



# The Impact of Non-Tariff Measures on the Exporting of Agricultural Products of Cambodia

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## ABSTRACT

The production and exporting of agricultural products were considered one of the most important roles of the Cambodian people. In the free trade world, tariff measures were not determined to be the main obstacle to moving products from one country to worldwide, but non-tariff measures (NTMs), were defined to be the main problem nowadays. An empirical investigation using the gravity model with four classes of NTMs: Sanitary and phytosanitary (SPS), technical barriers to trade (TBT), pre-shipment inspection (PSI), and non-technical barrier (NTB) was carried out to assess the impact of Cambodia's exported agricultural products abroad. In order to generate robust standard errors for hypothesis testing, the ordinary least square (OLS) estimation method was combined with the bootstrapping technique. The results of this research supported the gravity model hypothesis, however, SPS and PSI were negatively affecting Cambodia's exporting at significant levels of 10% and 1%, respectively, while the TBT measure had a positive influence on trade at a level of significant of 1%. In contrast, the NTB class had no significant impact on exports.

**Keywords:** Agricultural Products, Non-Tariff Measures, Ordinary Least Square, Bootstrapping

**JEL Classifications:** F1, C23, C21

## 1. INTRODUCTION

Agriculture, manufacturing, and services are the three main sectors of Cambodia's economy. Between 2017 and 2021, the agricultural, industrial, and service sectors contributed for an average of 23.8%, 36%, and 40.2% of gross domestic product, respectively. During the same time period, the average rate of real GDP growth was 4.3%. On average, the sector with the highest growth rate was industry (7.9%), followed by service (2.3%), while the agricultural sector had the lowest growth rate of roughly 0.8% (Asian Development Bank, 2022).

The economy of Cambodia was not dependent only on domestic consumption; it relied on international trade as well. The total value of Cambodia's exports increased from \$US11.31 billion in 2017 to \$US18.36 billion in 2021, an increase of approximately 62.36%. The top ten importers from Cambodia were the United States of America (\$US7.06 billion), Japan (\$US1.14 billion),

Germany (\$US0.98 billion), the People's Republic of China (\$US1.40 billion), the United Kingdom (\$US0.71 billion), Canada (\$US0.95 billion), Singapore (\$US0.15 billion), Viet Nam (\$US1.57 billion), Thailand (\$US0.51 billion), and Belgium (\$US0.43 billion). There were three countries determined to be the top importers of Cambodia: the People's Republic of China (\$9.75 billion), Singapore (\$5.12 billion), and Thailand (\$3.25 billion) (International Monetary Fund, 2022).

In 2021, Cambodia's exporting of agricultural products to the world was \$US922.72 million, of which 45.92%, 20.30%, and 6.27% were cereals, fruit, and nuts, edible; the peel of citrus fruit or melons; and preparations of vegetables, fruit, nuts, or other parts of plants, respectively. In contrast, the country imported approximately \$US1613 million, which accounted for 20.84% of the food industries, residues, and wastes thereof; prepared animal fodder; 16.92% of beverages, spirits, and vinegar; 14.45% of tobacco and manufactured tobacco substitutes; and 10.29% of

preparations of cereals, flour, starch, or milk; and pastry chefs' products (International Trade Centre [ITC], 2022).

Cambodia has been a member of the World Trade Organization (WTO) since October 13, 2004. This membership had given Cambodia the opportunity to assess 147 markets worldwide with nondiscrimination. Despite the fact that entering the WTO was the beginning of trade liberalization, it was not complete free trade across all the member states yet. The boundary of trade liberalization depended on each country's policies, procedures, and regulations, but they must comply with the WTO's rules and disciplines (Siphana, 2005).

The ASEAN Economic Community, known as AEC, was established in 2015 under three pillars: the Political-Security Community, Economic Community, and Socio-Cultural Community. By implementing AEC Blueprint 2015 measures related to tariff reduction, trade facilitation, and the ASEAN Trade in Goods Agreement (ATIGA), more goods have been freed to flow within the ASEAN region. As part of AEC 2025, ASEAN will continue to reduce or eliminate border and behind-the-border regulatory barriers that impede trade, to achieve competitiveness, efficiency, and seamless movement of goods across its borders. The three strategic goals of ATIGA are as follows: (i) Further strengthening ATIGA; (ii) strengthening and streamlining the application of the Rules of Origin; and (iii) accelerating and deepening the application of trade facilitation measures. Among the vital measures, the issue surrounding non-tariff measures (NTMs) was thought to be one of the most crucial concerns to be resolved among the ASEAN Member States (AMS). Minimizing trade protection and compliance costs while dealing with NTMs is one of the AMS's key responsibilities. "Most NTMs address regulatory objectives such as environmental, health and safety, security, or cultural considerations, but they can also significantly impede trade, inadvertently or by design. In order to address NTMs, it is necessary to (i) accelerate efforts toward the complete elimination of nontariff barriers; (ii) implement standards and conformance measures, such as equivalence in technical regulations, standardization, alignment with international standards, and mutual recognition agreements (MRAs); and (iii) streamline processes and lower import and export license, permit, and certificate requirements" (AEC Blueprint, 2015).

In line with the WTO and the common effective preferential tariffs scheme of the AMS, the government has tried to reduce tariffs for over a decade. The intra-ASEAN import duties have been eliminated on 99.65% of their tariff lines for Brunei, Indonesia, Malaysia, the Philippines, Singapore, and Thailand and 98.86% of their tariff lines for Cambodia, Lao PDR, Myanmar, and Viet Nam, as referred to in the ATIGA. Hence, tariff measures were not considered trade barriers among AMS (AEC Blueprint, 2015).

In 2021, Cambodia's exports of agricultural products to ASEAN countries were approximately \$US162.23 million, while there were 1365 NTMs imposed by the counter trades in the community. Beside ASEAN countries, there were three big markets that imported agricultural products from Cambodia: China (\$US433.38 million), the EU (\$US133.35 million), and the

US (\$US42.47 million) and NTMs imposed by those markets were 349, 399, and 247 measures, respectively. In the opposite direction, Cambodia imposed only 115 NTMs related to agricultural products imported from all trading partners. NTMs have been classified into technical and non-technical measures on the import figures. Sanitary and phytosanitary (SPS) measures, technical barriers to trade (TBT), Pre-shipment inspection (PSI), and other formalities are part of technical measures, and there are twelve measures that represent non-technical measures (UN Comtrade, 2021 and UNCTAD, 2021).

Tariffs were not considered to be the main trade barrier for Cambodia regarding the rules and disciplines of WTO and ASEAN membership toward trade liberalization, but with a huge number of NTMs imposed by Cambodia's trading partners, they would be considered to be procedure obstacles for the country, especially, the export of agricultural products. The objective of this research is to conduct an empirical investigation in order to assess the impact of NTMs imposed by Cambodia's trading partners on its exports of agricultural products. More interestingly, this study tries to develop effective policies that can be implemented by related ministries in Cambodia, such as the Ministry of Agriculture, Forestry, and Fisheries, the Ministry of Commerce, the Ministry of Health, the Ministry of Economy and Finance, and other ministries or institutions, in order to improve Cambodia's export of agricultural products.

This paper is classified into five chapters. Chapter one represents introduction, while chapter two is literature review. The research methodology of this paper is described in chapter three. The fourth section discusses the empirical results, and finally, in the last section, a concluding remark has been given.

## 2. LITERATURE REVIEW

Food hygiene and safety standards on seafood, such as the Analysis and Critical Control Point System – HACCP, minimum required performance limit, and basic food safety law developed by the US, EU, and Japan, respectively, caused Vietnamese shrimp and fish exports to those markets to decrease on average by approximately 97% and 80%, respectively (Nguyen and Wilson, 2009). The volume of exports of seafood products remained unchanged despite the free trade agreement signed between the EU and the US due to non-tariff barriers such as import notification and rejections. The empirical results of this study using the gravity model further indicated that there was a trade-off between tariffs and NTMs (Baylis et al., 2012).

The standard of food safety imposed by Chinese trading countries had a huge impact on the export of vegetables and fruit. In contrast, the exports of both products would continue to decline when the Chinese government applied the same measurement to the imported fruit and vegetables from its counterparts. The bilateral trade of fruit products between China and Japan, the United States of America, and the EU was reduced because of the imposed standards related to the limitation of pesticide residue by the three countries (Dou et al., 2015). Non-tariff barriers related to the import and export of agricultural products between developing

and developed countries remain a critical issue to be discussed and solved. The gravity model was applied in a study about the SPS measures imposed by developed countries on the import of tea from China. The results showed that a 1 ppm increase in the Maximum Residual Limits of fenvalerate and endosulfan by developed countries would reduce the export of Chinese tea by 1.6% and 0.7%, respectively (Dong and Zhu, 2015). A study by Ferro et al. (2015) revealed that NTMs vary, but recently the number of measurement rose dramatically especially the restriction on trading of agricultural products.

The export of fruits of Chile decreased when stringency had increased as indicated by a research conducted by Santeramo and Lemonaca (2019) to investigate the effect of SPS and TBT measures that incorporates a stringency perception index on the exports of fruit. To evaluate the impact of four most used NMTs, the importer-specific ad valorem equivalents, on trade in the Indian Ocean Rim Association, a gravity model using NTM count data was carried out. The empirical finding of this research showed that SPS and TBT measures had less impact on trade in the region than import-impeding and import-promoting (Akintola et al., 2021). This results were inconsistency with a research conducted by Ronen (2017) and Dolabella (2020) that SPS and TBT had a sizeable negative impact on trade than other NTMs.

An empirical investigation conducted in Hebei Province found that green trade barriers imposed by the Chinese government had a negative impact on export volume of agricultural products, but it had a positive effect on price as well in the short-run. In the long-run, the situation reversed (Su, 2021). Using a gravity model over the period between 2001 and 2020 to investigate the effect of two most practical NTMs, SPS and TBT on three different agricultural products, harmonized system (HS)08, HS09, and HS10, by EU on the import of agricultural products import from Vietnam. This research found that it had a positive relationship between NTMs imposed and trade related measures (Hien and Huyen, 2022).

A negative effect of SPS measures, which imposed by China, on the import of agricultural products from the US, New Zealand, Korea and Japan was found, but the result was insignificant using whole sample. In contrast, the investigation on each individual country, the estimated results had changed. The imposed SPS by China had a statistically negative impact on the US and Japan export, but positive effect on Korean's products. The affect was found to be positive for New Zealand's exports, but before the Free Trade Agreements with China had put into action (Wood et al., 2017). The empirical investigation was conducted to measure the effect of TBT and SPS measures imposed by the US on the import of 42 countries domestic value-added. Both measures had no significant impact on gross export of the US's trading partners under investigation. This research showed a negative relationship between TBT measures and domestic value-added especially with developing countries and high-technology products (Wu et al., 2022).

It had a shortage of foods supply in Indonesia due to the burdensome of NTMs such as sanitary or phytosanitary measures, TBT, and PSI imposed by eight different ministries and agencies

which accounted for 466 measures as of January 2021. In addition to the imposed technical trade barriers, the non-automatic import license system which was a kind of quota restriction imposed by the government and was considered to be one of the most trade barriers not just only for foreign companies but for domestic companies as well when importing foods and agricultural products into Indonesia (Amanta, 2021).

The synthesized empirical finding in this research indicated mixed results regarding the relationship between NTMs such as SPS and TBT and trade-related measures from one country to another country, but most of the studies end up with a negative relationship between NTMs and trade.

The results of telephone interview of 502 respondents conducted by the ITC in 2014 showed that 69% of the enterprises reported burdensome NTMs and other trade barriers. During the period of the study, the United States of America and European Union, each imported about one fourth of Cambodia's export, but 40% and 11% of Cambodian exporters under this research faced with regulation difficulty created by EU and US counterparts, respectively. Trade barriers imposed by foreign countries impact more on Cambodia's exporters than importers based on the survey data (ITC, 2014). Seyhah conducted an empirical investigation once in 2017 to investigate the impact of NTMs imposed by imported countries on Cambodia's export of agricultural products. There were three NTMs included in the gravity model: two from technical measures, SPS and TBT, and one from a non-technical barrier (NTB). Using the poisson pseudo maximum likelihood (PPML) method with cross-sectional data, among the three measurements, the empirical result of this research indicated that only the NTB measure had a significant negative effect on the export of Cambodia's agricultural products. This model also took into account four control variables, but only one variable was statistically significant explain export which was gross domestic product (Seyhah, 2017). Only two out of seven independent variables in this research were found to have a statistically significant effect on exports of agricultural products from Cambodia to abroad, which is considered to be low. The lower number of significant variables might be due to the estimation method employed in the previous study, PPML. To unwind this suspicion, an ordinary least square (OLS) will be carried out in combination with bootstrapping standard errors for statistical tests. More interestingly, a complete set of NTMs, technical measures, SPS, TBT, PSI, and non-technical measure, NTB, will be included in the model.

### 3. RESEARCH METHODOLOGY

The empirical assessment of the impact of NTMs on Cambodia exports of agricultural products to her main trading partners can be conducted by running a multiple regression model in the form of Gravity model as follow,

$$\ln Export_i = \beta_1 \ln GDP_i + \beta_2 ASEAN_i + \beta_3 \ln(1 + SPS_i) + \beta_4 \ln(1 + TBT_i) + \beta_5 \ln(1 + PSI_i) + \beta_6 \ln(1 + NTB_i) + \epsilon_i$$

Where,  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$  are parameters to be estimated.  $\epsilon$  are the residual or error terms which defined to be the unobserved variables

which can impact on the value of export. Export represents the value of export of agricultural products from Cambodia to her trading partners which is denoted by  $i$  which is  $i = 1, \dots, N$ .

As referring to the Direction of Trade of the International Monetary Fund in 2021, there were 41 countries that were determined to be the top exporting countries of Cambodia, including Austria, Bangladesh, Belgium, Brunei Darussalam, the People’s Republic of China, Hong Kong SAR, Denmark, Finland, France, Germany, Greece, Hungary, Indonesia, Ireland, Italy, Japan, the Lao People’s Democratic Republic, Malaysia, Malta, Myanmar, the Netherlands, New Zealand, Norway, the Philippines, Poland, Portugal, the Republic of Korea, the Russian Federation, Saudi Arabia, Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Thailand, United Arab Emirates, United Kingdom, United Arab Emirates, United States of America, and Viet Nam. The agricultural product codes are determined using the HS 2-digit codes covering 01-24, which were established by the world integrated trade solution (Table 1). From codes 01-14, the unprocessed agricultural products are indicated, while codes 15-24 represent the processed agricultural products. The data on exports is collected from the UN Comtrade Database. The Domestic Product (GDP) of each country is extracted from the World Development Indicators of the World Bank. ASEAN is a dummy variable, where 1 indicates the ASEAN member states, and 0 otherwise.

Regarding the United Nations Conference on Trade and Development (UNCTAD), NTMs are classified into two main categories: imports and exports. Imports consist of two main categories, technical measures and non-technical measures. There are three chapters, (A) SPS, (B) TBT, and (C) PSI and other formalities included in technical measures, while the non-technical measures or NTB, which has twelve chapters, are D, E, F, G, H, I, J, K, L, M, N, and O (Table 2). The main objective of the regression analysis is to investigate the impact of NTMs imposed by Cambodia’s trading partners on the export of agricultural products. This research uses four main classes of NTMs, SPS, TBT, PSI, and NTB. Each of the class represents the number of NTMs imposed by imported countries, collected from the UNCTAD Trade Analysis Information System. All variables are equipped with natural logarithms, except the dummy variable.

The sample parameters of the regression model are estimated using OLS method, but to get a robust standard error, bootstrapping technique applied. OLS is BLUE, that why most of researchers always use. The technique starts with randomly selected with replacement of  $N$  observations from  $N$ -observation dataset. In each trail, a new resampling dataset is used to estimate sampling parameters and statistics based on OLS method. The process is repeated many times and the statistics are recalculated. The replicated statistics which established from the trails will be applied to calculate the standard error (se) based on the standard formula for the sample standard deviation below,

$$se = \left\{ \frac{1}{k-1} \sum (\hat{\theta}_i - \bar{\theta})^2 \right\}^{1/2}$$

and

**Table 1: Harmonized system 2-digit, agricultural products**

Code	Description
01	Animals; live
02	Meat and edible meat offal
03	Fish and crustaceans, molluscs and other aquatic invertebrates
04	Dairy produce; birds’ eggs; natural honey; edible products of animal origin, not elsewhere specified or included
05	Animal originated products; not elsewhere specified or included
06	Trees and other plants, live; bulbs, roots and the like; cut flowers and ornamental foliage
07	Vegetables and certain roots and tubers; edible
08	Fruit and nuts, edible; peel of citrus fruit or melons
09	Coffee, tea, mate and spices
10	Cereals
11	Products of the milling industry; malt, starches, inulin, wheat gluten
12	Oil seeds and oleaginous fruits; miscellaneous grains, seeds and fruit, industrial or medicinal plants; straw and fodder
13	Lac; gums, resins and other vegetable saps and extracts
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included
15	Animal or vegetable fats and oils and their cleavage products; prepared animal fats; animal or vegetable waxes
17	Sugars and sugar confectionery
18	Cocoa and cocoa preparations
19	Preparations of cereals, flour, starch or milk; pastrycooks’ products
20	Preparations of vegetables, fruit, nuts or other parts of plants
21	Miscellaneous edible preparations
22	Beverages, spirits and vinegar
23	Food industries, residues and wastes thereof; prepared animal fodder
24	Tobacco and manufactured tobacco substitutes

Source: Manole (2005)

$$\bar{\theta} = \frac{1}{k} \sum_{i=1}^k \hat{\theta}_i$$

Where  $k$  is the number of replications,  $\hat{\theta}_i$  is the statistic calculated using the  $i$ th bootstrap sample, and  $\bar{\theta}$  is the average bootstrapped estimates as referring to Hall and Wilson (1991). To produce the unbiased statistic, the deviation of  $\bar{\theta}$  from  $\hat{\theta}$  will be subtracted from  $\hat{\theta}$  (Efron, 1982). Since, the unbiased estimator would generate more mean squared error than the biased one, therefore,  $\hat{\theta}$  is the best point estimate of the statistic which derived from the original dataset (Mooney and Duval, 1993; Hinkley, 1978).

$$se_{MSE} = \left\{ \frac{1}{k} \sum_{i=1}^k (\hat{\theta}_i - \hat{\theta})^2 \right\}^{1/2}$$

The estimation of the bias is

$$bias = \bar{\theta} - \hat{\theta}$$

The confidence intervals are,

$$\left[ \hat{\theta} - z_{1-\alpha/2} se, \hat{\theta} + z_{1-\alpha/2} se \right]$$

Where  $z$  and  $\alpha$  represent z-score from standard normal distribution and significant level, respectively.

#### 4. EMPIRICAL RESULTS

The empirical investigation is conducted using a multiple regression analysis between dependent variable, export, and independent variables, gross domestic product, border (dummy variable), number of SPS, number of TBT, number of PSI, and number of NTB imposed by Cambodia's trading partners on the exporting agricultural products. There are 41 countries determined to be the top importers from Cambodia as referring to the Direction of Trade of the International Monetary Fund. Therefore, the total sample size is 41 observations. The summary statistics of all variables under study are presented in Table 3.

The method which will be used to estimate sample parameters of the regression analysis is OLS. One of the basic assumption of OLS is no multicollinearity among independent variables. The correlation coefficient of a pair of variables equal plus or minus one mean that it has a perfectly positive or negative correlation.

The correlation coefficient of any pair of variables which has value  $>-0.9$  or  $+0.9$  is assumed to have highly negative or positive

correlation. Any pair of variables that has perfectly or highly negative or positive correlation, there will be one variable will be eliminated from the model. The correlation matrix in Table 4 showed that there has no problem of perfectly or highly correlation between independent variables since the correlation coefficient of all pair of variables has value  $<-0.9$  or  $+0.9$ .

In fact, all slope coefficients of the regression results presented in Table 5 are estimated using OLS method, but to get robust standard errors, which help improving the test of statistic, bootstrapping technique, is applied. The total number of replications of the model are 200 bootstrapping.

The empirical results explained that gross domestic product has a positive relationship with export at 1% significant level. The rejection of the null hypothesis indicated that the demand of agricultural products from Cambodia will increase when income of Cambodia's foreign trading partner increased. The empirical result has further revealed that the closer the border between Cambodia and the AMS, the greater the trade value generated which support the gravity model hypothesis. This conclusion is driven through the rejection of null hypothesis at 1% significant level that claimed that ASEAN has no relationship with export. The estimated parameter of the ASEAN dummy variable was 2.9162 which was positive and considered to be the highest as comparing with other parameters in the model.

**Table 2: Classification of non-tariff measures by chapter**

Imports	Technical measures	A	Sanitary and phytosanitary measures
		B	Technical barriers to trade
		C	Pre-shipment inspection and other formalities
	Non-technical measures	D	Contingent trade-protective measures
		E	Non-automatic import licensing, quotas, prohibitions, quantity-control measures and other restrictions not including sanitary and phytosanitary measures or measures relating to technical barriers to trade
		F	Price-control measures, including additional taxes and charges
		G	Finance measures
		H	Measures affecting competition
		I	Trade-related investment measures
		J	Distribution restrictions
		K	Restrictions on post-sales services
		L	Subsidies and other forms of support
		M	Government procurement restrictions
		N	Intellectual property
		O	Rules of origin
Exports		P	Export-related measures

Source: UNCTAD (2019)

NTB of NTMs imposed by Cambodia's trading partner has statically insignificant explained exporting of agricultural products from Cambodia since the probability of the calculated z-test is  $0.293 > 0.05$  or 5% level. Among the three classes of technical measures of NTMs, A: SPS Measures, B: TBT, and C: PSI and Other Formalities (PSI), all are statistically significant impact the export of agricultural products at 10%, 1%, and 1% level, respectively. The slope coefficients of SPS and PSI are negative which interpreted that the increase of NTMs involving of the two classes will particularly influence Cambodia's exporting. In contrast, the estimated sample parameter of class B, 2.0079, TBT, is positive which claimed that there will not be an issue if Cambodia's trading partners increase the NTMs of that class.

As indicated by the Adjusted  $R$ -squared, which is 0.9814, the data best fit with the model. Moreover, the explanatory variables in the model explained the response variable well. The calculated Wald Chi-square is 2915.02 which is large and since its probability is  $<1\%$ , it is concluded that all slope parameters are jointly difference from zero.

**Table 3: Summary statistics**

Variable	Observation	Mean	Standard deviation	Minimum	Maximum
$\ln Export$	41	14.2586	2.5792	6.8617	19.8869
$\ln GDP$	41	26.9865	1.5895	23.3628	30.7664
ASEAN	41	0.2195	0.4190	0	1
$\ln(1+SPS)$	41	4.0323	0.5920	2.3979	5.2627
$\ln(1+TBT)$	41	3.2273	0.7451	1.9459	5.3799
$\ln(1+PSI)$	41	0.7516	0.8798	0	2.6391
$\ln(1+NTB)$	41	2.2828	0.5770	0	3.7377

**Table 4: Correlation matrix of independent variables**

Variable	<i>lnGDP</i>	<i>ASEAN</i>	<i>ln (1+SPS)</i>	<i>ln (1+TBT)</i>	<i>ln (1+PSI)</i>	<i>ln (1+NTB)</i>
<i>lnGDP</i>	1					
<i>ASEAN</i>	-0.3580	1				
<i>ln (1+SPS)</i>	0.2606	-0.2637	1			
<i>ln (1+TBT)</i>	0.4605	-0.2131	0.4611	1		
<i>ln (1+PSI)</i>	0.3144	0.1765	0.1170	0.6016	1	
<i>ln (1+NTB)</i>	0.4537	-0.1976	0.4990	0.4573	0.1792	1

**Table 5: Regression results using bootstrapping standard error**

<i>lnExport</i>	Coefficient	Standard error	z	P>z	[95% Confidence. Interval]
<i>lnGDP</i>	0.4024	0.1086	3.70	0.000	0.1895 0.6154
<i>ASEAN</i>	2.9162	0.8885	3.28	0.001	1.1749 4.6575
<i>ln (1+SPS)</i>	-1.2825	0.7224	-1.78	0.076	-2.6983 0.1333
<i>ln (1+TBT)</i>	2.0079	0.7164	2.80	0.005	0.6038 3.4121
<i>ln (1+PSI)</i>	-1.7490	0.4903	-3.57	0.000	-2.7100 -0.7880
<i>ln (1+NTB)</i>	1.2197	1.1607	1.05	0.293	-1.0552 3.4946
Intercept	0.4024	0.1086	3.70	0.000	0.1895 0.6154

## 5. CONCLUSION

The government should encourage private sector investment to help improve the SPS standards so they better meet the international standard and, in particular, draw investment from both domestic and foreign sources to create an agricultural product processing factory that can produce finished agricultural products. This will increase the export of agricultural products abroad and make them even better. This plan not only assists in meeting domestic demand for agro-industrial products but also aids in locating markets for Cambodian farmers. The preceding suggestion might result in an increase in agricultural output exports over the long term. However, to expand exporting capacity, profitability, and agricultural production—notably to lower the cost of agricultural output—the relevant ministries, particularly the MAFF, should perform technical research that can be endorsed and implemented as national policy. Along with overcoming technological challenges, finding affordable funding is essential to improving the agricultural goods produced by Cambodian farmers. Government support is also necessary for farmers to be able to take out loans from Microfinance Institutions for the duration of their planting season at relatively low interest rates. For instance, MEF has worked with ACLEDA Bank to help SMEs recover after COVID-19 gave loans to any SMEs that required working capital to grow or expand their businesses. Due to this, the agricultural industry should also get financial support, notably during each planting season.

The gravity model was applied in this research and the dummy variable was used to measure the only nine AMS, which reflected the countries had border distance close to Cambodia. Future researchers who wish to conduct research related to NTMs in Cambodia by adopting the gravity model, it would be highly recommended to expand the model in a more specific way by replacing the dummy variable with the distance variable, which measures distance in Kilometers or Miles, between Cambodia and its trading partners.

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