Determinants of FTA utilization:
Evidence from the Free Trade Agreement between Taiwan and China Revisited

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Abstract

This paper investigates empirically the determinants of the utilization of the Free Trade Agreement in exports from Taiwan to China. Heckman's two-stage estimation method is adopted to correct for selection bias. Our empirical results show that the preferential tariff rates of the Agreement are more likely to be utilized for products with a larger tariff margin except for products imported for the purpose of processing trade. In addition, it is found that there exists strong learning effect in utilizing the Agreement. However, the impact of rules of origin is not consistent with what expected.

Keywords: FTA utilization, rules of origin, ECFA

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1. Introduction

The political and economic relationship between Taiwan and China has dramatically changed since Taiwan's new government took office in May 2008 and actively pursued new policies towards mainland China. Taiwan has removed its ban on direct cross-Strait links, and several trade liberalization measures such as financial cooperation and China's direct investment in Taiwan among others have also been implemented. Particularly, a cross-Strait Economic Cooperation Framework Agreement (ECFA) was signed on June 29, 2010. It is estimated that the ECFA could bring forth considerably beneficial impact on Taiwan's foreign trade and economic growth, and provide domestic employment opportunities (Shih, et al (2009), Ku (2009), Chen, et al. (2009), Chen et al. (2011)).

However, heated debate about the possible benefits of the ECFA has been arising in Taiwan from the perspectives of economics and politics as well. [1] Some economists argue that the benefits of ECFA are overestimated by the government. As pointed out by Tsai et al. (2010), one of the limitations of most previous empirical studies regarding the impact of a free trade agreement (FTA) is that they usually assume that the tariff preference in the FTA would be fully utilized. This assumption is not valid because the utilization of preferential tariff is costly. In particular, all preferential trading agreements short of a customs union use rules of origin (ROO) to prevent trade deflection. ROO raise production costs and create administrative costs. The compliance costs (paperwork, red tape, documenting origin, etc.) can be significant. The average estimate in the empirical literature is that documentary requirements imply costs of some 3-5 percent of the value of goods.[2]

Recently, it has been shown that the FTA utilization rates of many Asian countries are not very high (Baldwin (2006), Kawai and Wignaraja (2011)). The low utilization rates substantially reduce the actual benefits of a preferential trading agreement. Taking into account the possible costs of the utilization, for instance, Tsai, et al. (2010) estimate the potential utilization rates of the ECFA, and show that the impact of the ECFA might be overestimated considerably if the potential utilization rates of the ECFA are not taken into account in the analysis.

When Taiwan and China inked the cross-strait Economic Cooperation Framework Agreement in 2010, they also drafted an "early harvest list" covering trade in both goods and

[1] See, for instance, Hong and Yang (2011) for a summary of arguments opposed to the ECFA from economic and political perspectives.

[2] See, for instance, Brenton and Manchin (2003); Brenton and Ikezuki (2004) ; Anson et al. (2005) ; Carrère and de Meloc (2004)).

services, which went into effect on January 1, 2011. Chang and Hayakawa (2014) is the first paper that investigates the determinants of the utilization rates for the products in the early harvest list of the ECFA. However, they use only the utilization rates in the first year (2011). In addition, in calculating the utilization rates, they use the number of certificates of origin instead of trade values.

The purpose of study is to extend the study by Chang and Hayakawa (2014) in revisiting the determinants of the utilization rates for the products in the early harvest list of the ECFA. This paper contributes to the literature in several aspects. First, the utilization rates from 2011 to 2014, which are calculated with trade values, are used in this study. Second, several other important factors affecting the possibility of a product to be included in the early harvest list are considered. Finally, the significance of several other possible determinants of the utilization rates is tested.

The remainder of this paper is organized as follows. Section 2 briefly reviews the content of the ECFA in general and the utilization rates of the ECFA during the period 2012~2013 in particular. In Section 3, we present the empirical model and our estimation method. Our empirical results are discussed in Section 4. The final section concludes.

2. An overview of the early harvest list of ECFA

In the "early harvest list" of ECFA, which went into effect on January 1, 2011, there are 539 items at HS 8-digit code on the side of China, including 18 agricultural products and 50 products belonging to sensitive sectors or manufactured by enterprises of small or medium size (SME), accounting for 16.1 percent of China's total imports from Taiwan in 2009. In contrast, Taiwan cut tariffs only on 267 manufacturing products, accounting for 10.5 percent of Taiwan's overall imports from China in 2009. A limited number of services are also on the early harvest lists. [3]

Based on the MFN rates in 2009, there are three types of tariff reduction arrangements in the agricultural products and manufacturing products in the early harvest list of the ECFA, specifically, (1) tariff rates on products with MFN rates from 0% to 5% decrease to 0% since the first year (2011); (2) tariff rates on products with MFN rates from 5% to 15% decrease to 5% in 2011 and 0% since 2012; and (3) tariff rates on products with MFN rates higher than 15% decrease to 10% in 2011, 5% in 2012, and 0% since 2013. In short, tariff removal for all products in the early harvest list will be completed in 2013.

Table 1 illustrates the percentage change in tariff rates of the early harvest products of the ECFA. As shown in Table 1, compared with the case of China, the tariff reduction in

[3] See, Hong and Yang (2011) for a detailed illustration of the contents and characteristics of the ECFA.

Taiwan's early harvest products of the ECFA are much smaller. It is interesting to note that, due to political reasons, whereas none of the agricultural products of Taiwan is included in its early harvest list, all the agricultural sectors of China are included in its early harvest list, and their tariff rates are reduced more than 11%. As for manufacturing sectors, the tariff reduction rates are also much larger in China than in Taiwan.

Table 2 presents the actual utilization of the preferential tariff rates of the ECFA in Taiwan as well as China during the period of 2011~2014. It is clear from Table 2 that the actual utilization of the preferential tariff rates of the ECFA varies across sectors. There are also significant differences in the actual utilization of the preferential tariff rates in each sector between Taiwan and China. On average, the actual utilization of the preferential tariff rates in Taiwan is much larger than China, with the exception of textile, garments and apparel, as well as other manufacturing. There is also an increasing trend in the utilization rates of most sectors in the list. It indicates that there might exist learning effect in utilizing the Agreement.

3. The empirical model

As a matter of fact, the products on the list for tariff reduction in any FTA are not chosen randomly. In the case of ECFA, for instance, according to the Bureau of External Trade of Taiwan, the products that Taiwan suggests to be included on its list of early harvest are based on the following principles: (1) the products that Taiwan has a competitive advantage in China's market, (2) the comparative disadvantageous sectors of Taiwan that need to be protected, (3) the products that Taiwan's competitors face lower import tariffs rates for their exports towards China.

Since the products to be included in the early harvest list of ECFA are not randomly chosen, when investigating the determinants of the utilization rates of the Agreement, if only the products on the list are included in the sample, the estimation results will suffer a problem of selection bias. To correct for the selection bias, Heckman's two stage estimation method will be used in this paper.

Heckman's two stage estimation method proceeds as follows. In the first stage, a selection equation is specified to examine the probability of a product to be included in the list. In the second stage, a regression equation is specified to examine the determinants of the FTA utilization. Specifically, the selection equation and regression equation in this paper are specified as shown in Eq. (1) and Eq. (2), respectively:

Selection equation:

$$eh^* = \beta_0 + \beta_1 MFN\_CH + \beta_2 (MFN\_AS - AKFTA) + \beta_3 (MFN\_CH - ACFTA) + \beta_4 IM(TW)\_CH + \beta_5 IM(WD)\_CH + \beta_6 RCA(CT)\_WW + \beta_7 RCA(CT)\_WS + \beta_8 RCA(CT)\_SW + \beta_9 RCA(CT)\_SS + \beta_{10} IIT + \beta_{11} \text{Reciprocity} + u,$$

$$eh = 1 \text{ if } eh^* > 0, \text{ and } eh = 0 \text{ otherwise.} \quad (1)$$

Regression equation:

$$FTAUR_t = \beta_0 + \beta_1 (MFN\_CH_t - ECFA_t) + \beta_2 FTAUR_{t-1} + \beta_3 PT + \beta_4 SME + \beta_5 MTW_{t-1} + \beta_6 STW_{t-1} + \gamma ROO + \beta_7 IMR + \varepsilon_t,$$

$$\text{observed only if } eh = 1,\ t = 2011,\ 2012,\ 2013,\ 2014 \quad (2)$$

The definition and measurement of the variables in Eq. (1) and Eq. (2) and the expected sign of the explanatory variables are listed in Table 3 and discussed as follows:

eh: A dummy variable used to indicate whether or not the product is included in the list. The dummy variable eh=1, if the product is included in the early harvest list; eh = 0, otherwise.

MFN_CH : China's MFN tariff rate in 2009. Its expected sign is indeterminate. From the perspective of Taiwan, the higher the MFN tariff rate of China, the stronger the motivation that Taiwan will have to request the product to be included in the list. However, from the perspective of China, the higher the MFN tariff rate of its product, the stronger the motivation that China will resist to have the product to be included in the list for the purpose of industry protection.

$MFN\_AS - AKFTA$: The difference in tariff rates of ASEAN between Taiwan and Korea, where MFN_AS is ASEAN's MFN percentage rates of tariff, and AKFTA is Korea's percentage rates of tariff in ASEAN. It is expected that the larger the difference in tariff rates of ASEAN between Taiwan and Korea, the possible gain from the Agreement for Taiwan will be larger, and thus the probability of the

product to be included in the list will be higher. Therefore, its expected sign is positive.

$MFN\_CH-ACFTA$: The difference in tariff rates of China between Taiwan and ASEAN, where ACFTA is ASEAN's percentage rates of tariff in China. Similarly, it is expected that the larger the difference in tariff rates of China between Taiwan and ASEAN, the possible gain from the Agreement for Taiwan will be larger, and thus the probability of the product to be included in the list will also be larger. Therefore, its expected sign is positive.

$IM(TW)\_CH$: China's imports from Taiwan. It is expected that the larger the imports of China from Taiwan, the higher the importance for the product to be included in the list. Therefore, its expected sign is positive.

$IM(WD)\_CH$: China's total imports. Its expected sign is indeterminate. From the perspective of Taiwan, the higher China's total imports from Taiwan, the stronger Taiwan's competitive advantage, and the higher the possible gains will be larger, and thus Taiwan will have stronger motivation to request the product to be included in the list. However, from the perspective of China, the higher China's total imports from Taiwan, the possible negative impact on China's industry will be, and thus China will be more likely to resist to have the product to be included in the list.

$RCA(CT)$: Revealed Comparative Advantage (RCA) index of the products at HS 6-Digits code between Taiwan and China. $RCA(CT)\_WW=1$, if both Taiwan and China have a value of RCA below 0.8; $RCA(CT)\_WW=0$, otherwise. $RCA(CT)\_WS=1$, if China has a value of RCA below 0.8 and Taiwan has a value of RCA higher than 1.25; $RCA(CT)\_WS=0$, otherwise. $RCA(CT)\_SW=1$, if

Taiwan has a value of RCA below 0.8 and China has a value of RCA higher than 1.25; $RCA(CT)\_SS$ =1, if both Taiwan and China have a value of RCA higher than 1.25; $RCA(CT)\_WW$ =0, otherwise. Their expected signs are indeterminate.

IIT : Grubel-Lloyd intra-industry index. It is expected that the higher the value of intra-industry trade between Taiwan and China, the possible complementarity at the same industry between Taiwan and China will be higher, and thus the probability for the product to be included in the list will be also higher. Therefore, its expected sign is positive.

Reciprocity : Reciprocity=1, if the product at the same HS 6-digits code of Taiwan and China is included in the early harvest list; Reciprocity=0, otherwise. It is expected that, on the basis of reciprocity, if a product of Taiwan is included in the list, it is more likely to have the corresponding product of China to be included in the list. Therefore, its expected sign is positive.

$FTAUR_t$: FTA Utilization Rate at time t. It is measured as the percentage of the value of China's imports from Taiwan at preferential tariff rates divided by China's total imports from Taiwan.

$FTAUR_{t-1}$: The $FTAUR_t$ lagged by one period. This variable is used to capture the learning effect, thus its expected sign is positive.

$MFN\_CH_t - ECFA_t$: Margin in ECFA, where MFN_CH_t is China's MFN tariff rate, and $ECFA_t$ is the corresponding tariff rate of the product on the early harvest list of ECFA. It is expected that the higher the margin, the higher the probability for the preferential rate in the list will be used. Therefore, its expected sign is positive.

PT : Ratio of China's imports from Taiwan for the purpose of processing trade, which

is measured as the value of China's imports from Taiwan for processing trade divided by the value of China's total imports from Taiwan. Since the imports for the purpose of processing trade have already enjoyed preferential tariff treatment, the higher the value of PT, the lower the utilization rate of the product will be. Therefore, its expected sign is negative.

SME: Products manufactured by small or medium-sized enterprises. SME=1, if the product manufactured by small or median-sized enterprises; SME=0, otherwise. Since a firm with a small or median size will have lower capability to deal with the red tape of applying for the utilization of the FTA agreement, it tends to have a lower utilization rate. Therefore, its expected sign is negative.

MTW: Ratio of Taiwan's exports via Taichung Port. This variable is used to test if the location of a firm will affect its utilization of the Agreement. Its expected sign is indeterminate.

STW: Ratio of Taiwan's exports via Kaohsiung Port. Similarly, this variable is used to test if the location of a firm will affect its utilization of the Agreement. Its expected sign is indeterminate.

ROO: Rules of origin. Different regulation about the ROO stipulated in the Agreement will be used to test if a stricter ROO leads to lower utilization of the Agreement. In general, the rules of origin of the agricultural products are based on the principle of Wholly obtained rule (WO). As for manufacturing products, their rules of origin could be classified into three types: change in heading (CH) or real value-added content (RVC). Co-Equal Rule means compliance with either CH or RVC, which is most flexible, compared with Single Rule, such as CC (change in chapters)、CH (change in heading) 、CS (change in subheading)、RVC and WO. The strictest ROO

is Hybrid Rule, which requires the compliance with CH and RVC. If we use Co-Equal Rule (CH/RVC) as our basis, the expected sign of other ROOs will have a negative impact on the utilization rate.

IMR: Inverse Mills Ratio. This variable is used to test if there exists a significant selection bias if an Ordinary Least Squared method is used to estimate the regression equation.

The sample data of this paper cover the period as early as 2009 until 2014. The data are compiled from the database of World Trade Altas (WTA) and the Bureau of Customs of Taiwan.

4. Empirical results

Table 4 presents estimation results of the selection equation. Our results reveal that the coefficient of MFN_CH is negative, but not statistically significant. However, if we classified the tariffs into thee ranges: MFN_CH<5, 5≦MFN_CH<15, and MFN_CH≦15. The dummy variable of (5≦MFN_CH<15) is significantly positive, while the dummy variable (MFN_CH≦15) is insignificantly positive. These results suggest that if a product has a MFN tariff rate lower than 5%, Taiwan will not have strong incentive to request the product to be included in the list. However, for the products that have MFN tariff rates higher than 15%, China is not willing to have the product to be included in the list. As a result, the products with MFN tariff rates between 5% and 15% will be most likely to be included in the list.

Both the coefficients of (MFN_AS – AKFTA) and (MFN_CH-ACFTA) are significantly positive, which suggest that Taiwan has made every effort to request China to have the products most seriously affected by ASEAN plus one to be included in the early harvest list

of ECFA.

The coefficient of IM(TW)_Ch is also significantly positive, which implies that Taiwan's request has focused on the products that could bring forth significant benefit. However, the coefficient of (IM(WD)_CH) is insignificantly positive, which illustrates that China is cautious to have those sectors facing serious import competition to be included in the list.

The coefficient of Reciprocity is significantly positive as expected. However, the coefficient of IIT is significantly negative, contrary to what expected. One possible reason is that the products included in the list are still very limited. Another possible reason is that products with high IIT tend to export to China for the purpose of processing trade. Those products have had preferential tariff treatment so that could not benefit much from the Agreement.

Finally, if we use (RCA(CT)_MM) in which the RCA values of Taiwan and China ranging from 0.8 to 1.25 as our benchmark, the dummy variables of RCA tend to have negative coefficients, in which RCA(CT)_WW and RCA(CT)_SW statistically significant. These results suggest that for those products that Taiwan does not own comparative advantage, Taiwan has lower incentive to request the products to be included in the list. However, for those products that Taiwan has own strong comparative advantage (RCA(CT)_WS=1 or RCA(CT)_SS=1), China tends to hesitate to have the products included in the list.

The estimation results of the determinants of utilization rates are reported in Table 5. The coefficient of inverse mills ratio(IMR) is significantly negative, which indicates that there might exist significant selection bias if OLS method is used to estimate the model.

The first column of Table 5 is our benchmark model in which China's MFN rates are not subdivided into different ranges. The coefficient that (MFN_CH-ECFA) is insignificantly

negative, which is not consistent with expectation, However, if we classified the tariffs into thee ranges: (MFN_CH-ECFA)<5, 5≦(MFN_CH-ECFA)<15, and (MFN_CH-ECFA)≧15. The dummy variable of (MFN_CH-ECFA)≧15 is significantly positive, while the dummy variable (MFN_CH-ECFA<5) is insignificantly. These results suggest that if a product does not have a MFN tariff rate higher than 15%, Taiwanese firms will not have strong incentive to utilize the Agreement. However, the coefficient of PT is significantly negative, as expected. This suggests that Taiwanese firms that export toward China for the purpose of processing trade tend not to have high incentive to utilize the Agreement. The coefficient of SME is also significantly negative, as expected. The coefficients of MTW and STW are significantly positive, which suggest that the firms located in the middle or southern part of Taiwan tend to have higher incentive to utilize the Agreement.

Regarding the impact of ROOs, if we use Hybrid Rule as our benchmark, the expected sign of the dummy variables of Co-Equal Rule and Single Rule are positive. However, our estimation results illustrate that both Co-Equal Rule and Single Rule have significantly negative coefficients. In addition, if we use the most flexible ROO, CH/RVC, as our benchmark, the dummy variables such as CH&RVC、CH&RVC&SP、CS&RVC and WO all have positive coefficients, which is also inconsistent with what we expected.

Finally, the coefficient of the laggard dependent variable and the coefficients of all the yearly dummies have significantly positive coefficients. These results imply that there exists strong learning effect in utilizing the Agreement.

5. Conclusion

This paper investigates empirically the determinants of the utilization of the Free Trade Agreement in exports from Taiwan to China. Heckman's two-stage estimation method is adopted to correct for selection bias. Our empirical results show that the

preferential tariff rates of the Agreement are more likely to be utilized for products with a larger tariff margin except for products imported for the purpose of processing trade. In addition, it is found that there exists strong learning effect in utilizing the Agreement. However, the impact of rules of origin is not consistent with what expected.

Our empirical results have an important policy implication. They indicate that the impact of a free trade agreement would be significantly overestimated if its potential utilization rates are not taken into account. It suggests that it is essential to consider the possible utilization rates when evaluating the potential impact of a free trade agreement. [4]

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Table 1 Tariff Reduction on Products in the Early Harvest List of the ECFA

unit:%

Country / sectors	Taiwan	China
Fruits and Vegetables	0.00	-12.83
Other Grains	0.00	-14.50
Cattle	0.00	-20.00
Fishery	0.00	-11.25
Other Foods	0.00	-15.00
Textile	-3.18	-9.11
Garments & Apparel	0.00	-14.78
Leather & Products	0.00	-15.22
Petroleum & Products	-3.30	-9.00
Plastic & Chemical Products	-3.99	-5.32
Other Mineral Products	-4.98	-10.05
Steel	-3.00	-5.59
Non-Iron Metals	-1.20	-4.78
Metal Products	-6.20	-8.67
Motor Vehical	0.00	-10.00
Other Transportation Equipment	-5.07	-12.88
Electronics & Electrical Machinery	-3.50	0.00
Other Machinery	-3.66	-7.78
Other Manufactures	-3.99	-15.07

Source: Calculated from data offered by Department of Customs Administration, Ministry of Finance, R.O.C.

Table 2 Utilization Rates of the Early Harvest of the ECFA

Sectors	Taiwan				China			
	2011	2012	2013	2014	2011	2012	2013	2014
Total	**20.8%**	**41.5%**	**49.4%**	**52.0%**	**20.5%**	**28.8%**	**31.8%**	**36.5%**
Agricultures	51.3%	78.3%	88.9%	78.5%	-	-	-	-
Machinery	30.4%	53.8%	63.4%	66.7%	12.9%	21.5%	21.7%	23.1%
Petrochemical Products	28.5%	55.3%	65.5%	64.3%	26.8%	45.3%	48.8%	53.8%
Transportation Equipment	31.9%	51.5%	62.5%	63.2%	5.0%	11.4%	15.3%	18.5%
Textile	11.5%	20.7%	25.9%	30.4%	73.7%	82.0%	82.8%	81.6%
Others	9.1%	23.0%	24.9%	32.9%	20.3%	27.6%	31.6%	38.0%
-Dyes and Pigments	9.1%	65.6%	66.5%	73.4%	72.9%	81.4%	85.0%	87.1%
-Mold	16.7%	43.8%	67.8%	69.5%	17.9%	26.2%	53.2%	41.6%
-Electronics	1.5%	27.1%	20.1%	38.6%	5.2%	6.2%	7.7%	22.2%
-Metal Products	11.5%	18.1%	22.0%	26.5%	46.6%	66.6%	62.2%	63.5%
-Rubber Products	9.0%	12.8%	14.6%	24.1%	62.2%	74.7%	77.2%	82.1%
-Electrical Equipment	8.4%	15.7%	20.1%	22.6%	9.4%	16.3%	21.5%	26.6%

Source: Calculated from data offered by Department of Customs Administration, Ministry of Finance, Taiwan.

Table 3 Definition and Measurement of Variables

(1) Selection Equation of the Determinants of Early-Harvest-List Products		
Variable	**Measurement**	**Expected sign**
Dependent Variable		
Eh	eh=1, if the product at HS 8-digits code is included in the early harvest list; eh= 0, otherwise	
Independent Variables		
China's MFN tariff rate *(MFN_CH)*	China's MFN tariff rate in 2009	?
Difference in tariff rates of ASEAN between Taiwan and Korea (MFN_AS – AKFTA)	MFN_AS is ASEAN's MFN percentage rates of tariff (%) in 2009；AKFTA is Korea's percentage rates of tariff (%) in 2009 in ASEAN	+
Difference in tariff rates of China between Taiwan and ASEAN (MFN_CH-ACFTA)	ACFTA is ASEAN's percentage rates of tariff (%) in 2009 in China	+
China's imports from Taiwan (*IM(TW)_CH)*	The values of China's imports from Taiwan in 2009 in million US dollars	?
China's total imports (*IM(WD)_CH)*	The values of China's total imports in 2009 in million US dollars 2009	+
Intra-industry between Taiwan and China (IIT)	Grubel-Lloyd intra-industry index	+
Reciprocity	Reciprocity=1, if the product at the same HS 6-digits code of Taiwan and China is included in the early harvest list; Reciprocity=0, otherwise	+
RCA(CT)	Revealed Comparative Advantage (RCA) of the products at HS 6-Digits code: RCA(CT)_WW=1, if both Taiwan and China have a value of RCA below 0.8; RCA(CT)_WW=0, otherwise RCA(CT)_WS=1, if Taiwan has a larger value of RCA than China; RCA(CT)_WS=0, otherwise RCA(CT)_ SW=1, if China has a larger value of RCA than Taiwan; RCA(CT)_ SW=0, otherwise RCA(CT)_SS=1, if both Taiwan and China have a value of RCA above 1.25 ; RCA(CT)_SS=0, otherwise	?
(2) **Regression equation of the determinants of FTA utilization**		
Dependent Variable		
FTA Utilization Rate (FTAUR)	The percentage of the value of China's imports from Taiwan at preferential tariff rates divided by China's total imports from Taiwan (%)	
Independent Variables		
Margin in ECFA (MFN_CH-ECFA)	The percentage of China's MFN tariff rates-tariff rates of the products on the early harvest list of ECFA (%)	+
Ratio of China's imports from Taiwan for processing trade purpose (*PT)*	The values of China's imports from Taiwan for processing trade divided by the values of China's total imports from Taiwan (%)	-
Sensitive Sector or Products (*SME*)	SME=1, if the product belongs to small or median enterprises or sensitive sectors; SME=0, otherwise	-
Ratio of Taiwan's exports via Taichung Port (*MTW*)	The value of Taiwan's exports to China via Taichung Port divided by Taiwan's total exports to China (%)	?
Ratio of Taiwan's exports via Kaohsiung Port (*STW*)	The value of Taiwan's exports to China via Kaohsiung Port divided by Taiwan's total exports to China (%)	?
Rules of Origin(*ROO*)	Co-Equal Rule： CH or RVC Single Rule：CC、CH、CS、RVC、WO Hybrid Rule： CS&RVC、CH&RVC、CH&RVC&SP、CC&RVC	More strict ROO leads to lower utilization.
Year Dummy	Y2012, Y2013, Y2014	?
IMR	Inverse Mills Ratio	

Table 4 Empirical results of selection equation

VARIABLES	(1)	(2)	(3)
Constant	-1.083***	-1.684***	-1.842***
	[0.199]	[0.219]	[0.213]
MFN_CH	-0.001		
	[0.007]		
Dummy(*5≦MFN_CH<15)*		0.611***	0.634***
		[0.106]	[0.105]
Dummy(*MFN_CH≦15)*		0.105	0.168
		[0.157]	[0.152]
MFN_CH-ACFTA	0.028***	0.038***	0.037***
	[0.010]	[0.009]	[0.008]
MFN_AS – AKFTA	0.028***	0.031***	0.031***
	[0.008]	[0.008]	[0.008]
ln(*IM(TW)_CH)*	0.074***	0.071***	0.075***
	[0.008]	[0.008]	[0.007]
ln(*IM(WD)_CH)*	0.002	0.011	0.015
	[0.011]	[0.012]	[0.010]
IIT	-0.417***	-0.418***	
	[0.093]	[0.095]	
reciprocity	1.881***	1.796***	1.735***
	[0.090]	[0.091]	[0.090]
RCA(CT)_WW	-0.446**	-0.423**	-0.427**
	[0.193]	[0.194]	[0.190]
RCA(CT)_SS	-0.215	-0.194	-0.163
	[0.199]	[0.200]	[0.196]
RCA(CT)_WS	-0.040	-0.027	0.019
	[0.193]	[0.194]	[0.190]
RCA(CT)_SW	-0.646***	-0.601***	-0.563***
	[0.193]	[0.194]	[0.190]
Observations	6,341	6,367	8,277

Standard errors in brackets

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

Table 5 Empirical results of FTA utilization regression equation

VARIABLES	(1)	(2)	(3)	(4)
Constant	33.409***	33.659***	18.139***	15.405***
	[2.612]	[2.402]	[4.739]	[3.533]
MFN_CH-ECFA	-0.075			
	[0.194]			
(BASIS：Dummy(5≦MFN_CH-ECFA<*15))				
Dummy(MFN_CH-ECFA<5)		-0.507	0.453	-0.006
		[2.085]	[2.095]	[2.518]
Dummy(MFN_CH-ECFA≧15)		8.646***	6.035**	3.258*
		[2.672]	[2.740]	[1.955]
PT	-0.215***	-0.214***	-0.192***	-0.070***
	[0.017]	[0.017]	[0.018]	[0.014]
SME	-2.498	-5.011**	-3.800	-4.480**
	[2.506]	[2.403]	[2.763]	[2.192]
MTW_{t-1}	0.160***	0.157***	0.159***	0.036*
	[0.023]	[0.023]	[0.023]	[0.019]
STW_{t-1}	0.157***	0.160***	0.133***	0.039**
	[0.023]	[0.023]	[0.023]	[0.018]
co-equal Roo rule	-16.189***	-15.667***		
	[4.549]	[4.558]		
single Roo rule	-13.368***	-13.120***		
	[1.660]	[1.654]		
CC			2.448	-0.700
			[4.495]	[3.502]
CC&RVC			-7.554	-10.109
			[14.598]	[11.350]
CH			1.900	-0.064
			[4.295]	[3.344]
CH&RVC			13.390***	3.948
			[4.614]	[3.595]
CH&RVC&SP			37.174***	8.479*
			[6.364]	[5.003]
CS&RVC			20.469***	11.113***
			[5.367]	[4.231]
RVC			-5.209	-0.834
			[9.086]	[7.089]
WO			21.851***	4.342
			[5.934]	[4.738]
$FTAUR_{t-1}$				0.802***
				[0.017]

Table 5 Empirical results of FTA utilization regression equation (Cont'd)

VARIABLES	(1)	(2)	(3)	(4)
Y2012	13.092***	12.077***	12.502***	
	[1.880]	[1.830]	[1.816]	
Y2013	19.642***	18.409***	18.877***	
	[1.905]	[1.837]	[1.824]	
Y2014	21.982***	20.737***	21.141***	
	[1.905]	[1.834]	[1.821]	
IMR	-2.688***	-3.081***	-3.930***	-1.835**
	[1.016]	[1.027]	[1.057]	[0.867]
Observations	2,229	2,229	2,229	1,659
R-squared	0.237	0.240	0.258	0.684

Standard errors in brackets

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