The Influence of Economic Policy Uncertainty on Export Trade between China and ASEAN

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Abstract: *Facing with the complicated global situation, many countries change the economic policies at any time. The uncertainty of economic policies will increase, and the uncertainty risk will increase accordingly. The trade share between China and ASEAN was the largest in recent years, which showed the closeness and importance of the economic and trade cooperation between China and ASEAN. The macro-economy policies, trade policies and regional cooperation of China and ASEAN, will affect interests of both parties. Therefore, this paper aims to analyze the impact of the uncertainty of China's economic policy on the export trade between China and ASEAN. By using the uncertainty index of China's economic policy measured by Baker et al (2016)[1] in 2003-2020, this paper makes an empirical analysis of the impact of the uncertainty of China's economic policy on the export volume of China to ASEAN. The results show that, the uncertainty of China's economic policy has a negative impact on China's export trade to ASEAN. Therefore, to better safeguard the export trade between China and ASEAN, methods such as joining the regional economic integration organization, optimizing the export industry structure, enhancing the innovation ability, and improving the institutional environment should be adopted to reduce the losses caused by the uncertainty risks of economic policies.*

Keywords: *Uncertainty of economic policy; China and ASEAN; Risk; Export trade*

1. Introduction

Uncertainty over economic policy means that it is difficult for market participants to accurately predict whether and how the government will change current economic policies. Economic policy is an important means for a country to stabilize the economy. With the deepening of globalization, the impact of international events has become more extensive. To safeguard the national economic situation, the government will make corresponding economic policies. In 2008, to defuse the financial crisis, China decisively formulated and adopted a 4 trillion-yuan financial stimulus package, which has far-reaching impact. In 2010, the European debt crisis led to the decline of China's foreign trade. The withdrawal of the United States from TPP in 2017 and the trade war between China and the United States that started in 2018 have brought opportunities and challenges to China's foreign trade. Both sides have formulated corresponding policies such as tariffs in response. In 2019, the outbreak of COVID-19 led to increased trade barriers between countries due to different epidemic prevention policies. And the war between Russia and Ukraine directly led to a surge in global prices, especially energy prices, which is extremely unfavorable to China's economic development.

The international relations are complex and changeable, and the world is in an era of uncertainty. Bloom et al. first elaborated the connotation of economic policy uncertainty, pointing out that policy uncertainty is essentially an economic risk brought by things. For example, the change of times, the outbreak of technology, the birth of new economic forms, the outbreak of war, and the prediction of future forms will bring economic risks. Gulen and Lon et al. defined economic policy uncertainty more clearly, that is, economic policy uncertainty refers to the inability to accurately predict whether and when the government can adjust the current economic policy (Gulen and Lon, 2016)[2].With the increasing attention paid to economic policy uncertainty, scholars have devoted themselves to quantifying this uncertainty. At present, there are mainly two methods for measurement. The first method uses proxy indicators for measurement. Bloom (2009)[3] , Osnago et al. (2018)[4] use volatility and dispersion of stock, exchange rate and bond yield to measure different types of uncertainty. Born and Pfeifer (2014)[5] measured positive economic uncertainty by constructing a time series model and taking macroeconomic policies as proxy variables. Wang Yi Zhong and Song Min (2014)[6] et al. used the conditional variance of GDP as a proxy indicator to measure the impact of economic policy uncertainty on international trade.

The second method is the comprehensive index constructed through text analysis. Baker (2016) [1] uses text search method to retrieve specific words in news newspapers. Based on the data retrieval results, the ratio between the number of articles meeting the requirements and the total number of articles was standardized, and the economic policy uncertainty index was obtained and used in this paper.

China's economic policy becomes uncertain with the complex and changeable international environment, which will inevitably affect the sustainable development of China's export trade with ASEAN. Therefore, this paper will make an empirical analysis of the impact of China's economic policy uncertainty on China's export trade with ASEAN. This paper is divided into five parts: (1) preface; (2) Analysis of the influence mechanism of economic policy uncertainty on export trade; (3) An empirical study on the impact of China's economic policies on the uncertainty of China's export trade with ASEAN; (4) Conclusions and policy implications.

2. Analysis of the influence mechanism of economic policy uncertainty on export trade

Whether analyzed from the macro level or the micro level, the uncertainty of economic policy will inhibit the export trade of exporting countries.

2.1 Micro Level

From the micro level, the uncertainty of economic policies will directly affect the production, investment, trade, and other activities of various economic entities, as well as the production cost, profit, and trade level of various enterprises. Therefore, to avoid risks, enterprises will carefully consider trade behaviors.

2.1.1 Enterprises have financing constraints.

When the domestic economic policy is in an unstable state, the domestic economic situation will be strained, the bank's credit will become cautious, the financing constraints of enterprises will be increased, then the investment for the production of export products and product innovation will be reduced, and enterprises will choose to hold more cash flow in their hands to deal with the uncertain risks they may suffer in the future. When enterprises anticipate changes in economic policies, they will reduce their enthusiasm for production and innovation to avoid risks. The increase of financing constraints will lead to the decline of export output of enterprises. Naturally, the number of products exported by enterprises to foreign countries will decline, and the export willingness of enterprises will decrease.

2.1.2 Export costs of enterprises

For export enterprises, facing both domestic and foreign markets, when their productivity reaches a certain level, they will choose to export and choose dual channels for sales at home and abroad. Therefore, the stability of the domestic and foreign markets is directly related to the interests of export enterprises. When the profit space in the domestic market decreases, it will encourage enterprises to develop greater space in the foreign market, encourage enterprises to export and innovate, and expand the export scale. However, export enterprises also have a threshold effect. The increase in the uncertainty of economic policies will undoubtedly increase the cost for enterprises to choose foreign markets. For example, the uncertainty of tariff policies will, on the one hand, increase the threshold for enterprises to choose exports, and on the other hand, increase the opportunity cost for enterprises to make export decisions.

2.2 Macro Level

The main purpose of the government's designated economic policies is to stabilize the macro environment to face the complex international economic environment. Uncertainty in economic policies can affect investor expectations, so the future risks and returns of assets are unstable. Therefore, the existence of uncertainty will inevitably increase the risks of export trade, while also having an impact on the demand of importing countries. When China's economic policy environment is unstable, uncertainty in the economic policies of exporting countries can also have an impact on importing countries due to the strengthening of economic relations between exporting and importing countries. The increase in economic policy uncertainty will increase the sensitivity of countries on both sides of the trade to risk expectations, thereby amplifying the risk of economic policy uncertainty, which will have a negative impact on the export scale of exporting countries.

3. Empirical analysis of economic policy uncertainty on export trade between China and ASEAN

3.1 Construction of theoretical basis and empirical model

The gravity model is used as an important tool to measure the volume of trade between two countries. The model is trade flow equal to the product of the gross domestic product of the two countries divided by the geographical distance between them. The GDP of the importing country reflects the potential purchase demand of the importing country, the GDP of the exporting country reflects its potential supply capacity, and the distance reflects the trade cost between the two countries. The formula is as follows:

$$X_{ij} = A * \frac{Y_i * Y_j}{D_{ij}} \tag{1}$$

X_{ij} represents the volume of trade between the two countries, Y represents GDP, D_{ij} represents the physical distance between two countries. In practical application, it is generally converted into a linear model by logarithmic method:

$$\ln X_{ij} = \ln A + \ln Y_i + \ln Y_j - 1nD_{ij} \tag{2}$$

This paper supplements the gravity model by introducing the economic policy uncertainty index into the model and adding some variables affecting export trade to increase the accuracy of the model. The form of expansion is as follows:

$$lnexp_{ij,t} = \beta_0 + \beta_1 epu_{i,t} + lndgdp_{i,t} + lnfdgp_{j,t} + lnfrd_{j,t} + lntc_{ij,t} + tariff_{ij,t} + \varepsilon_{ij,t} \tag{3}$$

Among them $lnexp_{ij,t}$ represents the export value of our country-to-country j during t period; $epu_{i,t}$ represents Chinese classics in t period economic policy uncertainty index; $lndgdp_{i,t}$ represents our GDP at time t; $lnfdgp_{j,t}$ represents the GDP of ASEAN countries during t; $lnfrd_{j,t}$ represents the institutional environment level of ASEAN countries during t period, measured by the index of economic freedom; $lntc_{ij,t}$ represents the trade cost between China and ASEAN during t; $tariff_{ij,t}$ represents the tariff level between China and ASEAN during t and is a dummy variable constructed by whether China and ASEAN have established an FTA.

3.2 Selection of variables and descriptive statistical analysis

3.2.1 Selection of variables

(1) Economic Policy Uncertainty Index (epu). This paper adopts the economic Policy Uncertainty Index (epu) compiled by Scott R. Baker, Nick Bloom, Steven J. Davis and other three economists, covering the period from 2003 to 2020.

$$epu_{i,t} = 1/12 \sum_{m=1}^{12} epu_{im} \tag{4}$$

(2) Export value (exp). The volume of China's export to ten ASEAN countries from 2003 to 2020 is selected. (3) Bilateral economic size (gdp). (4) Institutional Environment (frd). This paper measures the institutional environment of a country through the index of economic freedom.

(5) Trade cost (tc). Trade cost mainly refers to the indirect measurement method of Novy [7] to measure the cost of export trade between China and ASEAN countries. The specific formula is as follows:

$$TC_{ij} = [\frac{(gdp_i - EX_{ii}) * (gdp_j - EX_{jj})}{EX_{ij} * EX_{ji}}]^{2\rho-2} - 1 \tag{5}$$

gdp_i and gdp_j respectively represent the GDP of China and the GDP of ASEAN countries; EX_{ii} and EX_{jj} respectively represent the total export volume of China and the total export volume of ASEAN countries; EX_{ij} and EX_{ji} respectively represent the trade volume of China's export volume to ASEAN countries and the trade volume of ASEAN countries' export volume to China. ρ represents the elasticity of substitution of the commodity and takes a fixed value of 8 according to the reference.

(6) The level of free trade. Since there is a measure of tariff level in economic freedom, tariff level is no longer measured. However, the free trade agreement between China and ASEAN has greatly promoted the trade relations between the two sides. Therefore, the signature of the China- ASEAN Trade Agreement (officially signed in 2010) was added to the model as a dummy variable (0 before signing, 1 after signing).

3.2.2 Descriptive Statistics

Table 1: Descriptive statistics of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
lnexp	180	13.417	1.868	8.128	16.248
lnepu	180	4.734	.622	3.921	5.967
lngepu	180	4.838	.438	4.138	5.769
lndgdp	180	11.062	.711	9.715	11.909
lnfgdp	180	6.755	1.597	3.118	9.324
lnfrd	169	4.08	.201	3.603	4.493
lntc	180	4.772	.302	4.028	5.327
tariff	180	.611	.489	0	1

3.3 Regression results and analysis

3.3.1 Baseline regression

Table 2: Baseline regression

VARIABLES	(1)	(2)	(3)	(4) IV(l_lnepu)
	lnexp	lnexp	lnexp	Lnexp
lnepu	-0.207*	-0.217***	0.107	-0.158*
	(-1.864)	(-2.982)	(0.223)	(-1.900)
lnfrd	0.582**	0.969***	1.387	0.732**
	(2.283)	(2.927)	(1.753)	(2.349)
lndgdp	0.670***	1.074***	-1.376	0.982***
	(3.583)	(6.921)	(-0.590)	(5.490)
lnfgdp	0.623***	0.142	0.085	0.197
	(20.205)	(0.811)	(0.247)	(1.013)
lntc	-2.442***	-1.355***	-1.526***	-1.290***
	(-9.583)	(-5.701)	(-3.889)	(-5.322)
tariff	0.079	0.105	4.879	0.139
	(0.373)	(1.247)	(0.940)	(1.481)
Constant	12.052***	4.014**	25.933	5.017*
	(3.881)	(2.035)	(1.019)	(1.89)
Year joint significance test			0.6674	
Observations	169	169	169	160
Adjusted R-squared	0.926	0.978	0.912	0.889
Year Fixed	NO	NO	YES	NO
Individual Fixed	NO	YES	YES	YES

t-value in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

As shown in Table 2, the mixed regression (1), individual fixed effect regression (2) and double fixed effect regression (3) were respectively conducted on the models in this paper, and the joint significance test of the year was conducted. The test results showed that the P value of 0.6674 was greater than 0.1, which was not significant. The original hypothesis was accepted, that is, the data did not change with the change of time, so the time fixed effect model was not necessary. The individual fixed effect model (2) was selected as the main regression. From model (2), the coefficient of lnepu is significantly positive at the 1% level, indicating that the uncertainty of China's economic policies has a negative impact on China's export volume to ASEAN, which verifies the hypothesis. The coefficient 1% level of LnFRD is significantly positive and the coefficient 1% level of lntc is significantly negative, indicating that the higher the level of economic freedom in China, that is, the looser the country's institutional environment, the lower the trade cost, the more conducive to export. Lndgdp is also significantly positive, indicating that the larger the economic scale of China, that is, the larger the supply capacity, the more helpful it is to export to ASEAN countries. To alleviate the endogenous problem of the model, the lag of one stage of the explanatory variable was used as an instrumental variable for regression (4), and the results were generally consistent with those of the benchmark model.

3.3.2 Robustness test

Table 3: Robustness test

VARIABLES	(1) Replacement core variable	(2) Shortened sample interval	(3) Tail retraction
	lnexp	lnexp	lnexp
lngepu	-0.293***		
	(-2.979)		
Lnepu		-0.188***	-0.217***
		(-3.338)	(-2.982)
lnfrd	0.948***	0.008	0.969***
	(2.896)	(0.024)	(2.927)
lndgdp	1.019***	0.789***	1.074***
	(6.831)	(3.681)	(6.921)
lnfgdp	0.136	0.956***	0.142
	(0.783)	(3.212)	(0.811)
lntc	-1.331***	-0.430	-1.355***
	(-5.503)	(-1.658)	(-5.701)
tariff	0.192**	0.055	0.105
	(2.271)	(0.334)	(1.247)
Constant	4.976***	1.038	4.014**
	(2.752)	(0.532)	(2.035)
Observations	169	115	169
Adjusted R-squared	0.978	0.980	0.978
Individual Fixed	YES	YES	YES

t-value in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

In this paper, three methods are adopted to test the robustness of the model (Table3), namely, the lnepu uncertainty of domestic economic policy is replaced by lngepu uncertainty of global economic policy for regression, and the results of the three methods are still consistent with the benchmark model, indicating the robustness of the model.

4. Conclusions and policy implications

First, maintaining the stability of economic policies is an important guarantee for maintaining the stable development of export trade. Faced with the complex and volatile international environment, countries around the world should adopt diversified means of risk aversion to hedge risks. While adopting financial means to avoid risks, various countries should also consider the real economy as the main force for economic development, so that they can calmly respond to risks, not only relying on the supply of resources from other countries. Secondly, optimizing the country's export supply side structure is an advantageous means of resisting the impact of economic policy uncertainty. The country should pay more attention to the supply side reform of foreign trade. Export enterprises need to continuously innovate products, improve product quality, select products with production endowments or comparative advantages for production, and maintain export competitiveness. Third, strengthening regional economic and trade cooperation is an important way to stabilize the trade chain. By strengthening regional economic and trade cooperation, reduce international trade costs and risks of economic policy uncertainty, reduce trade friction, and alleviate trade tensions caused by economic policy uncertainty. In the face of an increasing number of regional economic integration organizations, countries should make reasonable choices and adhere to the principle of mutual benefit and win-win results. Fourth, continuous research and innovation is an important support for the country to gain a firm foothold. Use high-tech to compensate for weaknesses, reduce dependence on foreign core technology products and raw materials, and reduce the risk of being constrained by developed countries. By establishing a more equitable and efficient resource allocation system, we can respond to international emergencies. Fifth, strengthening the institutional environment construction is an important guarantee to mitigate the adverse impact of uncertainty on exports. Countries should establish a systematic, efficient, up-to-date, and compatible institutional environment from all dimensions to provide markets for enterprises' production, operation, and export trade, enhance the core competitiveness of export enterprises, and have a foothold in the export market.

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