(F+1)	0.7079*** (4.40)	0.1349*** (2.74)
D		0.4775* (1.82)
Ln(F+1)_D		-0.7139*** (-3.59)
LnInformationize		0.0141* (1.93)
LnCapital		-0.0136 (-0.87)
Unemployment		0.0430 (0.05)
EnrollmentRate		-0.1377 (-0.35)
Urban		-0.0001 (-0.31)
LnGDP		0.7739*** (9.00)
C	7.1776 (70.61)	3.2308 (3.87)
N	180	180
R^2	0.0980	0.9947

Note: Values in brackets are standard error; *, * *, * * are significant at 10%, 5%, and 1% significant levels, respectively.

5. Conclusions and Recommendations

5.1 Research Conclusions

This paper selects balanced panel data from 30 countries along the Belt and Road in 2014 to 2019 to conduct an empirical study. Based on the OLS model and the fixed effects model, the impact of Inclusive Finance development about China's import and export trade is analyzed. The experimental conclusions are as follows:

a. The development of Inclusive Finance has a positive effect on the foreign trade of a country, which shows that the development of Inclusive Finance can promote the import and export trade of a country.

b. Among the control variables, the informatization development level, the net inflow of foreign direct investment and the GDP result are significant and the coefficient is positive, which shows that all of them can produce positive trade effect. While the regression coefficient of unemployment rate and primary school enrollment rate are significantly negative, it shows that it has certain inhibition to the development of a country's foreign trade.

c. The interaction between the level of financial development and Inclusive Finance’s level of financial development is significant, indicating that the two will jointly affect the import and export trade of the countries along the Belt and Road. It also proves that the regression result of heterogeneity test is basically consistent with the benchmark econometric model. That is, the level of Inclusive Finance development will have a significant effect on the country's foreign trade.

5.2 Suggestions

In view of the above experimental analysis, the suggestions put forward in this paper are as follows:

a. Ease the financing constraints of small and micro enterprises. Inclusive Finance instruction should increase technological research and investment and improve the situation of domestic financial supply disadvantage for more convenient access to fund;

b. Expanding the availability and fairness of financial services. The States shall encourage and support the implementation of Inclusive Finance development policy and complete the construction of financial infrastructure to increase the income of low-and middle-income people and meet the market demand;

c. Strengthen Inclusive Finance's cooperation and exchanges. The states should attach importance to the level of financial development in Inclusive Finance, identify its strengths and weaknesses and learn from its weaknesses, narrowing the development gap.

References

[1] Rangarajan, C., 2008, "Report of the Committee on Financial Inclusion", Ministry of Finance, Government of India.

[2] Camara, N. & Tuesta, D., 2014, "Measuring Financial Inclusion: A Multidimensional Index (No.1426)", BBVA Bank, Economic Research Department.

[3] Yin Zhichao, Peng Changyan, Leon Angela. The development and impact of inclusive finance in Chinese households [J]. Managing the world, 2019, (02).

[4] Beck T, Demirguc-Kunt A, Martinez Peria M S. Reaching out: Access to and use of banking services across countries [J]. Journal of Financial Economics, 2007, 85 (1): 234 - 266.

[5] Mmandira Sarma &Jesim Pais. Financial inclusion and development [J]. Journal of International Development, 2011, 23 (5): 613 - 628.

[6] Anand S K & Chhikara K S. A theoretical and quantitative analysis of financial Inclusion and economic growth [J]. Management and Labour Studies, 2012, (2): 103 - 133.

[7] Xu Min, Zhang Xiaolin. An empirical study on the relationship between GSP finance and income gap between urban and rural residents [j]. Financial Education Research, 2015, (2): 3 - 8.

[8] Liu Yiwen, Ding Liping, Li Yi, Hu Zongyi. Inclusive Finance's development level measurement and economic growth effect in China. Chinese soft science, 2018, (03).

[9] Mandira S & Jesim P. Financial inclusion and development [J]. Journal of International Development, 2010, (7): 613 - 628.

[10] Jiang Chun, Zhao Qiurong. Reflections on the construction of China's Inclusive Finance System-- enlightenment from the theory of how foreign financial development can better alleviate poverty. Fujian Forum (humanities and Social Sciences Edition), 2015, (3): 24 - 29.

[11] Li Jianjun, Peng Yuchao, Ma Sichao. Inclusive Finance and China's Economic Development: Multidimensional Implications and Empirical Analysis. Economic Research, 2020, 55 (4): 37 - 52.

[12] Manova K. Credit Constraints, Equity Market Lliberalization and International Trade [J]. Journal of International Economics, 2008, 76 (03), 33 - 47.

[13] Cezar R. The Heterogeneous Effect of Financial on International Trade [J]. Applied Economics, 2014, 46 (24), 2903 - 2919.

[14] Dong Yunfei. A study on the impact of Inclusive Finance’s development on China's agricultural trade. Jinan: Shandong Normal University, 2019.

[15] Huang Qi. The impact of the interaction between export and finance on the upgrading of China's industrial structure. Shanghai: Faculty of Economics, Ljubljana, 2013.

[16] Qiao Pingping. The impact of financial development on Comparative Advantage and International Trade Structure: A case study of Jiangsu Province. Ningbo: School of business, Ningbo University, 2015.

[17] Yang Lianxing, Zhang Jie, Jin Qun. Financial Development, financing constraints and the triple marginal of firm exports [J]. International trade issues, 2015, (04).