

Econometric Model Analysis of Influencing Factors of Import and Export in Zhanjiang City

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Abstract. In order to analyze the quantity and regularity of Zhanjiang's total import and export with the changes of GDP and residents' consumption level in Zhanjiang, this essay uses econometrics method to establish a model to study the influencing factors of import and export in Zhanjiang. The results show that GDP and residents' consumption level in Zhanjiang have a great impact on import and export trade in Zhanjiang, and import and export have become an important factor in economic growth in Zhanjiang. Therefore, it can be concluded that the import and export trade in Zhanjiang should be vigorously developed so as to promote economic development in this city.

Introduction

In recent years, the ratio of total import and export volume of Zhanjiang City in GDP has been increasing, and the import and export trade in Zhanjiang has had a tremendous impact on economic development of the city. The development of import and export trade in Zhanjiang City is more and more important. Therefore, increasing the total import and export of Zhanjiang City has become a long-term strategy for Zhanjiang's foreign economic development. Only in this way can Zhanjiang further promote economic development and improve the level of economic development in Zhanjiang City.

Based on the annual statistics of the total imports and exports, GDP and consumption level in Zhanjiang from 1979 to 2013, the econometric analysis method is used to establish the model. Using Eviews software, the paper analyzes the relationship between the change of total import-export volume in Zhanjiang and GDP and residents' consumption level there, and the paper finds that the change of GDP and residents' consumption level in Zhanjiang has certain influence on the change of total import-export volume of Zhanjiang. The paper presents the effective recommendations for the further development of import and export and the economic development of Zhanjiang.

Model Setting and Data Description

In this paper, Eviews7.2 econometric software was used to select the annual data of GDP and residents' consumption level in Zhanjiang during the 35 years from 1979 to 2013 to analyze the data of gross domestic product and residents' consumption level of Zhanjiang and find out the influence of GDP and residents' consumption level of Zhanjiang on the total import-export volume of Zhanjiang.

Table 1 lists the total import and export volume, the GDP, the residents' consumption level of Zhanjiang. Data are from Zhanjiang statistical information website and Zhanjiang Bureau of Foreign Trade and Economic Cooperation website.

Table 1 Total import-export volume, GDP and residents' consumption level of Zhanjiang

Year	Total import-export volume Y	GDP X_1	Residents' consumption level X_2
1979	7373.3358	133105	172031
1980	7551.936	151994	196205
1981	9033.09	180079	211719
1982	11004.8875	212520	241306
1983	10151.1466	229192	265273
1984	8775.117	263326	298307
1985	28000.481	320641	316991
1986	30626.336	392862	337396
1987	41866.1808	534426	391055
1988	57759.5478	728667	457461
1989	57233.2851	840464	483834
1990	91708.2936	966346	534383
1991	154013.7156	1133420	623408
1992	183801.618	1320334	726355
1993	281514.034	1582212	801417
1994	523473.9819	2118833	882535
1995	766446.429	2618453	980480
1996	629717.508	2891561	1171520
1997	807103.2178	3127872	1286768
1998	745797.8862	3298629	1346539
1999	618595.9675	3451172	1456827
2000	966470.0864	3738104	1597517
2001	902035.737	4006426	2528062
2002	988580.049	4256642	2653760
2003	1601417.3	4839463	2831217
2004	1525532.757	5517005	3183042
2005	1473997.819	6809679	3630752
2006	1676441.994	8055223	3969953
2007	1881000.241	9244084	3840039
2008	2274390	10994066	4246394
2009	1924988.4	11566678	4095318
2010	2279956.4	14050630	4220703
2011	2787555.84	17002272	6021095
2012	2838997.7	18602206	6451370
2013	3335368.3	20600069	7101243

The linear regression model is as follows:

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \mu_i, \quad (i = 1, 2, 3, \dots, 35)$$

Where, Y_i means the total import-export volume of Zhanjiang; X_{i1} is the GDP of Zhanjiang; X_{i2} is the residents' consumption level in Zhanjiang; μ_i is the error term, which represents other factors that affect the import and export of Zhanjiang City besides the explanatory variables.

Estimation of Model Parameters

Regression is conducted by virtue of OLS method, and the results are as follows:

Dependent Variable: Y
 Method: Least Squares
 Date: 12/29/16 Time: 22:29
 Sample: 1979 2013
 Included observations: 35

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-27714.81	43445.10	-0.637927	0.5281
X1	0.038276	0.022523	1.699446	0.0989
X2	0.376018	0.064545	5.825710	0.0000
R-squared	0.973347	Mean dependent var		900808.0
Adjusted R-squared	0.971681	S.D. dependent var		966694.0
S.E. of regression	162677.3	Akaike info criterion		26.91874
Sum squared resid	8.47E+11	Schwarz criterion		27.05206
Log likelihood	-468.0780	Hannan-Quinn criter.		26.96476
F-statistic	584.3061	Durbin-Watson stat		1.418545
Prob(F-statistic)	0.000000			

The regression equation is as follows:

$$\hat{Y}_i = -27714.81 + 0.038276X_{i1} + 0.376018X_{i2}, \quad (i = 1, 2, 3, \dots, 35)$$

Conclusion

We can see from the equation that GDP and residents' consumption level of Zhanjiang has a significant influence on the total import-export volume of Zhanjiang. When the GDP of Zhanjiang is increased by a unit, the total import-export volume will be increased by 0.038 unit. When the residents' consumption level of Zhanjiang is increased by one unit, the total import-export volume will be increased by 0.376 unit. GDP and residents' consumption level of Zhanjiang have a great influence on the total import-export volume. The government can take the macro-control measures to control the CPI, and thus controlling the import and export trade of Zhanjiang to certain extent.

Zhanjiang is a port city, and import and export trade takes up a important position in the local economy. Therefore, import and export trade should become the focus of the development of export-oriented economy of Zhanjiang; in particular, the import and export of aquatic products in Zhanjiang. Under the current trend of increasing demand in the international aquatic products market, the export of aquatic products in Zhanjiang should formulate practical and feasible development strategies as soon as possible so as to give full play to advantages and reverse disadvantages seize opportunities and resolve threats. At the same time, on the basis of comprehensively enhancing the international competitiveness of aquatic products, the city should promote the healthy development of import and export trade. Therefore, the development of good import and export trade is of great significance to the development of local economy of Zhanjiang, especially to the outward-oriented development.

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