

# Study on Textile Trade between China and ASEAN in Post-epidemic Era

Jiangyue Sun, Shuangyan Li\*

School of Textile, Zhongyuan University of Technology, Zhengzhou, China

## Abstract

**This paper analyzed the current situation of textile trade between China and ASEAN firstly. Within the ten ASEAN countries, the top 5 textile trade countries are Vietnam, Singapore, Malaysia, Indonesia and Thailand, among which Vietnam's textile trade with China got the fastest growth. In order to study the cooperation basis and future development potential of textiles between China and ASEAN countries, this study introduces the gravity model for empirical research. The results show that the textile trade value between China and ASEAN is positively correlated with the difference of per capita GDP and the ratio of population, and negatively correlated with the factor of geographical distance. Over the past decade, the potential of textile trade between China and ASEAN countries has been on the rise. In 2019, the potential index is basically between 0.8-1.2, which belongs to "potential development type". That means future development of textile trade between China and ASEAN countries requires further exploration of cooperation space and resources.**

## Keywords

**China and ASEAN; Potential of Textile Trade; Post Epidemic Era.**

## 1. Introduction

The Association of Southeast Asian Nations, or ASEAN, was formed in response to Southeast Asian countries' fast economic development, as well as their competitiveness and influence in the international world. As China possesses a natural geographical advantage with ASEAN countries. Humanity, economy and trade exchanges are in close contact.

China has been ASEAN's top 1 trade partner for 12 years since 2010. In 2013, President Xi Jinping proposed the "One Belt, One Road" initiative, which has resulted in increased trade flows between China and ASEAN. ASEAN became China's third largest trading partner from 2011 to 2018. In 2019, ASEAN surpassed the United States as China's second largest trading partner, overtaking the United States to become our second largest trading partner. Early 2020, despite the global pandemic broke out, ASEAN defied the trend and became our No.1 trading partner [1]. China and ASEAN have officially signed the Regional Comprehensive Economic Partnership Agreement, or RCEP in November 2020, which indicated a new chapter of development for China and ASEAN is coming [2]. With the broke of the epidemic in 2020 and its global spread, the world economy is in recession, global international trade is sluggish and the environment for China's foreign trade development is severe and complex.

China and ASEAN are both important manufacturers and exporters of textiles and apparel, and its trade relationship is both competitive and cooperative. The main objectives of this article is to study the factors that affecting textile trade between China and ASEAN, to predict future potential of textile collaboration between the two sides, and then give a proposal of future directions for cooperation.

## 2. The Current State of China-ASEAN Textile Trade

ASEAN has 10 members: Vietnam, Thailand, Singapore, Malaysia, Indonesia, the Philippines, Brunei, Myanmar, Laos and Cambodia. Among them, Vietnam, Singapore, Malaysia, Indonesia and Thailand, rank in the top five in terms of trade with China, especially Vietnam increased fastest in recent years. The trade value of the Philippines, Myanmar, Cambodia, Brunei, and Laos with China is lower than the former five countries. Table 1 illustrates the value of China exporting textiles to the five ASEAN countries from 2011 to 2020.

**Table 1.** Value of China's textile exporting to five ASEAN countries, 2010-2020

importer	Export Value (USD100million)									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Vietnam	49.7	52.1	75.4	94.6	104	99.4	103	118	123	119
Thailand	14.6	16.8	17.5	19.3	19.9	19.8	19.0	20.7	21.7	22.8
Indonesia	27.1	28.8	30.4	34.5	31.7	32.4	34.6	41.6	42.4	30.7
Malaysia	12.7	15.7	19.5	19.5	20.1	15.4	14.3	13.5	15.4	22.8
Singapore	5.91	7.42	6.86	6.88	6.44	4.87	5.12	4.08	4.14	11.9

Data Source: Uncomtrade Database

Table 1 shows that China's textile exporting to ASEAN countries are generally increasing these years, and with varying degrees of decline in 2020 as a result of the COVID-19. Textile exporting to Vietnam is the greatest, far outpacing other nations, and have increased at an astonishing rate over the decade, rising from US\$4.97 billion in 2011 to US\$12.3 billion in 2019. Indonesia is the second, although its growth rate has been low, rising from US\$1.98 billion in 2010 to US\$4.24 billion in 2019. Thailand, Malaysia, and Singapore have lower processing capacity and have developed at a slower rate during the last decade.

China and ASEAN are both labor-rich countries, and the trade pattern is centered on China exporting textiles to ASEAN, and ASEAN processing and exporting garments to other countries. As illustrated in Table 2, China imported significantly less textiles from ASEAN than exported to it.

**Table 2.** China's textile importing from the top five ASEAN countries

	Import Value (USD100million)									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Vietnam	6.33	8.0	11.0	15.2	17.2	20.6	25.4	28.2	30.1	26.8
Thailand	3.62	3.13	4.23	3.97	3.63	3.19	3.1	3.2	2.93	2.26
Indonesia	2.67	3.42	4.52	4.74	4.9	4.11	5.25	5.2	4.96	3.93
Malaysia	1.61	1.53	1.8	1.65	1.66	1.82	2.18	2.51	2.66	2.28
Singapore	0.34	0.28	0.37	0.41	0.43	0.49	0.54	0.70	0.60	0.49

Data Source: Uncomtrade Database

As shown in Table 2, Vietnam still ranks first in China's textile importing from ASEAN countries. In 2019, China imported more textiles from Vietnam (US\$3.01 billion) than the other ASEAN countries combined, and the total importing value was much lower than exporting. This situation means that China primarily supplies textiles to ASEAN to support the rapid development of its garment sector.

Tables 1 and 2 showed that China and Vietnam have a high degree of intra-industry trade in textiles, it indicated that the two countries have a strong complementary relationship in textiles,

particularly with Vietnam, where a labor-intensive garment processing industry has emerged and economic outward orientation has increased as its labor force population continues growing [3].

In order to analyze the basis of collaboration between China and ASEAN countries in textiles and the potential for future development, this paper uses a gravity model for empirical analysis

### 3. The Gravity Model

In economics, the gravitational model is based on Newton's law of gravity, which states that the gravitational force between two objects is proportional to mass and inversely proportional to distance. In economics, the gravity model of trade refers to the positive influence of economic agglomeration between two countries on the scale of trade between them, as opposed to the negative effect of distance between them [4], the original gravitational model formula is:

$$T_{ij} = AY_i Y_j / D_{ij} \quad (1)$$

In equation 1,  $T_{ij}$  signifies bilateral trade between countries  $i$  and  $j$ .  $A$  signifies a constant,  $Y_i$  denotes the total economy of country  $i$  and  $Y_j$  signifies the size of nation  $j$ 's GDP, and  $D_{ij}$  denotes the distance between country  $i$  and country  $j$ . To preserve the regression results, the formula is changed and converted to its natural logarithm to obtain the fundamental form of the gravity model.

$$\ln T_{ij} = \alpha_0 + \alpha_1 \ln GDP_i + \alpha_2 \ln GDP_j + \alpha_3 \ln DIS + \mu \quad (2)$$

As trade gravity models are important methods and tools in the empirical analysis of international trade, this article uses gravity models to analyze the factors that affecting textiles trade between China and ASEAN, and to estimate the textile trade potential between China and ASEAN in the future.

### 4. Empirical Research

By establishing the expansion gravity model of textile trade between China and ASEAN, this article examines the factors that influencing China's textile trade with ASEAN and the degree of influencing.

#### 4.1. Variables Selection

Based on previous research experience, the following variables are introduced in this article.

##### (1) The Product of GDP

GDP measures the size and development of a country's economy. In general, the greater a country's economy, the higher its citizens' consumer demand and the higher degree of a country's international trade, as which helps to expand international trade and enhance trade opportunities [5]. As the strength of a country's economy reflects its power of importing, so an increase product of two countries' GDP will promote trade between the countries, and result in trade expansion.

##### (2) Balance of per capita GDP

The balance of per capita GDP between China and ASEAN countries can substantially reflect the ASEAN countries' degree of economic growth; the greater the absolute value of the per capita GDP gap, the more opportunity for textile trade.

##### (3) Population proportion

The population ratio between China and ASEAN countries represents market differences, the larger the population ratio, the wider the market gap and the greater the hindrance to textile trade.

#### (4) Geographical Distance

The transportation cost between China and ASEAN can be reflected by geographical distance. The shorter the distance, the less the transportation costs and the greater the likelihood of trade exchanges [6]. The natural geographical advantage between China and ASEAN, combined with the recent increase in infrastructure construction projects between China and ASEAN, which made merchandise transportation very convenient and cheap, and facilitated the continued development of bilateral trade between China and ASEAN.

#### (5) Trade Dependence

Trade dependence, defined as the ratio of total imports and exports to GDP. It demonstrates one country's degree of opening to the outside and reliant on foreign trade. The greater the degree of trade dependence, the more favorable for its international trade [7].

### 4.2. Establishment of Model

Product of GDP, balance of per capita GDP, population proportion, geographical distance and trade dependence all have an impact on China's textile trade with ASEAN. To create a gravity model for textile trade, these five influencing factors are employed as explanatory variables, and the amount of textile trade between China and ASEAN countries is used as the explained variable.

$$\ln T_{ijt} = \alpha_0 + \alpha_1 \ln (GDP_{it} * GDP_{jt}) + \alpha_2 \ln BPCGDP_{ijt} + \alpha_3 \ln RPOP_{ijt} + \alpha_4 \ln DIS_{ij} + \alpha_5 \ln OPEN_{it} + \mu \quad (3)$$

In the above formula(3), i represents China, and j represents one of the ten ASEAN member countries.  $T_{ijt}$  is the trade value of China(i) and country j in period t on SITC code 65 textiles.  $GDP_{it}$  ( $GDP_{jt}$ ) represents the GDP of country i(j) in period t, with a positive expected sign;  $BPCGDP_{ijt}$  represents the absolute difference of GDP per capita between country i and country j in period t, also with a positive expected sign;  $RPOP_{ijt}$  is the population ratio of country i to country j in period t.  $DIS_{ij}$  is the straight-line distance between the capitals of countries i and j, having a negative anticipated sign.  $OPEN_{ijt}$  denotes country j's foreign trade dependency in period t, with a positive predicted sign  $u$  is a random disturbance term.

### 4.3. Data Source

The empirical analysis uses cross-sectional data of China and ten ASEAN countries from 2011 to 2020. The value of textile exports and imports between China and ASEAN are obtained from the UN COMTRADE Database, the data on GDP, GDP per capita, and trade dependency of each country are obtained from the World Bank Database, the population ratio between ASEAN countries and China is calculated from the World Bank Database, and the geographical distance is obtained from the "Straight-line distance" (physical distance) between Beijing and various capitals around the world.

### 4.4. Results Analysis

This article uses software Stata16 to conduct an empirical analysis of panel data on China's textile trade with ASEAN over the past 10-year period and across 100 groups from 2011 to 2020. Model tests are initially run on the compiled panel data, using current studies that deal with panel data, which typically has mixed effects, random effects, and fixed effects. As the explanatory variables contains geographical distance, which is time-invariant and a singular matrix will developing when assessed a fixed effects model. So the factor of physical distance cannot be added to the model.

The original hypothesis of "no individual random effect" was severely rejected in the BP-LM test, with Prob > chibar2 = 0.0000, therefore the random effect was judged better than the mixed model, and Table 3 provides the regression results for the random effect.

**Table 3.** Regression Results

Variables	Coefficients
$\ln GDP_{it} + \ln GDP_{jt}$	0.497*** (2.58)
$\ln BPCGDP_{ijt}$	0.271** (2.20)
$\ln RPOP_{ijt}$	1.155*** (5.51)
$\ln DIS_{ij}$	-1.834 (-0.18)
$\ln OPEN_{it}$	0.786*** (2.96)
Constant	8.077 (0.35)
Observations	100
Number of code	10
Company FE	YES

(Note: \*\*\*, \*\*, \* in the table indicates significant at the 1%, 5%, 10% levels respectively)

The following regression equation was derived from the random effects regression results:

$$\ln T_{ijt} = 8.08 + 0.50 \ln(GDP_{it} * GDP_{jt}) + 0.27 \ln RPCGDP_{ijt} + 1.16 \ln RPOP_{ijt} - 1.83 \ln DIS_{ij} + 0.79 \ln OPEN_{it} \quad (4)$$

According to the regression equation 4, the GDP of China and ASEAN has a positive contribution to their textile trade and the test result is significant at the 1% level; the explanatory variable of GDP per capita difference and bilateral trade value are positively related and pass the test at the 5% significance level, and the coefficient is 0.27, which means that for every 1% increase in GDP per capita difference, the bilateral textile trade value increases by 0.27 percent. The population ratio between China and ASEAN is positively associated to bilateral textile trade, with each 1% increase in the population ratio, textile trade will be increased by 1.16%. The geographical distance factor is negatively associated to textile trade and has a very large influence on textile trade between China and ASEAN, assuming that every 1% increase in distance causes a 1.83% decline in textile trade from a realistic perspective. The physical distance between China and ASEAN countries will not change, but the impact of physical distance on textile trade value can be lowered by aggressively constructing cross-border logistical corridors to cut trade costs. The trade dependency of China and ASEAN has a greater effect on textile trade, with each 1% rise in trade dependency, textile trade value has a 0.79 percent rise.

### 5. Analysis of China-ASEAN's Textile Trade Potential

Based on the findings of the above empirical analysis, this article brings data into equation data to estimate the simulated trade value of textile trade between China and ASEAN countries from

2011 to 2020, and compares them to the actual trade value to calculate the textile trade potential index between China and ASEAN countries, the results are shown in Table 4.

**Table 4.** 2011-2020 Potential Index of Textile Trade of China and ASEAN Countries

Country	Potential Index of Textile Trade									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Brunei	0.61	0.60	0.63	0.64	0.63	0.61	0.60	0.60	0.98	1.00
Indonesia	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.62	0.84	1.00
Cambodia	0.67	0.67	0.68	0.68	0.68	0.68	0.68	0.69	0.77	1.08
Laos	0.55	0.55	0.55	0.55	0.55	0.55	0.56	0.57	0.68	0.92
Myanmar	0.72	0.64	0.64	0.63	0.63	0.63	0.64	0.64	0.74	1.03
Malaysia	0.63	0.63	0.64	0.64	0.65	0.64	0.64	0.63	0.85	1.05
Philippines	0.62	0.62	0.63	0.62	0.63	0.64	0.64	0.63	0.86	1.00
Singapore	0.62	0.62	0.62	0.62	0.53	0.61	0.61	0.60	0.76	0.99
Thailand	0.64	0.63	0.63	0.63	0.63	0.63	0.62	0.62	0.91	1.01
Vietnam	0.65	0.65	0.66	0.60	0.66	0.66	0.66	0.66	1.02	1.03

As seen in Table 4, the textile trade potential between China and ASEAN has grown gradually over the last decade. Before 2018, the trade potential index was less than 0.8, that meant there was still significant untapped trade potential, whereas by 2020, the trade potential index are all around 1.0. It was well known that a trade potential index of 0.8 to 1.2 is called "potential-expanding." Given that there is still a significant difference between the present index and 1.2, this article suggests that there is still opportunity for the textile trade potential to grow in the future, and more in-depth research and development is required to further explore in order to create stronger commercial links between China and ASEAN.

## 6. Prospects for Textile Trade between China and ASEAN in Post-epidemic Era

### 6.1. Epidemic Boosts Regional Trade

Since the outbreak of the epidemic in 2020, worldwide trade between neighboring countries has increased. China and ASEAN are all Asian countries, at the beginning of epidemic, they all took active measures to avoid and control the disease. This is a sharp contrast to Europe and the United States, where the epidemic was repeatedly and cannot be fully controlled. From late 2020, China and ASEAN resumed production quickly, promoted bilateral trade growth as well. In view of the complementarity of industrial structure between China and ASEAN and the advantages of interregional logistics cost, Regional Comprehensive Economic Partnership (RCEP) and The Belt and Road Initiative (BRI) will soon provide an even greater boost to bilateral commerce between China and ASEAN.

Furthermore, the global supply chain is becoming more regionalized, according to the joint statement of China ASEAN transport ministers, China-ASEAN Free Trade Area will play an important role in responding to the epidemic and promoting the early recovery of the regional economy. Simultaneously, China and ASEAN countries such as Singapore, Laos, Myanmar, and Indonesia have established "fast-track" and "green channels" for personnel and goods, resumed direct international flights with Vietnam and other ASEAN countries. Establishment of "fast-

track" channels and "green channel" network between China and ASEAN are in actively discussion.

## 6.2. Digitalization Makes Trade Easier

Prior to the epidemic outbreak, the development of textile and apparel sector has encountered bottleneck. So, the epidemic has hastened the reform of the textile and apparel trade, accelerated the built of digitalization, information technology and automation of the supply chain. Of them, the digitalization urgently needs to be strengthened, as the bilateral trade between China and ASEAN needs more cross-border e-commerce. With an average monthly traffic of 198 million, Shopee is currently the largest e-commerce platform in ASEAN, covering Singapore, Malaysia, the Philippines, Indonesia, Thailand, and Vietnam; it is also the fastest growing e-commerce platform in Southeast Asia. Lazada is a pioneer in the Southeast Asian e-commerce sector, with over 155,000 local and international vendors and 3,000 brands on its platform. It also reaches 560 million Southeast Asian consumers with over 300 million SKUs, providing the biggest choice of products.

The development of digital products can greatly cut expenses while also accurately reflecting changes in market demand and lowering transportation costs. At the post of epidemic, the efficiency of resource and equipment will get further optimized with the development of e-commerce and the construction of database. So, developing of digitalization is the trend for the entire clothing and textile supply chain.

## 6.3. "Road & Belt" and RCEP Boost Cooperation

The Belt and Road Initiative and collaboration between China and ASEAN on epidemic prevention are two of the most important reasons why ASEAN's import and export trade exceeds that of Europe and the United States. The China-Thailand Railway, the China-Laos Railway, and the Hanoi Light Rail Project in Vietnam are among the many Belt and Road infrastructure projects that have continued to boost the dynamism and resilience of China's and the ASEAN region's economies by removing development barriers in ASEAN countries, improving connectivity between ASEAN countries, and facilitating the movement of person and merchandise. These projects will lower transportation costs for the textile and garment industry while also boosting local economic development. During the pandemic, the majority of the China-ASEAN "Belt and Road" construction projects did not halt operations, instead of making significant progress. All of these have contributed to a further warming of China-ASEAN economic and trade relations, with over 90% of merchandise trade between China and ASEAN now are zero tariffs.

China and ASEAN officially signed Regional Comprehensive Economic Partnership (RCEP) by video on November 15, 2020, which ushering China-ASEAN relationship to an incredibly crucial new phase of growth in the post-epidemic era. As integration and development go hand in hand with the international geopolitical, the signing of the RCEP opens up new potential for China and ASEAN to cooperate in a greater geographical area as well as in more economic and commercial fields. Thanks to the strengthening of the China-ASEAN strategic partnership, the implementation of the expanded China-ASEAN Free Trade Area, and the formal signing of Regional Comprehensive Economic Partnership (RCEP), the prospects of China-ASEAN economic and trade cooperation remain bright in the future.

## 7. Conclusion

In ASEAN, China's key trading partners are Vietnam, Singapore, Malaysia, Indonesia, and Thailand. According to the review of textile trade data from 2011 to 2020, the top five ASEAN countries in textile trade with China are Vietnam, Singapore, Malaysia, Indonesia, and Thailand. Vietnam has the most significant value of textile import and export with China, followed by

Indonesia and Thailand, and research shows that there will be a trend toward tighter collaboration in bilateral trade with China in the future.

The empirical results show that the balance of per capita GDP and the ratio of population between China and ASEAN countries have a positive impact on the textile trade between China and ASEAN, while the distance between Beijing and the capitals of ASEAN countries is negative. For every 1% increase in the per capita GDP gap, the textile trade value will be increased by 0.27%; For every 1% increase in the population ratio between China and ASEAN, the textile trade value will increase 1.16%; For every 1% increase in the distance between Beijing and the capitals of ASEAN countries, the textile trade value will be decreased by 1.83%.

Over the last ten years, the potential index for textile and apparel trade between China and ASEAN countries has grown. By empirically analyzing the trade in textiles and garments between China and ASEAN and measuring the import and export potential, it is discovered that in 2019, the trade potential index of China and ASEAN countries are all between 0.8 and 1.2, which belongs to the "potential development type." In general, the trade potential of garments is slightly greater than that of textiles, but both require deeper exploration of resources and future development.

In the future, bilateral textile trade must be monitored against the outbreak of epidemic. We should stick to the "Belt & Road" initiative, the China-ASEAN Free Trade Agreement and RCEP, and seize the digital trade opportunities in the post-epidemic period, and the prospects for textile trade between China and ASEAN are remained promising in the post-epidemic era.

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