Research on The Processing Trade Development of Jiangsu Under the Background of Low Carbon Economy

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Abstract: Processing trade in Jiangsu Province, foreign trade accounted for a large proportion of low-carbon economy in the new context, the processing trade not only provides opportunities for development, but also ushered in challenges, transformation and upgrading is imminent. In this paper，through Eviews software and establishing linear regression model，we have found that there is a positive correlation relationship between processing trade and solid waste discharge. The analysis shows that，if indulging the development of traditional processing trade，it is bound to destroy the ecological environment. So, the processing trade structure of low carbon is imperative under the background of new era. In the past,people sacrificed the environment or resources and relied on the old labor force to develop the economy ,it actually undermined the concept of sustainable development that maintains the ecological balance. At the same time, as the emerging developing countries are rapidly emerging, its development advantages will replace the gradual loss of our export advantages. [5,6] Only with the guidance of low emission, low energy consumption and low pollution, through the mechanism of “low carbon economy”, the survival of the fittest can be realized, and finally the long-term development of trade can be realized

1. Low carbon economy

The rapid development of society and economy has brought about more serious environmental problems while improving the quality of life. The development of low-carbon economy is an important economic model adopted by countries around the world to promote economic development. The low-carbon economy mainly refers to the use of technological innovation and industrial upgrading to continuously reduce the consumption of high-carbon energy, avoid the massive emission of harmful gases, and then achieve the trend of economic and ecological benefits. [1,2] The low-carbon economy is the product of a global ecological crisis, and it is a global revolution involving production methods, values and national interests. The proposal of a low-carbon economy is not only a change in development thinking and development model, but also a human survival concept and the development direction of human civilization.

Faced with increasingly prominent trade barriers such as carbon tariffs, carbon labeling, and low-carbon certification, China is destined to be more resistant to energy-saving and emission reduction in low-carbon economy. As a major carbon emission country, it should be the first to accelerate the pace of energy and resource conservation. Jiangsu is also an open coastal province in China. Its open economy and high energy consumption are in the leading position in the country. Developing new low-carbon trade, improving energy efficiency and reducing the carbon intensity of the economy are the only way.

2. Development status of processing trade in Jiangsu Province

2.1 The challenges of traditional processing trade development are facing

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China. Its open economy and high energy consumption are at the same time in the country. Developing new low-carbon trade, improving energy efficiency and reducing the carbon intensity of the economy are the only way [4].

The comprehensive competitiveness of Jiangsu's provincial economy ranks first in China. Processing trade has played an important role in promoting economic growth, upgrading industrial structure and technological progress, improving the structure of export commodities and the balance of payments, and expanding employment. In recent years, Jiangsu's foreign processing trade has occupied a huge proportion of the province's import and export trade. The economic development of Jiangsu Province is stable, and GDP is growing rapidly. It relies on Jiangsu's own superior natural environmental conditions, stable and rich economic foundation, and government guidance and self-improvement of enterprises, so that the total amount continues to increase. The development of Jiangsu's processing trade industry is one of the main ways for Jiangsu's foreign trade development. With the increase of total GDP, the total processing trade is declining, and its proportion is also in a continuous decline. Although the magnitude is small, there are obstacles to the development of traditional processing trade development models. Therefore, Jiangsu's processing trade structure needs to be reformed and faces the challenge of transformation and upgrading.

2.2 Unbalanced development of processing trade in various regions

The lack of high technical content, labor-intensive but low quality, inconsistent energy consumption and environmental protection in processing trade has led to huge energy consumption of actual export products and a pollution index far higher than export regulations. The characteristics of the extensive type are usually expressed as emphasis on output value, speed and quantity, while the characteristics of intensive type are reflected in the focus on efficiency, structure and quality.

On the other hand, there are regional differences in the scale of processing trade in Jiangsu Province. The total processing trade volume in the three major regions of Jiangsu is quite different. The south of Jiangsu occupies a large proportion, while the middle part Jiangsu and the north part of Jiangsu regions only occupy a small part. The development area of foreign trade is highly concentrated and extremely unbalanced. Compared with the south part of Jiangsu, the gap between the Central and Northern Jiangsu regions is obvious, and there is a trend of expanding year by year, we must emphasize on the phenomenon.

2.3 Processing trade products and regional structures

The product structure of Jiangsu's processing trade has shifted from primary processed products to industrial manufactured products, and has gradually shifted from resource-intensive to technology-intensive.From the perspective of countries and regions, the main partners of Jiangsu's processing trade imports are Japan, South Korea and ASEAN, while exports mainly involve the United States, the European Union and other markets. It can be seen from the distribution of processing trade import and export in Jiangsu province in the past two years that the processing trade market in Jiangsu Province is relatively concentrated, mainly in the United States, the European Union, South Korea and Japan.

Table 1 Jiangsu processing trade import and export major countries and amounts

2016		2017	
Country	Amount	Country	Amount
United States	55442448	United States	68190235
European Union	54184047	European Union	65351683
Korea	35789091	Korea	43435411
Japan	33053449	Japan	37961061

3. Empirical test

The model of Jiangsu trade is mainly based on processing trade, and is mainly distributed in the industrial sectors with high emissions and high energy consumption. Hence, the environmental

damage is serious. In recent years, the focus of Jiangsu's monitoring on environmental pollution is the discharge of three wastes, including water, gas and industrial solid waste. Therefore, it is inferred that there is a certain correlation between processing trade and industrial solid waste emissions. The use of Eviews software to verify the relevance of processing trade to solid waste.

Table 2 Correlation test between processing trade export volume and industrial solid waste

Processing trade exports		Solid waste discharge
Processing trade exports	1.000000	0.864643
Solid waste discharge	0.864643	1.000000

It can be seen from Table 4 that the correlation between the export value of processing trade and the discharge of solid waste in Jiangsu Province is 0.864643. Therefore, the following empirical evidence has certain feasibility. Based on the data of the 11-year period from 2006 to 2016, the Eviews software was used to conduct a linear regression analysis of the export volume of processing trade and the discharge of general industrial solid waste in Jiangsu Province from 2006 to 2016. In order to eliminate the influence of heteroscedasticity, in order to better explain the relationship between the variables and improve the fitting effect of the model, the logarithm of the export volume of processing trade (EX) and the amount of general solid waste generated (10^4t) are used separately. lnEX, lnt to indicate that lnEX is an independent variable, lnt is a dependent variable, and C is a constant term. Linear regression analysis was performed using OLS (least squares method) to establish an econometric model: lnt = c + αlnEX. It is expected that the primary coefficient α is a positive number, that is the processing trade in Jiangsu Province is positively correlated with solid waste discharge. But whether the actual relationship between the two is in line with expectations still requires a quantitative analysis.

The regression equation obtained by using Eviews software is: lnt =2.7465+0.8785lnEX

From Figure，R^2=0.7476 Adjusted R^2=0.7196

F=26.6589 Prob(F-statistic) =0.0006

Table 3 Eviews data running result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.746476	1.227899	2.236728	0.0521
X	0.878523	0.170150	5.163223	0.0006
R-squared	0.747608	Mean dependent var		9.083818
Adjusted R-squared	0.719565	S.D. dependent var		0.219137
S.E. of regression	0.116047	Akaike info criterion		-1.306684
Sum squared resid	0.121201	Schwarz criterion		-1.234339
Log likelihood	9.186759	Hannan-Quinn criter.		-1.352287
F-statistic	26.65887	Durbin-Watson stat		0.695401
Prob(F-statistic)	0.000593			

3.1 Goodness of fit test

R^2 is used to describe the degree to which explanatory variables interpret the interpreted variables. In this example, the goodness of fit is 0.7476, and the closer R^2 is to 1, the better the fit of the regression line to the sample observation. Therefore, the regression model has good fit and there is a linear relationship between the two variables.

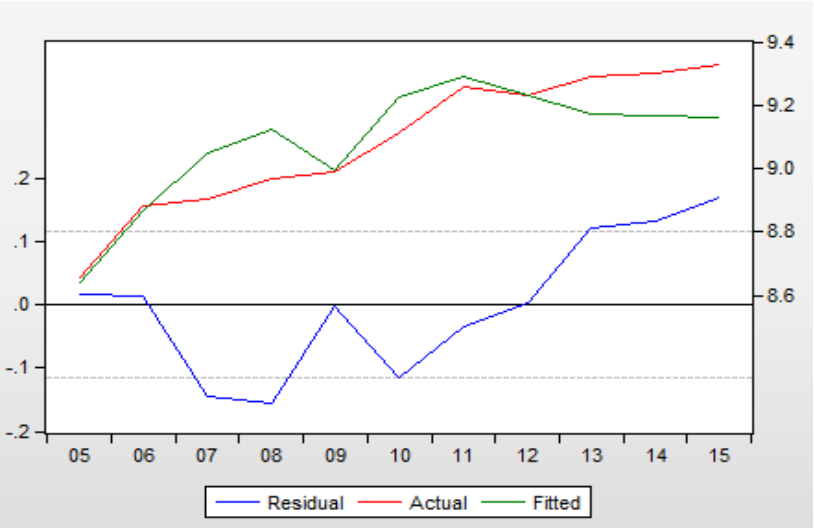

Figure 1 Actual, Fitted, Residual Graph based on the results of the run

3.2 Parameter significance test

In the regression model, it is determined whether there is a linear relationship between the dependent variable and the independent variable depending on whether β is 0 or not. In this model, the t statistic corresponding to β=0.8785 is T=5.1632, and the degree of freedom d.f.=9. Check the critical value table of t distribution, $t_{0.05}(9) = 1.383$because T=5.1632>$t_{0.05}(9) = 1.383$,there is 90% confidence that β is not significantly zero, so reject H0: β= 0, indicating that processing trade has a significant impact on solid waste emissions.

3.3 Regression equation significance test

Check the critical value table of the F distribution, the molecular degrees of freedom and the denominator degrees of freedom are 1 and 8, respectively. For the significance level α = 0.05, F (1, 8) = 5.32. Because F=>Fα, the F value is significant, and it is judged that there is a clear linear relationship between the two variables.

3.4 Operation results

It can be seen from the above analysis results that the overall fitting effect of the model is good. The linear regression equation shows that there is a positive correlation between the export value of processing trade in Jiangsu Province and the discharge of general industrial solid waste, and for every 1 percentage point increase in processing trade exports, the average solid waste increases by 0.8785 percentage points

4. Optimization strategy of processing trade under low carbon economy

4.1Enterprise innovate trade development mode, improve profit margin

The small pollution and low energy consumption of the emerging service industry make it the focus of low-carbon economy development. Jiangsu processing trade enterprises can only extend the industrial chain and open new areas of processing trade only by realizing the transformation and upgrading of service processing trade [3]. At the same time, Jiangsu processing trade enterprises should integrate environmental protection measures of energy conservation and consumption reduction into each processing process, learn from the successful experience of developing processing trade in emerging regions, make full use of comparative advantages, realize technological innovation, it will realize processing trade and low-carbon economy win-win goal of development.

4.2 The government strengthen management and give policy support

The government should strictly supervise and should resolutely eliminate it when necessary. First, for some processing trade enterprises with serious pollution, carbon tax and resource tax should be

levied, and enterprises should be guided to cross trade barriers, improve the innovation mechanism, and do a good job in protecting intellectual property rights of enterprises; secondly, adjust support policies in real time according to the development level of processing trade. To improve the access threshold for processing trade in a timely manner, to achieve high standards and high requirements management, and actively formulate practical and feasible policies to facilitate enterprises to reduce trade friction [5]. In addition, financial support should be given to actively guide enterprises to achieve transformation and upgrading of processing trade and strive to develop a low-carbon economy.

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