THE CURRENT TRADE SITUATION AND DETERMINANTS OF SINO-AUSTRALIA INTRA-INDUSTRY TRADE

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Abstract

Economic globalization has promoted the world market to an ever-expanding one. It has also achieved regional unity. In this case, the frequent trade between China and Australia has been intensified with increasing frequency. Therefore, the Sino-Australia intra-industry trade has started to develop. In this paper, we measure the index of IIT, HIIT and VIIT of Sino-Australia intra-industry trade and argue that the condition of Sino-Australia intra-industry trade remains low while the condition of intra-industry trade of finished goods is higher than that of primary commodity. Based on the analysis, we then develop a model to capture the main determinants of HIIT and VIIT in every industry. Policy suggestions are put forward accordingly to promote further development on Sino-Australia intra-industry trade.

Keywords: Intra-industry trade horizontal intra-industry trade vertical intra-industry trade influence factors

Introduction

Heckcher-Ohlin (HO) Theory considers that it is profitable for two countries to develop intra-industry trade if the difference of factor endowment fairly exists in two countries. In the middle of last century, economic globalization in Western Europe emerged over time. Traditional HO Theory predicts that developing trade mode can intensify specialization degree in each industry on the condition of economic globalization. However, Verdon(1960), Dreze(1961) and Balassa et al(1965), find different result. To be specific, the ever-accelerating trade in every industrial country is not the intra-industry trade brought by highly specialized division. Instead, it is a goods-between-goods two-way trade in the same industry, namely intra-industry trade. With the worldwide economic globalization, regional economy integration, international division intensification and differentiation of people's consumption ability, intra-industry trade has become widely

used. This kind of trade mode challenges HO Theory. People have begun to explore the economic reasons behind the trade mode. Product heterogeneity, demand preference similarity and economy of scale theory have all, to some extent, explained the reason why intra-industry trade could happen and therefore enriched the theory of international trade.

As research on intra-industry trade, develops, the focus has shifted from investigating why intra-industry trade takes place to exploring intra-industry trade components. The intra-industry trade between industrial countries account for the majority of intra-industry trade in the world industry. Besides, factor endowment similarity exists among industrial countries, and people's consumption level and demand structure are similar. Therefore, products in intra-industry trade are different in properties rather than qualities. This kind of intra-industry trade mode is called horizontal intra-industry trade (HIIT). Henceforth, Falvey(1987), Falvey and Kierzkowski(1987) and Flam and Helpman(1987), find that intra-industry trade also includes two-way trade among products of different qualities, which is called vertical intra-industry trade (VIIT). Two-way trade of products in the same industry vertically produce in the same processing chain, but have different producing period. These products are also included in the vertical intra-industry trade. So far, people have recognized that intra-industry trade can be further divided into horizontal intra-industry trade and vertical intra-industry trade.

The remaining sections of this paper are organized as follows. IIT, HIIT and VIIT indexes of Sino-Australia intra-industry trade are calculated and analyzed in section 2. The influence factors of the Sino-Australia intra-industry trade empirically in section3. Section 4 concludes the paper.

Measures of Sino-Australia Intra-Industry Trade

Measurement Index

This paper applies Grubel-Lloyd (GL) measurement to calculate China's intra-industry trade condition. Then, intra-industry trade is further divided into horizontal intra-industry trade and vertical intra-industry trade. The indices are calculated respectively.

- The measurement of IIT

$$B_i = 1 - \frac{|X_i - M_i|}{X_i + M_i} \quad (1)$$

X_i is the total import amount of i industry in a country, and M_i is the total export amount of i industry in a country. If $X_i=M_i$, then $B_i=1$. In this case, all of the trade is intra-industry trade; If $X_i=0$ or $M_i=0$, then $B_i=0$. In this case, all of the trade is intra-industry trade.

B_i value fluctuates from 0 to 1. The closer the value is to 1, the higher the intra-industry trade degree is. In general, products whose GL is more

than 0.5 are considered as high-priority products of intra-industry trade. Generally speaking, if the foreign trade in an industry in a country depends mainly on intra-industry trade, the country has comparative advantage in this industry.

Equation of the trade index includes all the industries in a country. The weighted average of intra-industry trade index in each of the industry is:

$$B=1-\frac{\sum_{i=1}^{n}|x_i-M_i|}{\sum_{i=1}^{n}|X_i+M_i|} \quad (2)$$

- Measurements of HIIT and VIIT

Horizontal intra-industry trade is denoted as a two-way trade of products in the same industry with the same tariff code. Therefore, we match the product export amount with import amount in the same industry with the same tariff code. The degree of alternative coverage on import and export amount is the depth of horizontal intra-industry trade. One industry's horizontal intra-industry trade can be denoted:

$$HIIT_i = \sum(X_{ik} + M_{ik} - |X_{ik} - M_{ik}|) \quad (3)$$

X_{ik} is the export amount of product in category K(No.K) in the i industry and M_{ik} is the import amount of product in category K (No.K) in the i industry. Based on quantum measurement, the quantum of horizontal intra-industry trade is converted into percentage (the horizontal intra-industry trade to intra-industry trade) to measure the depth of horizontal intra-industry trade in the industry. Horizontal trade degree of product in the same tariff category in i industry can be denoted:

$$HIIT_{ik} = 1 - \frac{|X_{ik}-M_{ik}|}{X_{ik}+M_{ik}} \quad (4)$$

In order to obtain the intra-industry trade degree in all of the industry, the proportion of trade amount in each tariff category to total trade amount in the industry is used as the weight. Therefore, HIIT I i in equation (3) can be converted into a weighted-average one:

$$HIIT_i = \sum_{k=1}^{K} HIIT_{ik}\,\theta_{ik} \quad (5)$$

Here $\theta_{ik} = \frac{X_{ik}+M_{ik}}{\sum_{k=1}^{K}(X_{ik}+M_{ik})}$ measures the degree of importance of the category K tariff products in the i industry.

Vertical intra-industry trade is equal to intra-industry trade minus horizontal intra-industry trade, *i.e.* ,

$$VIIT_i = IIT_i - HIIT_i \quad (6)$$

The i shown in IIT_i , $HIIT_i$ and $VIIT_i$ means the industry category indicated by the two SITC code.

According to the smoothing adjustment hypothesis, compared with intra-industry, intra adjustment brought by intra-industry trade has a lower cost. The reason is that the products exchanged through intra-industry trade are totally different from the perspective of properties. Besides, they represent highly specialization division. Production factors require sizable

economic adjustment shifting from one industry to another industry that is totally different from the previous one, so the adjustment cost is very high. Compared with that, the products manufactured by each enterprise developing intra-industry trade are relatively similar, and production factors they use are very similar as well. Hence, factor adjusted cost of intra-industry trade is lower than that of inter-industry trade. Through comparison with the adjustment cost of intra-industry and inter-industry trade, specialized division of different products in the same industry is more valuable than inter-specialized division.

Although the factor adjusted cost of intra-industry trade is lower than that of inter-industry trade, HIIT and VIIT vary with regard to the cost thrift's contribution degree. HIIT is the between-goods exchange which is in the same category but is different from properties, so the products in HIIT has the higher similarity on production factor and has lower factor adjusted cost. VIIT is, to some extent, similar to the inter-industry mode in HO Theory. In VIIT, production factor shifts between low-quality products and high-quality one and the products of different qualities have differences in factor endowment. Accordingly, factor adjustment cost of VIIT is obviously higher than that of HIIT.

Measure result and analysis

This paper applies two digits SITC, the import and export amount on Rev.1 Code to conduct the analysis. China's depth of intra-industry trade, HIIT and VIIT from 1996 to 2011 are measured respectively. The data are collected from UN Comtrade.

- Sino-Australia total intra-industry trade condition analysis

Table 1 Sino-Australia IIT index from 1996 to 2011

products[87]	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11
SITC 0	0.1	0.2	0.36	0.35	0.37	0.35	0.4	0.64	0.37	0.5	0.7	0.95	0.8	0.82	0.65	0.69
SITC 1	0.22	0.27	0.12	0.26	0.16	0.18	0.23	0.32	0.59	0.72	0.86	0.65	0.59	0.42	0.31	0.26
SITC 2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0	0.1
SITC 3	0.36	0.41	0.54	0.25	0.43	0.43	0.36	0.43	0.28	0.32	0.28	0.15	0.22	0.09	0.05	0.07
SITC 4	0.08	0.16	0.18	0.14	0.06	0.04	0.05	0.04	0.04	0.07	0.06	0.05	0.04	0.07	0.05	0.07
SITC 5	0.57	0.67	0.61	0.55	0.45	0.54	0.49	0.41	0.49	0.50	0.46	0.62	0.92	0.82	0.86	0.79
SITC 6	0.97	0.96	0.88	0.86	0.88	0.99	0.98	0.95	0.91	0.79	0.80	0.80	0.53	0.85	0.64	0.64
SITC 7	0.75	0.58	0.44	0.48	0.37	0.40	0.33	0.27	0.24	0.27	0.17	0.17	0.13	0.11	0.11	0.11
SITC 8	0.10	0.06	0.06	0.10	0.14	0.12	0.11	0.11	0.07	0.05	0.05	0.04	0.04	0.04	0.04	0.04

In the way of SITC, SITC0-4 products are raw materials and primary commodities, and SITC5-9 products are industrial finished goods.

[87] Here kinds of product refer to SITC 0-8. 0 indicate food,1 is beverage, tobacco,2 is materials that cannot be eaten,3 is fossil fuel,4 is animals/plants oil,5 is chemicals,6 is Miscellaneous products,7 is machinery and transportation equipment,8 is other finished goods. The index does not include SITC9

In the raw materials and primary commodities, SITC0 shifts from pure inter-industry trade to intra-industry trade. SITC0's intra-industry trade index shifts from 0.1 in 1996 to 0.69 in 2011. Accordingly, the kind of intra-industry trade with the two-way trade develops very swiftly. It can be seen that there is competition advantage of the foreign trade in this kind of industry in China. The intra-industry trade index of SITC1 products rises from 0.22 in 1996 to the top 0.86 in 2008. However, SITC11 products increase very fast on import amount, and the corresponding export amount does not change substantially. As a result, the intra-industry trade index falls to 0.26 in 2011. However, according to the time interval, the proportion of beverage, tobacco intra-industry trade increases. In the raw materials and primary commodities, the intra-industry trade of SITC0 and SITC1 gradually rises. Moreover, SITC0's rising trend is more obvious.

The intra-industry trade of SITC2, SITC3 and SITC4 shows a declining trend in general. The intra-industry trade index of SITC2 products always remains a very low condition, which demonstrates that inter-industry trade has a dominant position in the two-way trade with this kind of products, but intra-industry trade are not well developed. SITC3's intra-industry trade index rises from 0.36 in 1996 to 0.43 in 2001, and it gradually decreases from 2003, and then swiftly falls after 2008. In 2011, the index is merely 0.07, which is lower than the condition of the intra-industry trade in 1996. It demonstrates that the intra-industry trade of this kind of products is unstable. It also features the inter-industry trade as a priority. SITC4's index rises in a short period of time, and then decreases. Up to 2011, it decreases to 0.07, and the index always fluctuates in a low condition. It demonstrates that the two-trade with this kind of products are mainly inter-industry trade.

In the industrial finished goods, the condition on intra-industry trade of SITC5 and SITC6 is relatively high. Chemicals are the capital technology-intensive products, and their intra-industry trade index rises from 1996 (the index in 1996 is 0.57). From 2009, it begins to decrease slowly. From 2007, the index shows a rising trend again. Miscellaneous products are labor-intensive ones. Although intra-industry trade index declines from 0.97 in 1996 to 0.64 in 2011, still index remains a high status generally.

The intra-industry trade index of SITC7 and SITC8 declines in general. SITC7 products are capital technology-intensive products. Since SITC7 products rise tremendously on export amount from 2003 and the corresponding import amounts does not change substantially, the index decreases dramatically from 0.75 in 1996 to 0.11 in 2011. Accordingly, the way of trade shows the trend from intra-industry trade to inter-industry trade. The index of SITC8 products remains low and declines gradually. Accordingly, the two-way of trade of this kind of products is mainly the inter-industry trade, and intra-industry trade has not been fully developed.

To conclude, for the time being, the trade of Sino-Australia intra-industry trade mainly happens in SITC0, 1, 5, 6 and the products in other categories remain a low status. During the period of 1996 to 2011, several industries which have the fairly high intra-industry trade condition accounts for a low proportion of the whole two-way trade amount. Therefore, Sino-Australia intra-industry trade condition is low measured in a weighted way. Furthermore, SITC0 and SITC1 products' proportion on intra-industry trade is far less than SITC5 and SITC6 products. Primary commodities' intra-industry trade does not work more than the finished goods for the two countries' whole intra-industry trade condition.

- Sino-Australia industry-categorized intra-industry trade condition analysis

Table 2 Sino-Australia HIIT index from 1996 to 2011

products	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11
SITC0	0.07	0.09	0.09	0.11	0.17	0.18	0.16	0.22	0.12	0.16	0.20	0.30	0.19	0.19	0.21	0.23
SITC1	0.22	0.27	0.12	0.26	0.12	0.18	0.23	0.27	0.38	0.30	0.21	0.20	0.18	0.15	0.11	0.11
SITC2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SITC3	0.36	0.41	0.54	0.25	0.43	0.43	0.36	0.43	0.28	0.19	0.26	0.15	0.22	0.09	0.05	0.07
SITC4	0.08	0.04	0.02	0.03	0.01	0.01	0.05	0.04	0.04	0.05	0.06	0.05	0.04	0.07	0.05	0.05
SITC5	0.48	0.52	0.51	0.44	0.31	0.36	0.36	0.28	0.32	0.33	0.35	0.46	0.60	0.57	0.58	0.73
SITC6	0.28	0.31	0.34	0.24	0.28	0.26	0.28	0.29	0.33	0.29	0.25	0.17	0.21	0.20	0.26	0.19
SITC7	0.66	0.58	0.44	0.48	0.37	0.40	0.33	0.27	0.24	0.27	0.17	0.17	0.13	0.11	0.11	0.11
SITC8	0.10	0.06	0.06	0.10	0.12	0.12	0.11	0.11	0.07	0.05	0.04	0.04	0.04	0.04	0.04	0.04

Table 3 Sino-Australia VIIT index (1996 – 2011)

products	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10	11
SITC0	0.03	0.13	0.27	0.24	0.20	0.17	0.24	0.42	0.25	0.34	0.50	0.65	0.61	0.63	0.44	0.46
SITC1	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.06	0.21	0.42	0.65	0.45	0.41	0.27	0.20	0.15
SITC2	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01
SITC3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.02	0.00	0.00	0.00	0.00	0.00
SITC4	0.00	0.12	0.16	0.11	0.06	0.03	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.02
SITC5	0.09	0.16	0.09	0.11	0.14	0.18	0.13	0.12	0.18	0.16	0.1	0.17	0.31	0.25	0.29	0.07
SITC6	0.68	0.64	0.54	0.62	0.60	0.73	0.70	0.67	0.58	0.50	0.55	0.63	0.32	0.65	0.38	0.45
SITC7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SITC8	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

From SITC0-8 products, SITC0 products' VIIT accounts for more than HIIT almost all the time, and this kind of products has high factor adjusted cost. SITC1 products develop almost horizontal intra-industry trade from 1996 to 2002. However, from 2003, vertical intra-industry trade begins to occur and the proportion of it gradually surpasses that of horizontal intra-industry trade. SITC2 products mainly develop intra-industry trade and the vertical intra-industry trade is the absolute dominance of it. SITC3 products are opposite to the SITC2 ones, in which horizontal intra-industry trade becomes the absolute dominance. Except for the vertical intra-industry trade in 2005 and 2006, horizontal intra-industry trade is in the rest of years and factor adjusted cost is fairly low. SITC4 products are mainly on vertical

intra-industry trade before 2001. The horizontal intra-industry trade index of SITC5 is always far more than the vertical one and the factor adjusted cost is fairly low as well. On the contrary, SITC6 products' vertical intra-industry trade index is far more than the horizontal one and the factor adjusted cost is fairly high. SITC7 and SITC8 develop almost horizontal intra-industry trade and their factor adjusted costs are fairly low.

Empirical examination of Sino-Australia intra-industry trade influence factors

Selection of influence factor variables

The determinants of influencing intra-industry trade can be divided into the determinant of a nation's condition and the determinant of industry condition.

Through over 40 years' study, the comprehensive analysis of the two types' determinants has been synthesized. In terms of the reliability of data, the only data that has been attained easily and has been influential are analyzed.

（i） GDP per capita difference Many scholars have studied the influence exerted by GDP per capita on intra-industry trade. Helpman and Krugman(1985)'s research shows that when GDP per capita is applied for two countries' relative factor endowment difference, the smaller GDP per capita is, the deeper the intra-industry trade's degree will be. Linder(1961)'s and Balasa(1986)'s researches show that the higher the GDP per capita's similarity is, the larger possibility the intra-industry trade will be. Accordingly, the paper raises a hypothesis that GDP per capita difference has a negative relationship with intra-industry trade condition.

（ii） Market scale condition If trading partners' scale is large, economy of scale can be realized nationwide, specialization division and segmentation in the same industry can be realized and products differentiation by every manufacturer can be realized. Two factors, namely intra-industry specialized production and different demands for consumers both promote the launching of intra-industry trade. Accordingly, market scale condition has a positive relation with the intra-industry trade condition.

（iii） FDI The influence brought by FDI on industry trade between nations is mainly through intermediaries' input and output and its main form is the development of processing trade. Thus two-way flows of trade goods are the important components of intra-industry trade. FDI's main form is multinational company, and it assigns different production arrangement to different countries. Several production steps are arranged in the overseas branches, fabricate export producing spare parts and import the finished goods that are in the more advanced producing steps, which will give rise to

the proportion of intra-industry trade rises in the total trade amount. Accordingly, the degree of intra-industry trade has a positive relation with FDI's inflow.

（iv）Regional economic unity Currently, the world develops with trend of economic globalization and regional economic unity. The negotiation of Sino-Australia free trade zone is proceeding. The agreement on Sino-Australia free trade is beneficial for two countries' trade development. It will promote the development of two nations' intra-industry trade.

（v） R&D The range of a nation's producing products has a close relation with technology innovation and product quality upgrade. Technology innovation and product quality upgrade cannot exist without development process. Technology innovation can enable a nation to produce new goods for export, and upgrade the imported goods that are owned currently. Accordingly, development can broaden a nation's producing scope and promote the development of intra-industry trade. Intra-industry trade condition has a positive relation with the development funds' input.

Empirical examinations

According to the influence factors analyzed above, the paper applies Gravity Model for empirical examinations on the analysis results.
The empirical specification is based on Tinbergen's Gravity Model.

$$T_{ij} = A(\frac{Y_i Y_j}{D_{ij}})$$

T_{ij} is the total amount of two-way trade, Y_i is nation I's GDP, Y_j is nation J's GDP, D_{ij} is the geographical distances between the two nations. A is a proportional constant. Tinbergen reckoned that the main factors that influence two nations' trade amount are the nation's economy of scale expressed in GDP and the geographical distances between the two nations.

Since the paper studies the intra-industry trade, the Gravity Model moderately is revised, introducing more explanation variables in logarithm. The difference of GDP per capita, market scale condition, FDI, regional economic unity and R&D factors' influences on Sino-Australia intra-industry trade are examined respectively. The regression formula is follows:

$$LnIIT = c + a_1 LnDPGDP + a_2 LAGDP + a_3 LnFDI + a_4 LnIE + a_5 R\&D + u_i$$

DPGDP is the difference between China and Australia's GDP per capita; AGDP is the average of Australia and China's GDP, which is used as the index of China and Australia's market scale average condition; FDI is the situation where Australia invests directly in China. IE stands for the factors of Sino-Australia regional economic unity, which is proxied by the total

amount of the two nations' import and export trade; R&D stands for the input condition applied for development by China, which is the percentage of GDP.

Table 4 model variable (numerical)values（ln）

Year	IIT	Sino-Australia difference of GDP per capita	Two nations' average GDP	Australia's FDI to China	Import and export total amount of Sino-Australia two-way trade	R&D（% of GDP)
1996	-1.20397	10.01633733	6.462550403	9.873338	22	-0.510825624
1997	-1.17118	10.00427249	6.535704154	10.35373	22	-0.510825624
1998	-1.10866	9.873484427	6.551093192	10.21086	22	-0.356674944
1999	-1.10866	9.942074507	6.617019215	10.1785	22	-0.223143551
2000	-1.17118	9.892700279	6.68337221	10.33812	23	-0.105360516
2001	-1.07881	9.813570777	6.746515531	10.42109	23	0
2002	-1.07881	9.91795588	6.844492743	10.54718	23	0.09531018
2003	-1.07881	10.15307259	6.993967837	10.98957	23	0.09531018
2004	-1.27297	10.33706654	7.164963195	11.10139	24	0.182321557
2005	-1.42712	10.4314422	7.309551666	10.59896	24	0.262364264
2006	-1.51413	10.46899009	7.464765389	10.91852	24	0.336472237
2007	-1.51413	10.64127932	7.705224636	10.4741	25	0.336472237
2008	-1.77196	10.71722866	7.93281826	10.61416	25	0.405465108
2009	-1.66073	10.62322749	8.003426246	10.58246	25	0.470003629

Because China statistical annual in 2010 has no record of Australia's investment in China, 1996-to-2009 data are examined in order to avoid the fracture of chronological data. Measure of ordinary least squares (OLS) is applied for the regression estimation of the specified model. According to the results, coefficient of determination is 0.940044. So the condition on model fit is very ideal. The given significance levels are 0.05, 0.1, 0.15, 0.2 and 0.25. When degree of freedom is 12, t statistics are 1.782, 1.356,1.083,0.873, 0.695 respectively. T value of total amount of trade is -0.167792, which always fail to be examined. Simultaneously, R&D is relatively not so significant. We set the two variables aside and reconstruct new model and then have the regression with OLS. All the variables pass the t examination of significance level of 0.05, which shows that variables all have significant influences on intra-industry trade condition and model fit is very ideal. Next step is to examine the model with D-W examination. Since D.W's upper and

lower boundaries begin from n=15, sample size in the essay is 14, which is closer to 15, d_U=0.82,d_L=1,75 when n=15, explanation variable number is k=4.

The result shows that d_U□2.922831□4-d_U , which means that self-correlation does not exist. The results are shown in table 5

Table 5 examined results

	Model1		Model2	
	coefficient	T value	coefficient	T value
C	3.444206	1.889587	2.824161	2.210180
DPGDP	-0.322469	-1.258546	-0.453647	-2.546898
AGDP	-0.356994	-1.425813	-0.206802	-1.856009
FDI	0.132127	1.309633	0.187313	2.802376
IE	-0.013836	-0.167792		
RE	0.214159	0.747609		
R^2	0.940044		0.935461	
F value	25.08615		48.31484	
D-W value	2.813744		2.922831	

According to the empirical results, the influence factors of Sino-Australia intra-industry trade are generally fit for what the theory illustrated above. However, there are some points that are not fit for the theory. Some intuitively important variables such as the total amount of Sino-Australia trade, China's development input and so forth are excluded. Moreover, average GDP coefficient estimation on behalf of the two nations' market scale shows the reverse results compared with previous analysis results. That may attribute to the different meanings of influence factors represented by theory analysis and empirical analysis and the limit of data.

From the results of regression, if the difference of Sino-Australia GDP per capita narrows by 1 per cent, the Sino-Australia's intra-industry trade can rise 0.45 per cent, which is fit for the previous analysis. That fully proves that intra-industry trade is determined by the nation and the trading target nation's degree of economic similarity. The closer their economic condition is, the larger the proportion of two-way intra-industry trade will be. If Australia's direct investment in China rises by 1 per cent, the intra-industry trade between China and Australia will rise by 0.19 per cent. It can be seen that direct investment factors have positive effect on Sino-Australia intra-industry trade. Although the model's market scale average condition has passed significance examination, it brings negative impact on Sino-Australia intra-industry trade, which is paradox to previous analysis. It is considered by theory that the larger two nations' market scale, the company's output will increase after the trade, company's internal economy of scale can be realized and two nations' intra-industry will be expanded. Forstner and Helmut (1990) selected 90 industries in 47 countries as

subjects, and they acquired the similar conclusion with the negative numbers of the GDP absolute difference on amount as independent variables to build regression model. The reasons why the difference on amount of China and Australia's GDP has a negative relationship with intro-industry trade condition remains to be further explored.

Main Conclusions and Suggestions

This paper reaches some conclusions below through respective measuring of Sino-Australia intra-industry trade, horizontal intra-industry trade and vertical intra-industry trade respectively. Firstly, for the time being, the intra-industry trade between the two nations mainly occurs in SITC0,1,5,6 products, and the products in other categories have fairly low intra-industry trade condition. Secondly, the degree of finished goods' intra-industry trade is higher than primary commodities. Thirdly, the majority of products' intra-industry trade approach is mainly on horizontal intra-industry trade and the factor adjusted cost is fairly low.

This paper selects some of the factors that affect Sino-Australia intra-industry trade such as the difference on the two nations' GDP per capita, average GDP, the total trade amount, FDI and China's development input. Moreover, those influence factors have been analyzed in an empirical way and some suggestions are raised as follows. The phenomenon of narrowing the two nations' GDP per capita is conducive to raise the intra-industry condition. Accordingly, China should keep pace with the trend of swift economic development and control population growth rate to continuously narrow the difference on the two nations' GDP per capita. Besides, Australia's direct investment on China can promote the development of two-way intra-industry trade. Accordingly, China should strengthen the attractiveness to foreign capital, deregulate some policy limits moderately and make multinational companies, the main form of FDI, accessible to stay and develop within China's borders.

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