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# Assessing the displacement effect of exports with gravity trade model: China's textile and clothing case and OBOR implications

Yui-Yip Lau[a,b], Man-Hin Chan[c], Hong-Oanh Nguyen[d*]

[a] Hong Kong Community College, The Hong Kong Polytechnic University, Hong Kong, China
[b] Transport Institute, University of Manitoba, Winnipeg, Canada
[c] Faculty of Design and Environment, Technological and Higher Education Institute of Hong Kong, China
[d] Department of Maritime and Logistics Management, University of Tasmania, Australia

## ARTICLE INFO

## ABSTRACT

This paper employs the gravity model to investigate how the growth of China's textile and clothing (T&C) exports is displacing the exports of other Asian developing countries over the 1990-2015 period. Aggregate analyses were undertaken, and the endogeneity of Chinese exports were accounted by applying instrumental variables with country fixed effects. It was found that there was a negative impact of China's emergence on T&C exports on other Asian developing countries. We further explored whether such displacement effect varies across Asian countries and the results showed that a more pronounced effect was found in low-income countries than high-income ones. Our findings suggest that the export competitiveness of China's neighbors, i.e. both more and less developed Asian countries, are affected by the emergence of China in T&C Trade. The implications of China's One Belt, One Road initiative are also discussed.

## 1. Introduction

With strong government support, economic reforms and progressive trade liberalization since 1979, China has rapidly emerged as the preferred exporter in the global Textile and Clothing (T&C) industry. Over the past 37 years, the country has recorded an annual average GDP growth rate of around 9.9%. In 2015, the trade value of China's textile and clothing exports to the world amounted to US$ 105 billion and US$ 186 billion respectively, representing 28% and 25% of the world total T&C exports.

Since 1995, China has become the world's largest T&C exporter. China's size with its highly elastic supply of low-cost labor and on-going trade liberalization have increased adjustment concerns in both developed and developing countries around the world. The dramatic increase of China's T&C exports has particularly triggered fear of increased competition for developing economies and hollowing out manufacturing firms in advanced countries. China's accession to the WTO in 2001 further reinforced such fear.

Over the years, China's economic growth have gradually affected all parts of the world and in particular its neighboring Asian countries due to their close geographical proximity. The impact is especially strong on countries that are at the same stage of development with similar relative factor endowments and production costs and rely on T&C exports. The abundant supply of low-cost labor in China accentuates its comparative advantage in labor intensive T&C products, making developed countries in the region feel at risk of being displaced in global markets. Unlike many previous studies (IMF, 2004; Yang and Vines, 2000; Hoekman and Nicita, 2011; Pomfret, 2013) that adopted a general equilibrium framework or used indirect measurement of trade similarity, this paper employs a more robust econometric

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method and an identification strategy that explicitly acknowledges the potential endogeneity of China's exports to explore the impact of China's emergence as a leading T&C exporter on other Asian countries. Our findings show that a more pronounced displacement effect is found among low-income Asian economies than high-income ones, suggesting the export competitiveness of China's neighboring countries, both more and less developed countries, is affected by China's growth in T&C exports.

## 2. Overview of China's T&C exports

The T&C sectors are central to global economy and have played an especially important role in the export-oriented development of Asia, initially in Hong Kong, South Korea and Taiwan, and more recently, China. These sectors have been responsible for creating millions of jobs, increasing income and contributing to economic growth of Asian nations as reflected by the cross-countries statistical evidence of the impact of T&C export growth on national economic growth (Diao and Somwaru, 2001; Azmeh and Nadvi, 2013).

In 2015, global T&C exports amounted to US$751 billion. Approximately 150 countries around the world are involved in T&C exports with many of them being highly dependent on these sectors for employment and foreign exchange. Although some 30 nations are importers of T&C, in reality, T&C suppliers are dependent on three principal import markets, namely the USA, EU and Japan. The EU accounts for about 16% and 56% of world T&C imports, surpassing the US by 4% and 28% and has become the world's largest importer since 2013 due to its enlargement to 28 member countries. With the increasingly globalized T&C production, distribution and complexity involved in the design of supply chains, the T&C exports industry has contributed significantly to creating employment and economic growth, in particular among developing countries.

As Gereffi and Memedovic (2003, p.22) noted: "*In Northeast and Southeast Asia, [T&C exports] have declined in importance, except in China where it remains the top export item, and in Indonesia and Vietnam where apparel has climbed to third place.*" Many Asian countries are dependent on T&C exports, which often accounts for a significant share of their export earnings and hence, create a relatively high degree of dependency. T&C exports trade has dominated China's total exports and become the major foreign exchange earner since the country's Open Door Policy in 1978. With the remarkable efforts made by enterprises and the accession to the WTO, China is seen to exert a boosting effect on its T&C exports, reinforcing its role as the largest supplier to world markets. In fact, China's T&C industries have been growing steadily over the years. In 1980, the country's textile and clothing exports valued at US$ 1 billion and US$2 billion respectively and were ranked the eleventh and eighth largest exporters in the world. China's T&C export trade continued to grow in the following decades. In 1990, its T&C exports values reachedUS$7 billion and US$9 billion respectively, making the country the fourth and third largest global exporter. In 2000, China's T&C export values further increased to US$16 billion and US$36 billion respectively. Most recently, the trade value of China's T&C exports to the world amount to approximately US$ 105 billion and US$186 billion, representing 28% and 25% of the total world T&C exports. In fact, since 1995, China has become the world's largest T&C exporter with an average annual growth of 15% and 18% in T&C exports from 1980 to 2015. During this period, China's T&C exports trade to the world continued to boom and experienced robust growth, particularly after 2000. Its market share in the EU, the US and Japan has grown remarkably between 1990 and 2015 from 3% to 11% in the EU, 6% to 25% in the US and 31% to 85% in Japan.

The above figures also imply that the T&C industries in China have experienced substantial and structural change over the past few decades. With the introduction of economic reform in 1979, China's T&C industries have been considered as a major source for both employment and export earnings. The 11th Plenary Session of the 16th Central Committee of China in 2005 stressed that the T&C sector should upgrade its technology in equipment production and develop the ability to achieve product differentiation so as to enhance the country's overall performance to maintain its position as the largest exporter in the world (Chan and Au, 2007).

The effect of China's T&C exports growth is likely to be felt most intensely by its neighboring countries given their close geographical proximity. The similarity between other Asian economies and China in terms of economic development, factor endowments, technological capability, production costs and other comparative advantages means that the former will inevitably have to compete head to head with China. Thus, to some extent, China's emergence as may intensify the competitive pressure felt by other Asian suppliers, slowing the growth of these suppliers' T&C exports, and more generally, challenge the sustainability of high growth of other Asian countries. This vicious cycle is the motivator behind the analysis in this paper. We explore the extent to which China's T&C exports affect the delivery of other Asian suppliers to the EU-15, the US and Japanese markets over the period 1990-2015 by using the gravity model and an identification strategy that explicitly acknowledges the potential endogeneity of Chinese exports by applying instrumental variables with country fixed effects. We distinguish the impact of China's T&C exports on other Asian suppliers to third markets. In contrast to previous studies (Ianchovichina and Walmsley, 2005; IMF, 2004; Yang and Vines, 2000) address this issue, we estimate the impacts in question by using econometric methods rather than deriving them from a simulation model where the results flow from the assumption implicit in the standardization of key parameters. Our findings show that the displacement effect caused by differs across Asian countries and is more

pronounced in low-income Asian economies than high-income ones. It is concluded that the surge of China's T&C exports has affected the export performance of its neighboring developed and developing countries at various degrees.

## 3. Previous research on the impact of China's T&C exports on Asia

Few studies in the literature have studied the potential impacts of China's T&C exports on its Asian neighbors. Ahearne et al. (2003) examined how exports of China and Hong Kong have affected the growth of the newly industrialized economies (NIEs), namely the Republic of Korea, Singapore, Taiwan and Hong Kong, and the ASEAN-4 members, namely Indonesia, Malaysia, the Philippines and Thailand. Using a panel of annual data, the authors regressed the export growth of Asian countries on their trading partner's income growth, movement in real effective exchange rates and China's real export growth. While the coefficient on Chinese exports tends to be positive, suggesting complementarities between its exports and those of its Asian neighbors, the effect rarely reaches statistical significance at standard confidence levels. They could not find sufficient evidence that an increase in China's exports reduce the exports of other emerging Asian economies. On the contrary, it appears that China's exports have positive correlation with the exports of other countries.

Ianchovichina and Walmsley (2005) calibrated and simulated a multicountry multisector model of international trade, and assumed China's accession to the WTO as a liberalization of its trade regime that gives rise to its propensity to export. They proved that while increasing its own exports, China reduces the exports of Vietnam, the Philippines, Thailand, Indonesia and Malaysia, as a result of the negative impact of these countries' T&C trades. This study summarized and suggested that a decline in exports is mainly due to T&C trades, and a reduction in GDP relative to baseline levels in East Asia's developing countries. Similarly, Yang and Vines (2000) applied a computable general equilibrium (CGE) model with differentiated products as a way of analyzing the impact of China's growth on exports from other Asian countries and found that the exports of ASEAN countries drop slightly. The overall effect is the sum of positive effects on exports to China itself and negative effects on exports to third markets, which differ in size depending on the concerned Asian exporter.

Ahearne et al. (2003) examined how China and Hong Kong exports have affected the growth of four NIEs (Korea, Singapore, Taiwan, and Hong Kong) and ASEAN-4 members. Using a panel of annual data for 1981-2001, they regressed Asian countries' exports growth on trading partner's income growth, movement in real effective exchange rates and China's real export growth. A positive correlation was found between China's export growth and that of other Asian countries, suggesting China's exports do not compete with other Asian's countries. Using a gravity modeling approach, Eichengreen et al. (2004) examined how China and Hong Kong exports have affected the growth of NIEs and ASEAN members during 1990-2002. Their results showed that China crowds the less-developed Asian countries exports of consumer goods in third markets. Greenaway et al. (2008) applied the same method to analyze the displacement effect on Asian exports differs when exports from Hong Kong and China were combined in comparison to the narrow case of Chinese exports only over the period of 1990 to 2003.

IMF (2004) applied a computerized general equilibrium (CGE) model to analyse the geographical and sectoral structures of trade. Their results point to a small negative impact on the exports and output of all regions. In terms of output, this negative effect is larger for the Middle East and North Africa while the smallest for advanced economies. In this study, ASEAN economies experience a somewhat larger than average impact, while NIEs and South Asian economies face a somewhat smaller than average impact. The precise effects vary by sector and country. For example, countries that rely heavily on T&C exports and labor intensive manufactures in which China also has a comparative advantage, tend to experience particularly large negative effects.

## 4. Methodology

This section develops an econometric model based on the gravity theory (model) of trade. The gravity trade model was first used in applied econometric work by Tinbergen (1962) and Poyhonen (1963) to explain bilateral trade between European countries. Although the model has obvious intuitive appeal and performed well empirically, it was challenged by …as it lacks theoretical foundations. Subsequent work has been conducted to deal with this challenge and showed that the model can in fact be derived from a number of standard theories of trade. Anderson (1979) and Bergstrand (1985, 1989), for example, showed that the gravity model can be derived under assumptions of product differentiation and monopolistic competition. Deardorff (1995, 1998) justified the gravity model using two extreme cases of Heckscher-Ohlin, namely frictionless trade in homogenous goods and impeded trade in differentiated goods. Using information on technology, input costs, prices and transport costs, Eaton and Kortum (2002) generated a gravity-type relationship in a Ricardian setting of trade for homogenous goods. Evenett and Keller (2002) analyzed the success of the gravity model in relation to the extent of perfect and imperfect product specializations, which in turn is determined by technology differences across countries, differences in factor proportions and scale economies. Harrigan (2002) conducted an extensive review of the gravity model with reference to various major trade models, including the

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Armington model, the monopolistic competition and the general equilibrium model and provided a theoretical underpinning for resistance and masses as the two key drivers of bilateral trade in gravity models. These approaches yielded restrictive specifications that can be used to test assumptions of a particular theoretical model.

In practice, most researchers appealed to the empirical robustness of the gravity model and employed it as a general framework for analyzing the role of a wide variety of different determinants of international trade from the impact of trade unions to the impact of monetary unions rather than as an effort to capture and test a particular trade-theoretic model. For example, Rose (2002b) and other authors have added a host of ancillary variables to the "traditional gravity effects" as a way of estimating their impact on bilateral trade flows. According to Ricart et al. (2004), the gravity model is the most systematic and successful class of attempts for integrating multiple dimensions of cross-border economic activity. Fitted relationships of the determinants explain one-half or even two-thirds of the variation in aggregate bilateral trade between country pairs. As a result, fitted gravity models have been described as supplying 'some of the clearest and most robust empirical findings in economics' (Leamer and Levinsohn, 1995).

The gravity model has been extensively used in empirical research to evaluate policy issues. These include trade impacts of currency unions (Nitsch, 2002; Rose, 2002a), national borders (McCallum, 1995; Helliwell, 1996, 1998), regional trading agreements (Sharma and Chua, 2000; Soloaga and Winters, 1999), and multilateral agreements (Rose, 2002b; Subramanian and Wei, 2003), implications of WTO accession for current non-members (Lissovolik and Lissovolik, 2004; Eremenko et al., 2003), calculation of trade potential (Nilsson, 2000; Egger, 2002), cross-border investment (Egger and Pfaffermayr, 2004) and China's trade displacement effect (Eichengreen et al., 2004, Greenaway et al., 2008). While most of the aforementioned policy issues have been widely discussed in the literature, the impact of China's growth in T&C industries using the gravity model has yet to be fully explored.

Since our purpose is to explore the impact of China's trade emergence on other countries, we adopt the following econometric equation based on the afore mentioned gravity theory to analyse the variables affecting the performance of China:

$$\ln(EX_{ij})_t = \alpha + \beta_1\ln(ChEXP_i)_t + \beta_2\ln(GDP_j)_t + \beta_3\ln(PCGPD_j)_t + \beta_4\ln(GDP_i)_t + \beta_5\ln(PCGPD_i)_t + \beta_6\ln(D_{ij}) + \beta_7(POP_i)_t +$$
$$\beta_8(POP_j)_t + \beta_8(E_{ij})_t + \beta_9\ln(LC_j) + \beta_{10}\ln(FEMALE_j) + \beta_{11}\ln(VA_j) + \beta_{12}Dum\_EU + \beta_{13}Dum\_USA+$$
$$\beta_{14}(TIME\_2001_{ij}) + U_{ijt}$$

where

| | |
|---|---|
| $t$ | $t = 1, 2, \ldots 26$, the time period (year) from 1990 to 2015 |
| $\ln(EX_{ij})_t$ | Log of export value of textile/clothing in millions of US dollars from the Asian suppliers to the EU-15, USA and Japanese markets, $i$ denotes the suppliers' variables, $j$ represents the EU-15, USA and Japan |
| $\alpha$ | Unobserved or fixed effects which do not change over time and capture all unobserved time-constant factors that affect $EXP_{ij}$. |
| $\beta$ | Slope parameter, also known as the partial regression coefficient. They represent the expected increase in the outcome variable for a unit increase in the predictor variable. |
| $\ln(ChEXP_i)_t$ | China's exports to T&C exporting country $i$ |
| $\ln(PCGDP_i)_t$ | Log of per capita GDP of exporting country $i$ in millions of US dollars |
| $\ln(GDP_j)_t$ | Log of GDP of the importing country, i.e., EU-15, USA or Japan in millions of US dollars |
| $\ln(PCGDP_j)_t$ | Log of per capita GDP of the importing country |
| $\ln(D_{ij})$ | Log of geographical distance (in km) between the capitals of the exporting country $i$ and importing country $j$ |
| $\ln(POP_i)_t$ | Log of the population of the exporting country |
| $\ln(POP_j)_t$ | Log of the population of the importing country |
| $(E_{ij})_t$ | The real exchange rate of foreign currency per unit in US dollars |
| $\ln(LC_i)$ | Log of labor cost of suppliers in millions of US dollars |
| $\ln(FEMALE_i)$ | Log of number of women in the work force of the exporting country |
| $\ln(VA_i)$ | Log of the value added amount in T&C industries of the suppliers in millions of US dollars |
| Dum_EU | The dummy variable equal to 1 if the importing country is a European country or 0 otherwise |
| Dum_USA | The dummy variable with value of 1 if the importing country is USA or 0 otherwise |
| TIME_2001 | An intercept dummy variable to capture the effects of China's accession to the WTO since 2001 |
| $U_t$ | Error term representing other omitted influences on T&C trade |

Exports between thirteen Asian exporting countries and seventeen importing countries were considered in this study. The dependent variable is the natural log of T&C export values. The independent variables include the log exports of country $i$ to country $j$, log GDPs of the two countries, log per capita GDPs of the two countries, log of suppliers' labor wages, number of female workers, value added factors, the distance between importing and exporting countries, real exchange rate, population size and time dummy.

The economic size of exporting and importing countries is generally measured by their GDPs. Based on the gravity principle, the per capita GDP of the exporting country was used as a proxy of capital intensity. As T&C industries are

labor-intensive, the per capita GDP of Asian suppliers were utilized to indicate the capital-labor endowment ratio of T&C trade. Additionally, the income level or purchasing power of importing countries was represented by per capita GDP. Controlling for GDP, richer countries (in terms of per capita GDP) are likely to demand more choices of differentiated products which may be imported from countries specializing in the production of such products. As such, the estimated coefficients of an exporter's per capita GDP are expected to be negative since the T&C sector is considered as labor-intensive; on the other hand, the coefficients of importer's per capita are expected to be positive.

The identification of distance effects on international trade has proven to be one of the most robust empirical findings in international trade (Frankel and Rose, 2002). In general, longer distance demands higher trade costs so the coefficient of distance should be negative. The importing country's population variable is expected to have a positive effect on trade because it is typically interpreted as a key determinant of import demand. However, the estimated coefficient for the exporting country's population may be positively or negatively correlated with trade flow (Oguledo et al., 1994), depending on the different mix of commodities supplied and demanded by each country. According to Bergstrand (1989), a negative sign for the coefficient of $POP_i$ indicates that exports tend to be capital intensive, i.e., a country with a smaller population tends to export capital intensive products such as textiles. Textile production today is more capital and technology intensive which requires sophisticated machinery and fewer workers. The real exchange rate is a key factor affecting trade flows. The depreciation/appreciation of a country's currency against another currency stimulates/reduces a country's exports. Thus, the positive or negative sign of real exchange rate depends on the currency change of the exporting countries against the trading partner countries.

Due to the T&C trade liberalization progress after the completion of the ATC in 2005, price competition among T&C suppliers have become stronger. The working wage level of exporters is one of the key factors in the entire T&C trade flow. Nearly three quarters of workers in the global T&C industries are women, and the number is even higher in developing countries. As more female workers imply higher production capacity for T&C exports, the number of female workforce is included in the list since T&C production involves a large amount of manual handling. The value-added factors refer to the additional value created at a particular stage of the manufacturing process. These enhance the value of a product and correspond to the income received by the owners. A higher value of materials and supplies added in T&C production should contribute more to exports. In addition, the continental distribution effects at the importer level are controlled by the continental dummy in model specification.

The question has also been addressed in the context of China's accession to the WTO. It is assumed that China's accession to the WTO is a liberalization of its trade regime that gives rise to its propensity to export; therefore, the value of the time dummy variable ($TIME\_2001_{ij}$) is expected to be positive.

It is worth noting that China's exports to the same market are included as one of the independent variables so as to analyze the impact of China's emergence on the T&C of other Asian countries. It is possible that the variable of interest, in particular China's exports, may not be exogenous and it is therefore important to recognize its potential endogeneity. A number of unobservable factors are likely to affect the error term and thus, Hong Kong's exports to the US may also affect China's exports to the US, creating a correlation between the error term and key explanatory variable. The standard treatment for this type of problem is to estimate by two-stage least squares (TSLS) using an appropriate instrumental variable, the difficulty being the paucity of plausible instruments that is the bane of empirical macroeconomics. Fortunately, in the present context, the gravity trade model suggests instruments that are both plausible exogenous and strongly correlated with Chinese exports. The obvious instrument, in other words, is the distance between China and the country that is the destination of its trading partners.

## 5. Results of econometric analysis

As explained above, the gravity trade model framework was extended to analyze the impact of China's T&C exports on the exports of other Asian countries and account for the effect of other variables, including market size, labour wage and workforce (number of female workers), value-added factors and exchange rate. Equations for T&C trade are estimated separately (as showed in Table 1). These cover the period from 1990 to 2015 and the analyses include export trade between Asian countries and their trading partners, Hong Kong's exports to Belgium (members of EU-15), US, and Japan, and for China's exports, which is treated as one of the independent variable in the model. The instrumental variable for China's exports to a third country is China's distance to that country.

Our results show that the gravity trade model fits the data well with F-statistic of 302.415 with a less than 0.001 P-value. and a strong fit with R-square value between 76% and 78% for the two-stage least square method. In particular, T&C exports increase with the trading partners' GDP, GDP per capita, importing country' population, labour workforce, the value added factor, and the accession of China to the WTO while decrease with distance, real exchange rate and labor wages. The following results are obtained.

**Table 1.** The impact of China's T&C exports on exports of Asian countries to the EU-15, US and Japan markets (1990-2015)

| | Dependent variable: $\ln(EX_{ij})$ | | | |
|---|---|---|---|---|
| | Panel two-stage least squares | | Ordinary least squares | |
| Independent variables | Coefficient (T) | Coefficient (C) | Coefficient (T) | Coefficient (C) |
| Constant | -27.73*** | -67.28*** | -27.52*** | -24.48*** |
| $\ln(ChEXP_i)$ | -0.16** | -1.29** | +0.67*** | +0.29*** |
| $\ln(GDP_i)$ | +1.10*** | +0.77*** | +1.01*** | +0.61*** |
| $\ln(PCGDP_i)$ | -0.03*** | -0.75*** | -0.05* | +0.70*** |
| $\ln(GDP_j)$ | +1.50*** | +2.26** | -0.84*** | -0.18* |
| $\ln(PCGDP_j)$ | +1.80*** | +3.42*** | +1.04* | +1.65*** |
| $\ln(D_{ij})$ | -1.22*** | -1.66*** | -0.66*** | -1.49*** |
| $\ln(POP_i)$ | -1.03** | +1.05*** | -1.08** | +1.14** |
| $\ln(POP_j)$ | +0.97*** | +0.53*** | +1.31*** | +1.26* |
| $(E_{ij})$ | -0.46** | -0.41** | -0.88*** | -0.86*** |
| $\ln(LC_i)$ | -0.20** | -0.61** | -0.08* | -0.66*** |
| $\ln(FEMALE_i)$ | +0.33** | +1.32*** | +0.31*** | +1.25*** |
| $\ln(VA_i)$ | +0.13** | +0.70*** | +0.10* | +0.43** |
| Dum_EU | +5.22** | +4.62*** | +5.00** | +3.38*** |
| Dum_USA | +5.45* | +4.89*** | +5.26* | +3.78*** |
| Time_2001 | +1.56*** | +2.02*** | +1.32*** | +1.98*** |
| Adjusted $R^2$ | 0.78 | 0.76 | 0.75 | 0.74 |
| Number of observations | 5399 | 5399 | 5399 | 5399 |

* Significant at .10 level,** Significant at .05 level, ***Significant at .01 level

*5.1 Impact of China's T&C exports on its neighbors (displacement effect)*

Our findings are consistent with those from previous studies (Ianchovichina and Walmsley, 2005) in that there is an inverse relationship between the increase of China's T&C exports and other Asian exports. Our findings confirm that China reduces the exports of other Asian suppliers while increasing its own exports due to the negative impact on their T&C trade. Exports from China to the same market have a (negative) coefficient of -0.16 and -1.29, showing a stronger crowding-out effect on the clothing industry than the textile sector; a 1% increase in Chinese clothing exports to its Asian trading countries results in approximately a 1.3% decline in the exports of the latter, while all other factors being equal. Similarly, a 1% increase in Chinese textile exports to its Asian trading countries results in approximately a 0.16% decline in the exports of the latter. Therefore, the clothing industry is the locus of China's crowding-out effect.

An obvious interpretation is that the growing competitiveness of China's T&C exports is causing some consumers in other parts of the world to choose China over suppliers from other countries. Such displacement effect is caused by China's highly effective workforce with comparatively low labor costs. High efficiency and skilled workforce help to achieve a short lead time as having the right timing in marketing is a crucial factor in the fashion business. In addition, China is highly self-sufficient in raw materials with the world's largest production capacity for cotton and man-made fibers. It also has ready access to high quality imported fabrics from South Korea, Taiwan and Japan in order to provide better quality products and open up the high-end markets. For example, China's success in Japan before 2005, a time when there was no quota with very demanding consumers shows that the former can supply high-quality clothing. As far as imports are concerned, China alone supplied 85% of the Japanese clothing import market in 2008.

Some interesting observations can also made by comparing the instrumental-variable results in columns (1) and (2) with the OLS results in columns (3) and (4) which are provided for illustrative purpose only. Clearly, instrumental variables make a significant difference. In columns (3) and (4), the coefficients on China's exports are positive, whereas the GDP of T&C importers, and per capita GDP of textile exporters are negative. This is because of bias estimation due to commonly omitted shock, such as improved consumer sentiment worldwide, which should increase the exports of both China and other countries, thus, introducing a positive correlation between the key independent variable and error term.

Since we do not derive our estimating equation from a particular model of international trade, no specific structural interpretation on this coefficient is offered. However, it is evident that the growing competitiveness of China's T&C exports is causing consumers in other parts of the world to substitute other Asian suppliers in favor of China. However, other interpretations are also possible. For example, the pressure of China's exports is forcing importers to impose protectionist measures that disproportionately affect other T&C suppliers.

Our nonstructural specification does not identify the mechanism. On the other hand, this specification should capture second-round effects. For example, if the growth of China's exports to the US causes the US government to invoke safeguard measures against China, this might trigger a diversion of exports of China to the EU, further displacing the exports of other Asian countries. However, the first-round and second-round effects should be captured

by the formulation.

## 5.2 GDP and per-capita GDP

Our econometric analysis results align with those of other gravity trading model studies of bilateral trade (Glick and Rose, 2002), and show that the GDPs of trading partners have a positive impact on T&C trade. This conforms to the theoretical expectation: a higher GDP creates a stronger demand for T&C imports and also a larger supply for exports. The interpretation of the results indicates that with a 1% increase in GDP for the importers, there would be 1.5% and approximately 2.3% increases in their T&C imports respectively. The same phenomenon is expected as the per capita GDP of importing countries improves. This indicates that they have stronger purchasing powers, creating a greater demand for imports. In this case, they are clothing imports for the EU-15, USA and Japan. These findings suggest that when both the GDP and per capita GDP of importers increase, clothing imports will also increase.

In terms of the results also show that a 10% increase in the GDP of the exporting country should increase its textile and clothing exports by 1.1% and 0.8% respectively. This implies that a larger quantity of exports should contribute to higher GDP growth by T&C suppliers and boost the economy of the exporting country. On the other hand, the per capita GDP of Asian countries shows a negative coefficient which matches the gravity principle since this variable is utilized to indicate the capital-labor endowment ratio of T&C trade and proves that these industries are considered as labor-oriented sectors.

## 5.3 Geographical distance

Consequent to the growing pressure for quick response, geographical proximity is an influential factor to T&C exports. Our findings show that the geographical distance variable ($D_{ij}$) has a negative effect on T&C trading: the longer the distance between the exporting and importing countries, the higher the logistics costs and hence, the lower the T&C trade between these countries. This is consistent with the common prediction that distance between bilateral trading destinations is a barrier for trade (Au and Chan, 2008). In particular, the results from our panel data analysis using the two-stage least squares method indicate that a one percent increase in distance reduces the trade value by 1.22-166 percent with all else being constant.

## 5.4 Exchange rates

Our results reveal that the real exchange rate plays a crucial role in determining the volume of T&C exports. The coefficient obtained is negative, suggesting a depreciation of the currencies of exporting countries against those of their partner countries, thus, promoting T&C exports. This confirms the expectation that whenever there is real depreciation or appreciation of a foreign currency against the American dollar, there will be an increase or decrease in T&C exports (Chan and Au, 2007).

## 5.5 Population

The population size of importers shows a positive effect on trade flow between countries. As shown in the analysis, T&C imports increase by .97% and .53% respectively with one percent increase in the population size of T&C importers. This supports the view that a larger population size is associated with greater import value (Chan et al., 2008).

The coefficient of the exporter's population variable is significant in both T&C estimations. However, $POP_i$ is negatively correlated with textile exports, but directly proportional to clothing exports. This is consistent with Bergstrand's (1989) description where a negative sign for the $POP_i$ coefficient implies that a country with a smaller population tends to be capital intensive. Textile production today is more capital and technology intensive than in the past and requires sophisticated machinery with fewer workers. In contrast, the clothing industry is more labor-intensive, so a larger population has advantage in clothing exports.

## 5.6 Labor cost

For the labor cost variable, the estimate value of this coefficient is negative and only significant in the clothing trade, but not textile trade. This implies that clothing exporters with lower production costs are viewed as an attractive supply source for importers. This is particularly true for basic clothing items sold all year round and not highly time-sensitive. However, it is worth noting that although China has a higher labor cost (US$1) when compared with other Asian countries, namely, Bangladesh, India, Pakistan and Sri Lanka with an hourly wage of US$0.39, US$0.38, US$0.23 and US$0.57 respectively in 2014 (Werner International Management Consultants, 2014), China maintains its comparative advantage in clothing manufacturing. On the other hand, the insignificance of the labor cost variable of the textile trade

may suggest the dependence of other countries on Chinese textile as the essential input for their own clothing exports. Again, this reflects the comparative advantage of China's textile manufacturing.

*5.7 Female workers*

The results show that a 10% increase of female workers in the exporting countries results in a 3.3% and 13.2% increase in T&C exports respectively. It is true that these industries depend heavily on the supply of female workers in expanding production capacity. Unlike other capital intensive industries, the production of T&C items requires a great deal of manual handling although the use of advanced machines and equipment may help to improve productivity.

*5.8 Value-added factors*

The variable ($VA_i$) has a positive impact on T&C export trends of Asian suppliers. The results indicate that a 10% increase in the value-added factors of suppliers would result in a 1.3% and 7% increase in T&C exports respectively to the trading partners. This reflects the importance for suppliers to embark on route to implement the full-package supply model to offer a range of high value-added services for buyers.

*5.9 Dummy variables*

The location of importers may imply varying degrees of preferences to China and other non-Asian T&C exports. For instance, China exports may be more popular in the US than the EU-15. As a result, the displacement effect of China varies across importers. We treat this special feature as panel data structure in modeling such that importers located in the US and the EU belong to different groups. Two dummy variables, the US and the EU in model specification, are used to control this effect at the continental level.

Compared with EU importers, the US has positive values of the estimated coefficients and that T&C exports to the US are 54.5% and 48.9% respectively higher than those to the EU with other variables remain constant. Given that the exports of China are fixed, the US remains the largest importer of T&C products from other Asian countries. The estimated coefficients of continental distribution are positively affected by the country's international trade volume.

The time dummy variable, which implies the accession of China to the WTO and the gradual quota phase out, presents a significant impact on the T&C trade. Following the expiration of the phase-out schedule of the ATC, all quota restrictions on T&C products among WTO members were expected to be removed completely by 2005.

Over the past decade, the average annual growth of China's textile and clothing exports to the world is 19% and 16% respectively. China's shares of the world T&C trade has risen from US$16 billion in textile and US$36 billion in clothing in 2000 to an export value of US$17 billion and US$37 billion in 2001. In 2005, the T&C export values of China continued to grow to US$42 billion and US$74 billion respectively. Up until now, the trade value of China's T&C exports to the world amounted to US$105 billion and US$186 billion respectively, representing 28% and 25% of the world's total T&C exports. China's T&C exports to the world continued to boom remarkably particularly after its accession to the WTO in 2001. China's T&C export market share has grown exponentially in the EU, the US and Japan between 2000 and 2015. The quota-free environment has enabled China to take up a reasonable share of T&C world exports as anticipated.

## 6. Sensitivity analysis of structural changes in T&C trade

It would be natural to study the robustness of the regression analysis results with respect to possible structural changes in T&C trade. Table 2a reports the first set of sensitivity analysis replicating the preceding analysis for every three-year period (1990-1992/1993-1995/1996-1998/1999-2001/2002-2004/2005-2008/2009-2011/2012-2015) to examine the impacts between different time slots and see whether there has been any significant difference in the displacement effect before and after the quota era. The second set of sensitivity analysis (Table 2b) repeats the latter part of the sample period (1995-2015). This period is chosen because international T&C trade has undergone fundamental changes under the 10-year transitional program of the WTO Agreement on T&C (ATC) since 1995. The displacement effects of China's T&C exports in the recent period are found to be -4.6% and -14.6% respectively, which are higher than -1.4% and -12.8% in the longer term (Table 3).

Results from both sensitivity analyses suggest that China has improved its T&C exports in the later years. These findings basically confirm and are consistent with earlier studies except that the difference in China's impact on Asian suppliers is even more pronounced after the quota phase out period. Shortening the observation period to three years of time has certain substantial effects on the results of the displacement effect of China's exports before the phasing out of quota. It is evident that the introduction of the WTO Agreement in 1995 has substantially changed the market of T&C and show an increasing competitive advantage of China over the rest of Asia.

**Table 2a.** Sensitivity analysis of T&C trade for every three years from 1990 to 2015 (Dependent variable: ln(EX$_{ij}$), Method: Panel two-stage least squares)

| Year | 1990-1992 | | 1993-1995 | | 1996-1998 | | 1999-2001 | | 2002-2004 | | 2005-2008 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Independent variables | T | C | T | C | T | C | T | C | T | C | T | C |
| Constant | -36.03*** | -38.58*** | +32.07*** | -24.58*** | -34.05*** | -26.58*** | -29.73*** | -22.72*** | -33.35*** | -29.58*** | +32.07*** | -24.58*** |
| Ln(ChEXP$_i$) | +0.60** | +4.17** | -3.81*** | -2.36*** | -0.60** | -2.95** | -0.55*** | -2.63** | -0.68** | -2.65** | -0.81*** | -2.48*** |
| Ln(GDP$_i$) | +1.23*** | +1.15*** | +1.52*** | +1.02*** | +1.63*** | +1.26*** | +1.39*** | +1.14*** | +1.59*** | +1.32*** | +1.54*** | +1.22*** |
| Ln(PCGDP$_i$) | -0.03*** | +0.93*** | -*0.52*** | +0.65*** | -0.35*** | +0.93*** | -0.44*** | +0.82*** | -0.41*** | +0.91*** | -0.53*** | +0.89*** |
| Ln(GDP$_j$) | +2.95*** | +2.36*** | +2.32*** | +2.42*** | +2.70*** | +2.56*** | +2.48*** | +2.83*** | +2.75*** | +2.61*** | +2.42*** | +2.68*** |
| Ln(PCGDP$_j$) | +3.76*** | +2.06*** | +3.24*** | +2.73*** | +3.14*** | +2.32*** | +3.68*** | +2.46*** | +3.17*** | +2.38*** | +3.34*** | +2.63*** |
| Ln(D$_{ij}$) | -1.53*** | -1.58*** | -1.23*** | -2.29*** | -1.23*** | -1.86*** | -1.43*** | -1.40*** | -1.13*** | -1.76*** | -1.27*** | -1.90*** |
| Ln(POP$_i$) | -1.04*** | +1.07*** | -1.07*** | +1.03*** | -1.13*** | +1.07*** | -1.05*** | +1.08*** | -1.06*** | +1.02*** | -1.09*** | +1.06*** |
| Ln(POP$_j$) | +1.45*** | +2.8*** | +1.38*** | +1.39*** | +1.39*** | +1.80*** | +1.28*** | +1.59*** | +1.32*** | +1.62*** | +1.31*** | +1.41*** |
| (E$_{ij}$) | -0.34*** | -0.25*** | -0.41*** | -0.24*** | -0.37*** | -0.32*** | -0.36*** | -0.38*** | -0.42*** | -0.37*** | -0.46*** | -0.38*** |
| Ln(LC$_i$) | -0.27 | -0.16** | -0.26 | -0.11** | -0.31 | -0.23** | -0.25 | -0.12** | -0.33 | -0.29** | -0.28 | -0.19** |
| Ln(FEMALE$_i$) | +0.24* | +0.95** | +0.31** | +1.03*** | +0.35* | +1.12** | +0.28** | +1.02** | +0.32* | +1.22** | +0.31** | +1.33*** |
| Ln(VA$_i$) | +0.70** | +0.82** | +0.51** | +0.93*** | +0.63* | +0.91** | +0.57** | +0.88** | +0.73* | +0.97** | +0.71** | +0.93*** |
| Dum_EU | +0.63*** | +3.79*** | +0.67*** | +3.23*** | +0.71*** | +3.18*** | +0.73** | +3.03*** | +0.69*** | +3.25*** | +0.67*** | +3.23*** |
| Dum_USA | +0.87*** | +3.86*** | +0.92*** | +3.46*** | +0.84*** | +3.36*** | +0.79** | +3.12*** | +0.76*** | +3.24*** | +0.82*** | +3.36*** |
| Adjusted R$^2$ | 0.79 | 0.72 | 0.72 | 0.67 | 0.76 | 0.71 | 0.78 | 0.75 | 0.78 | 0.76 | 0.76 | 0.73 |
| Sample size | 663 | 663 | 663 | 663 | 663 | 663 | 663 | 663 | 663 | 663 | 663 | 663 |

**Table 2b.** Sensitivity analysis of T&C trade for periods 2009-2011 and 2012-2015 (Dependent variable: ln(EX$_{ij}$), Method: Panel two-stage least squares)

| Year | 2009-2011 | | 2012-2015 | |
|---|---|---|---|---|
| Independent variables | T | C | T | C |
| Constant | -33.33*** | -32.38*** | +30.01*** | -24.52*** |
| Ln(ChEXP$_i$) | +0.63** | +4.22** | -3.62*** | -2.20*** |
| Ln(GDP$_i$) | +1.39*** | +1.51*** | +1.25*** | +1.12*** |
| Ln(PCGDP$_i$) | -0.03*** | +0.93*** | -*0.52*** | +0.65*** |
| Ln(GDP$_j$) | +2.74*** | +2.15*** | +2.19*** | +2.32 *** |
| Ln(PCGDP$_j$) | +3.62*** | +2.12*** | +3.35*** | +2.63*** |
| Ln(D$_{ij}$) | -1.63*** | -1.48*** | -1.43*** | -2.31*** |
| Ln(POP$_i$) | -1.03*** | +1.06*** | -1.06*** | +1.04*** |
| Ln(POP$_j$) | +1.44*** | +2.76*** | +1.41*** | +1.45*** |
| (E$_{ij}$) | -0.32*** | -0.30*** | -0.38*** | -027*** |
| Ln(LC$_i$) | -023 | -0.18** | -0.23 | -0.14** |
| Ln(FEMALE$_i$) | +0.27* | +0.92** | +0.37** | +1.08*** |
| Ln(VA$_i$) | +0.73** | +0.87** | +0.53** | +0.91*** |
| Dum_EU | +0.67*** | +3.81*** | +0.71*** | +3.20*** |
| Dum_USA | +0.83*** | +3.76*** | +0.91*** | +3.38*** |
| Adjusted R$^2$ | 0.77 | 0.71 | 0.71 | 0.69 |
| Number of observations | 663 | 663 | 884 | 884 |

**Table 2c.** Sensitivity analysis of T&C trade for the latter part of the sample period from 1995 to 2015

| | Dependent variable: ln(EX$_{ij}$) | |
|---|---|---|
| | Method: Panel two-stage least squares | |
| Independent variables | Coefficient (T) | Coefficient (C) |
| Constant | -24.3*** | -49.19*** |
| Ln(ChEXP$_i$) | -0.46*** | -1.46** |
| Ln(GDP$_i$) | +1.24*** | +0.71*** |
| Ln(PCGDP$_i$) | -0.12*** | +0.74*** |
| Ln(GDP$_j$) | +1.57*** | +1.39*** |
| Ln(PCGDP$_j$) | +1.39*** | +3.19*** |
| Ln(D$_{ij}$) | -1.29*** | -1.72*** |
| Ln(POP$_i$) | -1.05** | +1.09*** |
| Ln(POP$_j$) | +3.45*** | +1.25*** |
| (E$_{ij}$) | -0.60*** | -0.29*** |
| Ln(LC$_i$) | -0.511 | -1.08* |
| Ln(FEMALE$_i$) | +0.31* | +1.01* |
| Ln(VA$_i$) | +0.25* | +0.35* |
| Dum_EU | +5.13* | +4.01*** |
| Dum_USA | +5.87* | +4.02*** |
| Adjusted R$^2$ | 0.75 | 0.74 |
| Number of observations | 4199 | 4199 |

**Table 3.** Displacement effects by China

| | Dependent variable: China_Export_Value | |
|---|---|---|
| | Method: Panel least squares | |
| Independent variables | Coefficient (T) | Coefficient (C) |
| Constant | -15.35*** | -28.71*** |
| Importer_Per_Capita_GDP(Low-income group) | +0.78*** | +2.65*** |
| Importer_Per_Capita_GDP(Lower-middle-income group) | +0.75*** | +2.62*** |
| Importer_Per_Capita_GDP(High-income group) | +0.69*** | +2.58*** |
| Exporter_Per_Capita_GDP | +0.23*** | +0.14*** |
| Exporter_GDP | +0.02** | +0.05*** |
| Population | +1.39*** | +1.13*** |
| Adjusted R$^2$ | 0.84 | 0.89 |
| Number of observations | 5399 | 5399 |

From the view of exporters, previous models fail to capture a complete picture of the displacement effect. Given the evidence of the considerable impact of China's T&C exports on the selected thirteen Asian suppliers to the EU-15, the US and Japan in the previous section, this section attempts to investigate the group of countries that are most affected by China. Asian exporting countries are classified into three income groups: high income (Hong Kong, Korea and Taiwan), lower-middle income (India, Indonesia, Malaysia, the Philippines and Thailand) and low-income (Bangladesh, Cambodia, Sri Lanka, Pakistan and Vietnam). Table 3 summarizes the displacement effects of China in terms of elasticities and magnitudes.

The elasticity test shows that China's growth has different effects on the exports of T&C industries in Asian's high, lower-middle and low-income economies. More specifically, the results show that China is making life difficult (0.78 and 2.65 for T&C exports respectively) for its low-income neighboring suppliers as they face strong Chinese competition. This is because most low-income countries have comparative advantages in unskilled labor-intensive manufactured goods and their exports tend to focus on T&C products. For instance, T&C trade accounted for about 85%, 67% and 52% of total merchandise exports of Bangladesh, Pakistan and Sri Lanka respectively in 2015. However, as China only gained its WTO membership in 2001, its exports of T&C to industrialized countries are quota-constrained. Despite being a large exporter of T&C, these restrictions impose limitations on China's ability to gain a substantial market share that would displace other Asian producers who might also have captured a market share over time. Yet the abolition of protectionism measures on Chinese T&C in key markets in 2009 should pose serious threats to the exports of low-income countries in future. Unless these low-income countries adjust their export structures, infrastructure, and transportation system and improve trade facilitation and the poor state of human capital in response to such heightened competition, the T&C sectors of these economies may stagnate or even decline.

A smaller impact is observed on China's T&C exports for the lower-middle income group, namely India, Indonesia, Malaysia, the Philippines and Thailand (0.75 and 2.62 for T&C exports respectively). Some suggest that the exports of these countries have moved hand-in-hand with that of China. This finding may reflect the ability of this group, dominated by the ASEAN-4, to adjust their export structures as they accommodate China's growing export capacity. It may also indicate the growing integration and specialization between China and ASEAN.

For the high-income economies including Hong Kong, Taiwan and South Korea, the impact of China is much less

pronounced (0.69 and 2.58 for T&C exports respectively). This supports the view that the comparative advantages of the high-income group have changed from production of low-technology, low-skilled intensive T&C items to high value-added and functional products. For example, Hong Kong manufacturers have attempted to diversify from original equipment manufacturing (OEM) by moving upmarket and engaging in original design manufacturing (ODM) and brand development. Similarly, Taiwan also has a strong history in OEM production, and is evolving toward ODM and OBM, as well as expanding its marketing efforts. Taiwan has advanced competence in developing "economical" clothing items with strong technical and functional capabilities and consistent quality. Another niche area that Taiwan clothing manufacturers have recently developed is haute couture. The country's specialties in synthetic yarns, spinning, weaving, knitting, dyeing and finishing provide advantages to its development in high fashion, which differentiates them from products made in China. South Korea has strengthened its design ability in order to gain international recognition with South Korean fashion designers presenting their work in Paris and Tokyo fashion shows.

## 7. One Belt–One Road implications

This section discusses the implications of the results with respect to international trade and China's One Belt, One Road (OBOR) initiative respectively. The effects of China's emergence on the T&C export competitiveness of their neighboring countries carry important implications at national, regional and global levels. It is evident that the impact of China's T&C exports would affect the national development trajectory in Asia and elsewhere. If the annual addition of another emerging market to the global economy drives down the global market prices of labor-intensive manufactures, this will heighten the pressure of other countries to improve their competitiveness through technological innovation, research and development (R&D) and new product development, and shifting from labour-intensive to more technologically-intensive production. In order to do these, they will presumably want to invest even more in human capital. In contrast, countries that produce raw materials and capital goods utilized intensively in Chinese manufacturing, may wish to specialize in these areas.

At the regional level, China's emergence suggests that any regional free trade agreement or effort to more closely coordinate monetary and financial policies will not be attractive if it does not involve what will eventually be the region's largest economy. One example supporting this view is the Chiang Mai initiative, a project of ASEAN+3 (ASEAN plus China, Japan, and South Korea), in providing swap lines and credits for financially-embattled economies, which is.

The effect of the exchange rate variable suggest the importance of that this variable in T&C trade. Globally, China's revaluation of RMB may lead its trading partners to do the same to their currency. In particular, if China's RMB revaluation moderates the competitive pressure felt by other Asian economies, these Asian economies will then be able to revalue their currencies as well. Such realignment of Asian currencies to the US dollar could help to narrow the current account deficit of the US and relieve the competitive pressure felt by Europe without causing major disruptions to the world economy. Yet the revaluation of RMB is likely to slow down the growth of China's exports, which may cause the exports of its neighboring countries to drop. In this case, the revaluation does not help to boost the growth of these neighboring countries but creating pressure for depreciation rather than appreciation elsewhere in the region. Thus, the general revaluation of Asian currencies seen as a solution to alleviate the problem of global trade imbalance may not happen if China's economic growth slows down due to the tightening of domestic credit or RMB revaluation.

A number of implications for One Belt, One Road (OBOR) initiatives can be drawn from our findings. First and foremost, while China's T&C exports have a displacement effect on the T&C exports of its trading partners, it is expected that this effect will change over time as China becomes more industrialized, it will gradually lose its T&C labour cost advantage when its labour cost and income per capita increase relative to other countries. For this reason, investment in other countries through OBOR initiatives and other forms of foreign direct investment could help to make use of its technological advantage. On the other hand, this would help make use of lower labour cost of OBOR countries (in relative terms).

Second, although the effect of the distance variable found by the current study is not new, it provides an insight into the geographical locations of China's OBOR investment projects as shown in Figure 1. With a few exceptions of investment projects in Africa and Russia, the majority of OBOR initiatives target at countries in close proximity to China. These countries can be divided into those located in the west and the south of China respectively (indicated by the red boundary lines).

One final implication from this study on the OBOR initiative is that distance, exchange rate and labour cost are all crucial factors to T&C trade because of their direct connection with the final export price at the destination country. As freight and logistics costs directly contribute to export price, the OBOR initiative should help to reduce these costs. As shown in Figure 1, the majority of OBOR projects are set up with this intention by investing in road, railway, shipping docks, ports and logistics centres. As shown in Figure 1, the remaining OBOR investment projects mainly target the energy sector, i.e. power generation, oil and gas, electricity and mineral processing, as China will become more dependent on energy as it continues its road to industrialization. Investment in transport infrastructure would help expand the intermodal maritime transport network in the region. Given the causal relationship between trade and transp

Assessing the displacement effect of exports with gravity trade model



**Figure 1.** China's 'One Belt, One Road' investment projects (Source: adapted from Department of Foreign Affairs and Trade (2015))

ort-logistics capacity (Nguyen and Tongzon, 2010), such investment projects would foster China's trade. Trade in the region will continue to depend on the globalized economy. Note that China's quality improvement of its export products may indirectly affect its exports via the effect on export competitiveness. However, total T&C trade in the region may not change because of the displacement effect.

## 8. Conclusions

This study examines the impact of China's growth on the T&C exports of its Asian neighbors and the tendency to crowd out the exports of the more or less-developed Asian countries from 1990 to 2015. An extended gravity trade model has enabled an aggregate analysis and adjustment for the endogeneity of Chinese T&C exports. The gravity trade model fits the data well with exports rising with the GDP, GDP per capita, population of the importing countries while falling with distance and real exchange rate.

The innovation of this study has been to explore the tendency of China's increase in T&C penetration of third markets to crowd out the exports of other Asian suppliers. The results show that such effect is more pronounced in markets for basic items, i.e., less-developed Asian suppliers that export these products than in markets for value- added and sophisticated T&C products by the more advanced Asian economies which comprise a significant fraction of total exports. This finding is not surprising given that it has been markets for basic T&C products and affected to a lesser extent, advanced suppliers which produce functional items that have been the first to be penetrated by Chinese exporters. Both developed and developing Asian countries are affected by China. Our findings suggest that an increase in Chinese T&C exports will negatively affect the exports of its Asian economies. This is especially true for the less-developed countries that seek to compete with China on the basis of labor costs.

It is evident that China's T&C exports not only affect Asia, but also the EU and the US as well. European T&C companies see China as a producer of an increasingly broad range of high-quality T&C products that further compounds their competitiveness, while the US enjoys the flood of cheap clothing from China. In Asia, where labor abundant countries feel competitive pressure from China with a similar resource endowment and their proximity to China tends to magnify the impact of China's competitiveness on trade, all of these effects are even more evident.

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