Regional Production Network led by the U.S. Textile Industry and the Impact of the 2006-2008 U.S.-China Textile Agreement

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ABSTRACT

A regional production network (RPN) refers to a business cooperation system among firms in different countries involving a division of labor to develop, manufacture, and market specific commodities. This study focused on the trade flow relationships within the U.S. Textile and Apparel Regional Production Network (U.S. T&A RPN) and the impact of the 2006-2008 U.S.-China Textile Agreement on the U.S. T&A RPN. The study found that the more the United States imported apparel from China, the less the U.S. textile industry exported yarns and fabrics to Mexico and countries in the Caribbean Basin region, The study also found that the 2006-2008 U.S.-China Textile Agreement had a profound trade disruption effect on apparel imports from China to the United States, yet little or no impact on textile or apparel trade within the U.S. T&A RPN.

Keywords: Regional Production Network, U.S.-China Textile Agreement, U.S. textile industry

Introduction

The textiles and apparel (T&A) industry is one of the most globalized of all world industries (Dickerson, 1999). Globalization has not only brought new development opportunities to the T&A industry, but also posed great challenges, such as intensive global competition, pressures to lower production cost, and a needs to meet diversified customer demands more efficiently (Dicken, 2003; Jin, 2004). In response to these challenges, a variety of industry restructuring strategies have been adopted, especially in developed economies whose T&A industries were significantly challenged by the quick rise of imports from low-labor cost developing countries in the past decades (Christoffersen & Datta, 2004). One of these restructuring strategies was the formation of a regional production network (RPN) – a vertical industry cooperation system between countries that are geographically close to each other (Ando & Kimura, 2003). Within RPN, each country specifically focuses on certain portions of supply chain activities based on its respective comparative advantages to

maximize the efficiency of the whole supply chain (Arndt, 2001).

The U.S. textile industry has been active in forming its own RPN (U.S. RPN), particularly with Mexico and countries in the Caribbean Basin region [CBCs] (Oh & Kim, 2007; Dicken, 2003). Within this RPN, the United States provides textile products, such as fibers, yarns, and fabrics, while Mexico and CBCs offer low labor cost for assembling finished products, such as apparel. These finished goods are then shipped back to the United States, the ultimate consumption marketplace (Bair, 2002; Dickerson, 1999). Today, Mexico and CBCs are the largest export market for U.S. yarns and fabrics, accounting for U.S. $4.27 billion in 2007 (Office of Textiles and Apparel [OTEXA], 2009). Thus, maintaining this RPN is believed to be a very important for the U.S. textile industry.

On the other hand, China has achieved a great increase of its apparel exports to the United States since its inception into the World Trade Organization (WTO) in 2001, particularly after the elimination of the apparel quota systems as of 2005 (American Manufacturing Trade Action Coalition [AMTAC], 2008). With the rise of Chinese market share, Mexico and CBCs have quickly lost the market share in the U.S. apparel import market (OTEXA, 2008). While the U.S. apparel manufacturing sector responded with no major action toward the increase of Chinese apparel imports, from 2003 to 2005, the U.S. textile manufacturing sector led by the National Council of Textile Organizations (NCTO), has petitioned the U.S. government to enact new transitional textile safeguard measures to restrict the quantity of the Chinese apparel imports to the United States. These safeguard measures were intended to curve U.S. apparel imports from China, ultimately protecting the interests of the U.S. domestic textile and apparel industry (Jones, 2006). As a result, a comprehensive agreement between the United States and China (U.S.-China Textile Agreement, or Agreement) was established

in 2005. This agreement imposed annual quantity restrictions (or quota) for 14 major categories of apparel imports from China from 2006 to 2008 (USTR, 2005).

Although previous studies on the formation of the RPN led by the U.S. textile industry have provided with important results (Brink 2006; Dickerson 1999; Dicken, 2003, 2007; Hufbauer, Wong & Sheth, 2006; Seyoum, 2007), few studies have yet investigated the impact of the U.S.-China Textile Agreement on U.S. T&A RPN. In particular, whether or not the U.S. textile industry truly gained benefits from the Agreement by protecting the U.S. T&A RPN is unknown. Additionally, even though the Agreement expired at the end of 2008, the United States International Trade Commission (USITC) continues monitoring trade flows of the categories of apparel products covered by the Agreement (USITC, 2008). This monitoring effort suggests that U.S. policymakers may still be interested in evaluating the trade impact of the Agreement. However, so far, there has been little empirical evidence for that. Consequently, this study sought to investigate (a) the trade relationship in the U.S. T&A RPN, (b) the impact of apparel imports from China on the trade flows of the U.S. T&A RPN, and (c) the effect of the Agreement on the U.S. T&A RPN.

Literature Review

U.S. Textile and Apparel Regional Production Network (U.S. T&A RPN)

A regional production network (RPN) refers to the business cooperation system among firms in different countries that involves a technical and spatial division of labor to develop, manufacture, and market specific commodities (Tsui-Auch, 1999). Typically, under an RPN, firms in developed countries offer product designs, process technology, and marketing services, while firms in developing countries engage in product assembly services taking advantage of low labor costs (Hanson, 1996). RPNs are often

seen in multinational corporations' (MNCs) vertical integration in a global marketplace. MNCs divide the entire production process into several sub-processes and then locate a sub-process in a country in which that particular sub-process can be completed efficiently with low costs (Shujiro, 2006).

RPNs have been widely applied by the global T&A industry as one of the major restructuring strategies in the globalization era (Dickerson, 1999; Dicken, 2003). In the case of the United States, due to the increasing labor costs in the domestic industry, the labor-intensive manufacturing sector of the apparel industry began to shift production activities overseas, substantially reducing domestic production capacity since the early 1970s. This movement of the apparel manufacturing sector has caused a significant decrease in domestic demands for U.S. textile products, forcing the U.S. textile industry to focus on exporting. The U.S. T&A RPN was one of the key strategies of the U.S. textile industry to maintain domestic output and increase textiles product exports to apparel manufacturers, and thus, textiles importers, in Mexico and CBCs (Christoffersen & Datta, 2004; Dickerson, 1999; Levinsohn & Petropoulos, 2001). Particularly, Abernathy and Weil (2004) found that an increase in apparel imports from Mexico and CBCs indeed benefited production and employment in the U.S. textile industry. As of 2007, the United States was still the world's fourth largest exporter of textile products, primarily yarns and fabrics (WTO, 2008).

Trade flows within the U.S. T&A RPN is illustrated in Figure 1. Within this RPN, the U.S. textile industry functions as the manufacturer and exporter of textile mill products, such as yarns and fabrics, while Mexico and CBCs produce finished apparel products using yarns and fabrics exported from the United States. Thus, Mexico and CBCs are the importers of U.S. textile products as well as the exporters of apparel products to the U.S. apparel consumer market (Dickerson, 1999; Oh & Kim, 2007).

The U.S. T&A RPN is strongly supported by U.S. trade policies as well (Gereffi, Spencer, & Bair, 2001; Kunz & Garner, 2007). First, U.S. tariff codes were established that promote business activities with *maquiladoras* (i.e., plants that assemble U.S. components to produce finished products for the purpose of exporting back to the United States) in Mexico and CBCs. Under these tariff codes, U.S. apparel importers are required to pay duties only on the value added portion that was completed in the exporting country, substantially reducing the overall cost of apparel import. Item 807 of the U.S. Tariff Code is used for this specific purpose (Bonacich & Waller, 1994). Second, the Caribbean Basin Initiative (CBI) was created in 1983 and further extended in 2000 to give member countries in the Caribbean Basin region preferential access to U.S. markets. Similar to CBI, the North American Free Trade Agreement (NAFTA) was initiated in 1994 among Canada, the United States, and Mexico, to take advantage of geographical proximity (Dicken, 2007). Finally, the Caribbean Basin Trade Partnership Act (CBTPA) was signed into law in May 2000 to promote trades between U.S. apparel firms and offshore assembly plants in counties in the Caribbean Basin region (Heron, 2002). These policies intended to stimulate apparel manufacturing activities in Mexico and CBCs for U.S. apparel consumption and, thus, significantly increase the demands for U.S. yarns and fabrics by business partners in Mexico and CBCs (Gereffi et al., 2002).
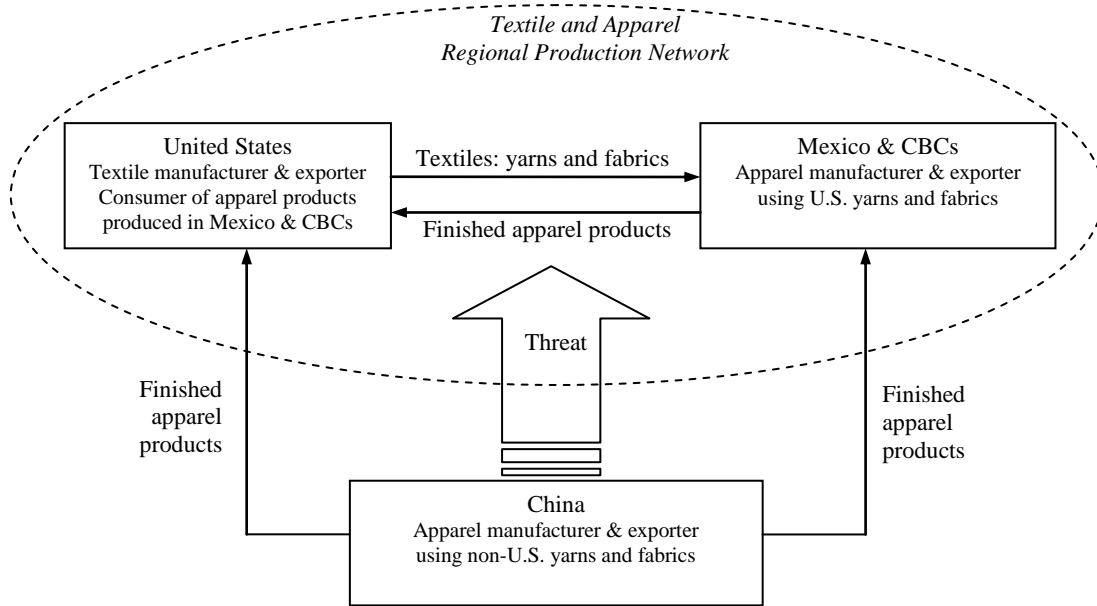
Figure 1. Conceptual Model of Regional Production Network in the Textile and Apparel Industry among the United States, Mexico, and Caribbean Basin Countries

Thus, under a U.S. T&A RPN framework, if apparel imports from Mexico and CBCs increase, U.S. textile exports to these countries are expected to increase as well, because most apparel products from these countries use U.S. textile products to take advantages these trade policies. However, whether or not these policies indeed achieved this objective is not known. Consequently, the study hypothesized:

> *Hypothesis 1: There is a positive relationship between U.S. apparel imports from Mexico/ CBCs and U.S. textile exports to Mexico & CBCs.*

The U.S. T&A RPN and Apparel Imports from China

Since entering the WTO in 2001, China has been a major competitor for the U.S. T&A RPN. Chinese market shares in U.S. apparel imports have increased from 6.1% in 2001 to 34.3% in 2008. During the same period, market shares of CBCs in U.S. apparel imports have substantially decreased from 22.2% in 2001 to 15.9% in 2008. For Mexico, its market share in U.S. apparel

imports has dropped from 14.2% in 2001 to 4.6% in 2008, accounting for over 67% decrease in its role in the U.S. apparel import market.

Given that most apparel imports from China are made of non-U.S. textile components, while those from Mexico and CBCs are made of U.S. textile components due to various trade incentives supporting the U.S. T&A RPN (Dickerson, 1999), a decrease in apparel imports from Mexico and CBCs in the period of 2001 and 2008 suggests a decrease in textile exports by the U.S. textile industry. For the same reason, an increase in apparel imports from China in the same period suggests little contributions to U.S. textiles exports. Clearly, a growth in apparel imports from China is a threat to the U.S. T&A RPN, hurting U.S. textile exports to Mexico and CBCs. Consequently, the study hypothesized:

> *Hypothesis 2: There is a negative relationship between U.S. apparel imports from China and U.S. textile exports to Mexico and CBCs.*

Table 1. Market Share[1] (%) of Selected Countries in U.S. Apparel Imports (2001-2007)

Country/Year	2001	2002	2003	2004	2005	2006	2007	2008
China	6.1	9.1	12.1	14.9	26.7	28.9	27.9	34.3
Mexico	14.2	12.5	10.4	9.5	7.7	6.6	5.2	4.6
CBC[2]	22.2	21.5	20.8	20.1	18.4	16.4	15.5	15.9

Data source: Office of Textile and Apparel (OTEXA)
Note. [1]The market share above in the table is calculated in quantity. Under the OTEXA coding system, the category number of apparel is 1. [2]Countries in the Caribbean Basin region

U.S.-China Textile Agreement and its impact on the U.S. T&A RPN

To ease the threat of apparel imports from China and to respond to a significant decrease in market share of apparel imports from Mexico and CBCs, the U.S. textile industry helped establish a comprehensive textile trade agreement with China in 2005 (The United States Trade Representative Office [USTR], 2005). As the Agreement substantially impacted market access conditions for apparel imports from China, it was expected to make three major impacts on trade flows within the U.S. T&A RPN.

The first expected effect of the Agreement was apparel trade disruption between China and the United States. In other words, quantitative restrictions in the Agreement were expected to produce a negative effect on the increasing quantity of U.S. apparel imports from China (Brown & Crowley, 2007). More specifically, the Agreement was expected to slow down the growth rate of apparel imports from China. Thus, the study hypothesized:

Hypothesis 3: The U.S.-China Textile Agreement decreases U.S. apparel imports from China.

The second expected impact of the Agreement was trade creation. The trade creation effect refers to the enlargement of export volumes for countries receiving preferential trade incentives (Ghosh & Yamarikb, 2004). In the case of the U.S. T&A RPN, due to the quantity restrictions on U.S. apparel imports from China by the Agreement, pervious market shares in apparel imports held by China were then available for Mexico and CBCs to fill, thus offering more opportunities for apparel imports from Mexico and CBCs. Thus, the study hypothesized:

Hypothesis 4: The U.S.-China Textile Agreement increases U.S. apparel imports from Mexico and CBCs.

Finally, because the Agreement intended to increase U.S. apparel imports from Mexico and CBCs, the third expected impact of the Agreement was to stimulate U.S. textile output due to higher demands from Mexico and CBCs. Consequently, the study hypothesized:

Hypothesis 5: The U.S.-China Textile Agreement increases U.S textile exports to Mexico and CBCs. **Methodology**

Relationships between Apparel Imports from China and the U.S. T&A RPN: Regression Analysis

To test the relationships between apparel imports from China and the U.S. T&A RPN (hypotheses 1 and 2), regression analysis was employed. Regression analysis was most appropriate to reveal the linear relationships between the dependent variables and the independent variables (Wooldridge, 2006). The original data were transformed into logarithm form to reduce the variation of the variables and increase

the model fit (Wooldridge, 2006). Also, after taking the logarithm form, the coefficient can be easily interpreted as the elasticity of trade flow.

Annual data from 2001, the year China joined the WTO, to 2008, the latest updated data available, were used to simulate the study regression model. The trade data were collected from U.S. International Trade Commission and Office of Textiles and Apparel (OTEXA, 2009). The dependent variable $USEXPO_t$ in this study was measured by the quantity of total U.S. textile mills' (North America Industrial Coding System [NAICS] 313) exports to Mexico and CBCs. While the independent variable $MCBI_t$ was measured by the quantity of total U.S. apparel imports from Mexico and CBCs. Similarly, $CHINA_t$, was measured by the quantity of U.S. apparel imports from China. The regression model to test study hypotheses 1 and 2 was:

$$\log(USEXPO_t) = \beta_0 + \beta_1 \log(MCBC_t) + \beta_2 \log(CHINA_t) + \mu$$

where

$USEXPO_t$: the quantity of U.S. textile mill exports to Mexico and CBCs in year t;

$MCBC_t$: the quantity of the U.S. apparel imports from Mexico and CBCs in year t;

$CHINA_t$: the quantity of U.S. apparel imports from China in year t;

β_1 : the percentage change of U.S textile mill exports to Mexico and CBCs with respect to the percentage change of U.S. apparel imports from Mexico and CBCs;

β_2 : the percentage change of U.S. textile mill exports to Mexico and CBCs with respect to the percentage change of U.S. apparel imports from China;

β_0 : the intercept;

μ : error.

Impact of the U.S.-China Textile Agreement on U.S. T&A RPN: MANOVA

Multivariate analysis of variance (MANOVA) was employed to evaluate the three major effects of the Agreement on trade flows within the U.S. T&A RPN (hypotheses 3, 4, and 5). MANOVA is widely used to examine a dependence relationship represented as the differences in a set of dependent measures across a series of groups formed by one or more categorical independent measures, while controlling the statistical significance level (Hair, Anderson, Tatham, & Black, 1998; Harris, 1975).

Three dependent variables were tested by MANOVA to investigate statistically significant differences in growth rates *before* (year 2005) and *during the Agreement* (from 2006 to 2008). Growth rate is a commonly used index to reflect the well-being of trade performance (Krueger, 1980). Compound annual growth rates of $MCBI_t$ and $CHINA_t$ were calculated from the trade data available from OTEXA for 14 apparel categories covered by the Agreement[1]. Finally, compound annual growth rates of $USEXPO_t$ were also obtained from the data available from the OTEXA, using the same formula.

Analysis and Discussions
Relationships between Apparel Imports from China and the U.S. T&A RPN

Regression analysis suggested that an overall fit of the study regression model was good and 78.1% of the total variation of the

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[1] Formula for calculating the annual growth rate in this period is is $\left[\left(\frac{Q_{2005}}{Q_{2004}}\right)^{\frac{1}{3}} - 1\right] \times 100\%$, where Q_{2005} denotes the trade volume in year 2005 and Q_{2004} denotes the trade volume in year 2004. The other one is $\left[\left(\frac{Q_{2008}}{Q_{2005}}\right)^{\frac{1}{3}} - 1\right] \times 100\%$, where $Q_{2006}\, and\, Q_{2008}$ denote the trade volume in 2006 and 2008.

dependable variable was explained by the study model (R^2 = .781; F=8.96). Regression coefficients revealed that U.S. apparel imports from China indeed had a statistically significant impact on U.S. textile exports to Mexico and CBCs in a negative way, after accounting for U.S. apparel imports from Mexico and CBCs. That is, with every 1% increase in U.S. apparel imports from China, U.S. textile exports to Mexico and CBCs were decreased by 0.17%. However, U.S. apparel imports from Mexico and CBCs did not have a statistically significant association with U.S. textile exports to these countries. That is, the study hypothesis 2 was statistically supported yet the study hypothesis 1 was not. Table 2 shows the regression analysis results on the relationships between apparel imports from China and U.S. T&A RPN.

Table 2. Regression Results

Variable	constant β_0	LOG(MCBC[1]) β_1	LOG(CHINA[2]) β_2
Dependent variable: LOG(USEXPO[3])	7.27** (6.48)	.26 (.45)	-.17* (-3.13)

R^2=0.781 (N=8); F-statistics=8.96**

Note. t-value is indicated in prentices. *Significant at .05 level. ** Significant at .01 level. [1]Compound annual growth rates of U.S. apparel imports from Mexico and countries in Caribbean Basin regions [2]Compound annual growth rates of U.S. apparel imports from China [3]Compound annual growth rates of U.S. textile mill exports to Mexico and countries in Caribbean Basin regions

Impacts of the U.S.-China Textile Agreement on the U.S. T&A RPN

MANOVA results using compound annual growth rates of each variable indicated statistically significant differences in three dependable variables between the two periods, before and during the implementation of the Agreement (Wilks' Lambda = .571; F = 6.01; $d.f.$ = 3, p-value = .003). That is, the Agreement indeed had an impact on trade flows within the U.S. T&A RPN.

Tests of between subjects effects further revealed which of the three dependent variables contributed to statistically significant differences in the growth rates between the two periods. As shown in Table 3, first, U.S. apparel imports from China were found to have statistically significant differences in annual growth rates between the two periods, before and during the Agreement implementation (F = 17.00; p-value = .000). Mean comparisons also suggested that the Agreement had a significantly negative impact on U.S. apparel imports from China, dropping from an annual growth rate of 1,456%, before the Agreement, to 66.7%, during the Agreement (that is, the study hypothesis 3 is statistically supported).

Second, there were statistically significant differences in the growth rates of U.S. textile exports to Mexico and CBCs between the two periods (F = 7.74; p-value = .012). It also showed a negative trade impact on U.S. textile exports to Mexico and CBCs, from an annual growth rate of 7.4%, before the Agreement, to 1.0%, during the Agreement. Despite the main purpose of the Agreement (that is, protecting the U.S. textile industry), U.S. textile exports to Mexico and CBCs have significantly decreased, resulting in virtually no growth (i.e., the study hypothesis 5 is not statistically supported).

Third, although there were some signs that U.S. apparel imports from Mexico and CBCs have decreased even further from -10% to -16%, there was no statistically significant evidence that U.S. apparel imports from Mexico and CBCs have changed in terms of the annual growth rates

before and during the Agreement ($F = .86$; p-value = .364). That is, U.S. apparel imports from Mexico and CBCs did not seem to be affected by the quantitative restrictions on Chinese apparel imports to the United States

under the Agreement (the study hypothesis 4 is not statistically supported). Considering the lack of growth in U.S. textile exports to Mexico and CBCs, this finding was not surprising.

Table 3. Tests of Between-Subjects Effects

Dependent Variable	df	F	p-value	Average Growth Rate Before the Agreement[1]	Average Growth Rate During the Agreement[2]
CHINA[3]	1	17.00	.000*	1,456.0%	66.7%
MCBC[4]	1	.86	.364	-10.0%	-16.0%
USEXPO[5]	1	.62	.439	7.4%	1.0%

Note. [1]Before the U.S.-China Textile Agreement period (2005) [2]During the U-S. China Textile Agreement period (2006-2008) [3]Compound annual growth rates of U.S. apparel imports from China [4]Compound annual growth rates of U.S. apparel imports from Mexico and countries in Caribbean Basin regions [5]Compound annual growth rates of U.S. textile mill exports to Mexico and countries in Caribbean Basin regions.

Conclusions

This study explored the trade flow relationships within the U.S. Textile and Apparel Regional Production Network and the effect of the 2006-2008 U.S.-China Textile Agreement on the U.S T&A RPN. Results showed that the more the United States imported apparel from China, the less the U.S. textile industry exported yarns and fabrics to Mexico and countries in the Caribbean Basin region. Contradictory to the main objectives of NAFTA, CBI, or CBTPA, however, U.S. apparel imports from Mexico and countries in the Caribbean Basin region did not seemed to help U.S. textile exports to these countries, when China is exporting so much apparel to the United States. The study results also found that the 2006-2008 U.S.-China Textile Agreement had a profound trade disruption effect – an over 1,400% decrease compared to the prior Agreement period – on apparel imports from China to the United States. The 2006-2008 U.S.-China Textile Agreement, however, had no significant impact on U.S. textile exports to, or U.S. apparel imports from, Mexico and countries in the Caribbean Basin region, despite these having been the main objectives of the Agreement.

The findings of this study have two important contributions and implications. First, for policy makers, the study findings raise an important question as to the effectiveness of restrictive trade policies. Although restricting U.S. apparel imports from China may provide more trade opportunities for Mexico and CBCs to export apparel products to the United States, it did not seem that Mexico and CBCs were able to take advantage of this temporary safe guard to increase their apparel exports to the United States. Perhaps, these opportunities were exploited by apparel exporters in other countries while Mexico and CBCs were unsure about the future after 2008 when the Agreement expired. Statistics from OTEXA show that countries such as Bangladesh, India, and Vietnam achieved a significant increase in their market shares in U.S. apparel imports during the Agreement period, from 2006 to 2008. This suggests that there might be other factors, beyond the threat of China, influencing why trade flows within the U.S. T&A RPN have decreased in the past few years. These factors might be increasing labor cost, currency fluctuation, or domestic economic development which no longer makes Mexico and CBCs viable business partners for the U.S. textile industry. Thus, a simple quantity restriction has not been an effective way to protect the

apparel manufacturing industry in Mexico and CBCs. The study results showed empirical evidence for the ineffective results of the 2006-2008 U.S.-China Textile Agreement.

Second, the study explained regional production network formed by industries in multiple countries that are geographically close to one another. Although the U.S. T&A RPN has been threatened by a flood of Chinese exports, the trade relationship between the U.S. textile industry and the apparel manufacturing industries in Mexico and countries in the Caribbean Basin region has been a viable business strategy, particularly in a fast-changing market environment. Other industries going through similar industry life cycles may want to adopt a RPN strategy, taking advantage of geographical proximity and division of labor. Lessons from the U.S. T&A RPN could also be applied to the T&A industries in other regions, such as Asia-Pacific. This trend has already started as it is not difficult to find Korean or Taiwanese

textile companies setting up apparel manufacturing facilities in China or Vietnam in order to export the finished apparel products back to Korea or Taiwan.

Although the study revealed important insights into the U.S. T&A RPN and the 2006-2008 U.S.-China Textile Agreement, the study has limitations. First, the study used a simple regression model without accounting for the time effect of historical trades, based on a linear relationship assumption. Second, the study used only annual compound growth rates to assess the trade relationship in question. These limitations thus offer several future research opportunities. First, a study including more independent variables, such as domestic production output, Gross Domestic Product, and domestic demands is necessary to explore the factors affecting U.S. textile exports. Second, to further evaluate the trade flow patterns in the U.S. T&A RPN and China, other trade indicators, such as market share and unit price, are recommended.

References

Abernathy, F., & Weil, D. (2004, November 18). Apparel apocalypse? The Americas' textile industries won't die when quotas do. *Washington Post*, p. A39

American Manufacturing Trade Action Coalition, AMTAC (2008). Quick facts and figures analyzing America's imbalanced trading relationship with China. Retrieved November 24, 2008, from http://www.amtacdc.org/Pressroom/Pages/Pressroom2007.aspx

Ando, M., & Kimura, F. (2003). *The formation of international production and distribution networks in East Asia*. Cambridge, Mass: National Bureau of Economic Research.

Arndt, S.W. (2001). Production networks in an economically integrated region. *ASEAN Economic Bulletin*, *18*(1), 24-34.

Bair, J. (2002). Beyond the maquila model? NAFTA and the Mexican apparel industry. *Industry and Innovation, 9*(3), 203-225.

Brink, G. (2006). *The memorandum of understanding and quotas on clothing and textile imports from China: Who wins?* Tralac Working Paper

Bonacich, E., & Waller, D. (1994). Mapping a global industry: Apparel production in the Pacific Rim triangle. *Global Production: The Apparel Industry in the Pacific Rim*. In E. Bonacich, L. Cheng, N. Chinchilla, N. Hamilton, & P. Ong (Eds.), *Global production: The apparel industry in the pacific rim,* (pp.21-40). Philadelphia: Temple University Press.

Brown, P.C., & Crowley, A.M. (2007). Trade deflection and trade depression. *Journal of International Economics. 72*, 176-201.

Christoffersen, S., & Datta, A. (2004). The changing structure of U.S. Textiles:

Productivity implications. *The Journal of Business and Economic Studies, 10*(2), 28-37.

Dickerson, K. (1999). *Textile and apparel in the global economy* (3rd ed.). New York: Prentice Hall.

Dicken, P. (2003). *Global shift: Reshaping the global economic map in the 21st century* (4th ed.). New York: The Guilford press.

Dicken, P. (2007). *Global shift: Reshaping the global economic map in the 21st century* (5th ed.). New York: The Guilford press.

Gereffi, G. (1994). The organization of buyer-driven global commodity chains: How U.S. retailers shape overseas production network. In G. Gereffi and M. Korzeniewicz (Eds.), *Commodity chains and global capitalism* (pp. 95-122). Westport, CT: Greenwood Press.

Gereffi, G, Spener, D, & Bair, J. (2002). Introduction: The apparel industry and North American economic. *Free trade and uneven development: The North American apparel industry after NAFTA.* Philadelphia: Temple University Press.

Ghosh, S., & Yamarikb, S.(2004). Are regional trading arrangements trade creating?An application of extreme bounds analysis. *Journal of International Economics.63*(2), 369-395

Hair, J.F. Jr., Anderson, R.E., Tatham, R.L., Black, W.C., 1998. *Multivariate Data Analysis* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Hanson, G.H. (1996). Localization economies, vertical organization, and trade. *American Economic Review, 86*(5), 1266-1278.

Harris, R. (1975). *A primer of multivariates statistics.* Philadelphia : Lawrence Erlbaum Associates

Heron, T. (2002). The US–Caribbean apparel connection and the politics of'NAFTA parity'. *Third World Quarterly*, *23*, 753–767.

Hufbauer, G. C., Wong, Y., & Sheth, K. (2006). *US-China trade disputes: Rising tide, rising stakes. Policy Analyses in International Economics*. Washington, DC: Institute for International Economics.

Jin, B. (2004). Apparel industry in East Asian newly industrialized countries: Competitive advantage, challenge and implications. *Journal of Fashion Marketing and Management, 8*, 230-244.

Jones, C.V. (2006). *Safeguards on textile and apparel imports from China* (CRS report No. RL32168). Washington D.C.: Congressional Research Service.

Kunz, I.G., & Garner, B.M. (2007). *Going global: The textile and apparel industry*. New York: Fairchild

Krueger, A.O. (1980). Trade policy as an input to development. *The American Economic Review, 70*, 288-292.

Levinsohn, J., & Petropoulos, W. (2001). *Creative destruction or just plain destruction? The U.S. textile and apparel industries since 1972* (NBER working paper No. W8348). Cambridge, MA: National Bureau of Economic Research

National Council of Textile Organizations (2005). *NCTO applauds new 3-year bilateral with China.* Retrieved December 17, 2008 from http://www.ncto.org/newsroom/pr2005 36.asp

National Council of Textile Organizations (2007). *The U.S. textile industry.* Retrieved October 23, 2007 from http://www.ncto.org/ustextiles/index.as p

Office of Textiles and Apparel (2009). Trade data for Apparel import and export. Retrieved May 20, 2009 from http://otexa.ita.doc.gov/msrpoint.htm.

Oh, H. & Kim, E. (2007). Strategic planning for the US textile industry in the post-quota era: Achieving speed-to-market advantages with DR-CAFTA countries. *Journal of Fashion Marketing and Management, 11*, 246-269

Shujiro, U. (2007). The creation of regional production network in Asia-Pacific:

The case of Japanese multinational corporations. In J. Palacious (Ed.) *Multinational corporations and the emerging network economy in Asia and the Pacific.* New York: Routledge

Seyoum, B. (2007). Trade liberalization and patterns of strategic adjustment in the US textiles and clothing industry. *International Business Review*, *16*, 109-135.

Tsui-Auch, L.S. (1999). Regional production relationships and developmental impacts: A comparative study of three production networks. *International Journal of Urban and Regional Research, 23*, 329-344

The United States International Trade Commission (2004). *Textiles and apparel: Assessment of the competitiveness of certain foreign suppliers to the U.S. market (*Publication No. 367, pp. 332-448). Washington, DC: Office of Industry

The United States International Trade Commission (2008). ITC to monitor textile and apparel imports from China. Retrieved Jan. 23, 2009 from http://www.usitc.gov/ext_relations/new s_release/2008/er1031ff1.htm

The United States Trade Representative Office (2005). *Benefits from establishing quotas on certain Chinese apparel wxports*. Retrieved December 12, 2008 from www.ustr.gov/assets/Document_Librar y/Fact_Sheets/2005/

Wooldridge, J. (2006). *Introductory econometrics: A modern approach*. Mason, OH: Thomson South-Western

World Trade Organization (2008). International trade statistics. Retrieve on May 18, 2009 from http://www.wto.org/english/res_e/statis _e/its2008_e/its08_merch_trade_produ ct_e.htm