U.S. TRADE BARRIERS AND FEMALE EMPLOYMENT IN THE BANGLADESHI READY-MADE GARMENT INDUSTRY

A THESIS

Presented to

The Faculty of the Department of Economics and Business

The Colorado College

In Partial Fulfillment of the Requirements for the Degree

Bachelor of Arts

By

Madeline Keating

May 2010

U.S. TRADE BARRIERS AND FEMALE EMPLOYMENT IN THE BANGLADESHI READY-MADE GARMENT INDUSTRY

Madeline Keating

May, 2010

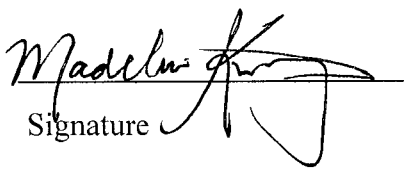
Economics

Abstract

With the rise of industrialization in developing countries, the Bangladeshi ready-made garment industry has taken off in the last 40 years. With this rise in textile and garment factories, women have been able to participate with much more volume in the Bangladeshi economy because approximately 90% of garment workers in Bangladesh are females. The United States has consistently put import duties on Bangladeshi textile and garment goods higher than those of almost every other LDC, thus affecting the competitive nature of Bangladesh's number one GDP generator; apparel and textiles. This thesis aims to look at the effect that the high US tariff rates on Bangladesh's ready-made garments have on the female employment rate in the Bangladeshi garment factories.

KEYWORDS: (Textiles, Bangladesh, Female Employment, US Tariffs)

ON MY HONOR, I HAVE NEITHER GIVEN NOR RECEIVED
UNAUTHORIZED AID ON THIS THESIS



Signature

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGEMENT

I would like to acknowledge Professor Sasha Breger for her excellent advisement throughout this process. Her positivity and encouragement provided the much needed support and motivation to complete my thesis. I would also like to acknowledge my parents, Sally and Michael Keating, for their undying support and love throughout this task. I could not have done it without their open ears, valuable insight, constant encouragement, and much needed enthusiasm.

CHAPTER I

INTRODUCTION

The modern, globalized, and rapidly industrializing world has created divergent economic outcomes across developed and developing countries. While developing countries are able to compete in the global market much more easily than in the past, high levels of inequality and labor exploitation generally characterize the economies. Furthermore, developing countries have to adjust to the trade policies of developed countries in order to compete and grow economically. Labor exploitation can be further exacerbated when trade policies of developing countries force developed countries to focus on primarily promoting exports as the main generator of GDP. One of the easiest routes to generating foreign exchange reserves for the developing economy is to use the abundance of cheap labor to produce large amounts of a good and quickly export it in the global market.

This economic relationship is strongly evident in Bangladesh, one of the fifty most impoverished countries in the world. Currently, approximately 50% of people are living below the poverty line[1] and unemployment is estimated at 4.3%. However, despite

[1] United nations development program in Bangladesh, 17 November 2007, available from http://content.undp.org/go/newsroom/2009/november/undp-in-bangladesh.en; Internet; accessed 18 January 2010.

the relative low unemployment rate, approximately 33.9% of men work for wages whereas only 8.4% of women work for wages.[2] That said, since the start of garment factories in the post-revolution era in Bangladesh, female employment has indeed risen, despite the current low level of women's employment. Before the revolution in the 1970s, women were rarely considered eligible for entering the workforce. Garment factories, however, are an important exception. Such factories generally have a large percentage of female employees and greatly contribute to the constant growth of the female work force.

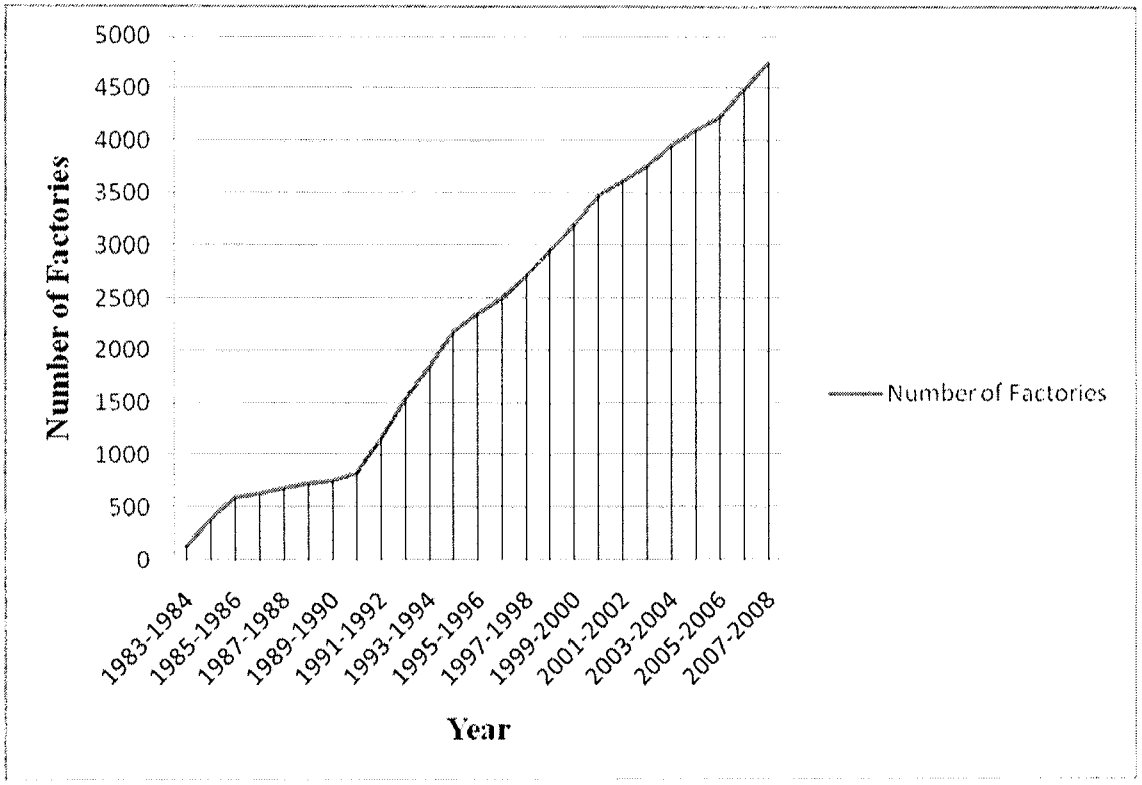
With the sharp rise of garment factories since 1983, employment levels have risen proportionally to this rise in factories. This is evident in FIGURE 1.1 which portrays the number of factories since 1983 and FIGURE 1.2 which describes the gradual increase in employment in the factories since 1983.

---

[2] United Nations, Bangladesh, Country Profile: Bangladesh, 2009, available from www.un.org.bd/bgd/index.html; Internet; accessed 25 January 2010.

FIGURE 1.1

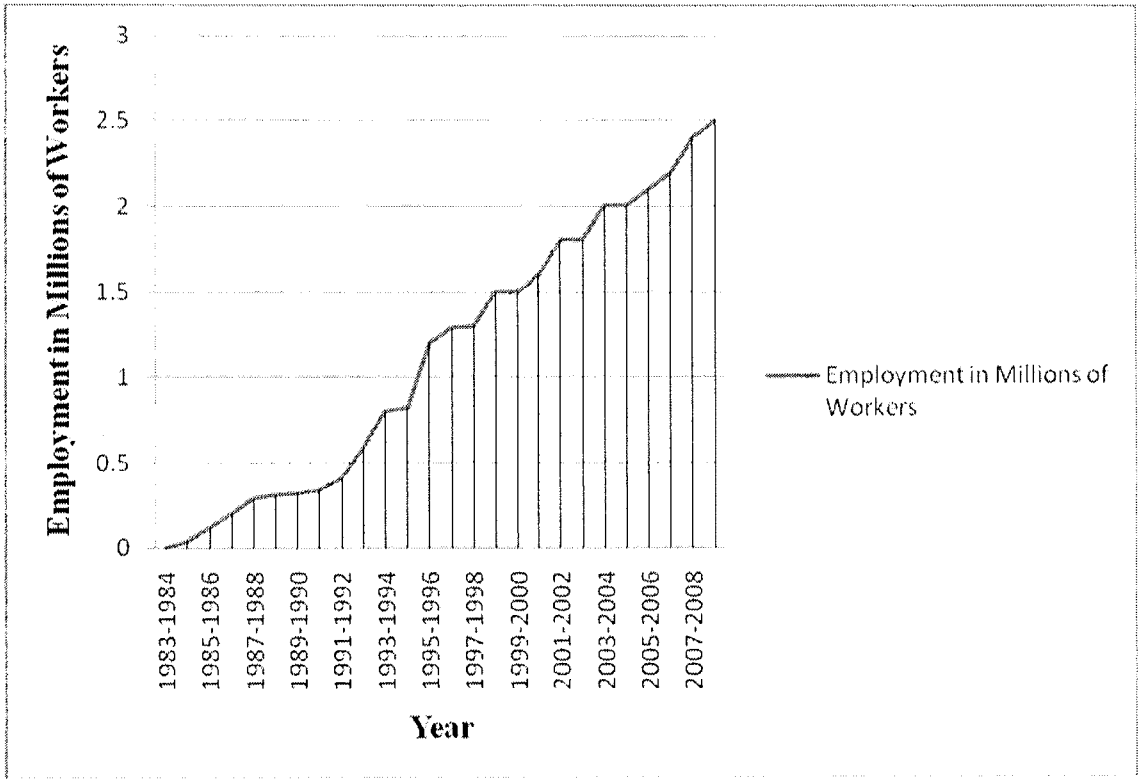
NUMBER OF BANGLADESHI GARMENT FACTORIES BY YEAR (1983-2008)



Source: *Trade Information.* Bangladesh Garment Manufacturers and Exporters Association. [updated 2009]. Available online at: *www.BGMEA.com/bd/home/pages/TradeInformation.* Internet; accessed 18 January 2010.

FIGURE 1.2

EMPLOYMENT BY YEAR IN BANGLADESHI GARMENT FACTORIES IN MILLIONS OF WORKERS (1983-2008)



Source: *Trade Information.* Bangladesh Garment Manufacturers and Exporters Association. [updated 2009]. Available online at: *www.BGMEA.com/bd/home/pages/TradeInformation.* Internet; accessed 18 January 2010.

As the textile and apparel market in Bangladesh continues to grow, so too does women's employment in this sector. Yet, Bangladeshi textiles and apparel are not always competitive in the global market, potentially threatening the employment gains of women in this sector. It seems to be that countries which enjoy preferential trade agreements with developed countries such as the United States have gained a competitive edge over countries which do not enjoy these trade preferences, like Bangladesh. This competitive edge creates faster growth in the garment markets of the countries with preferential access. For example, the US African Growth and Opportunity Act (AGOA), designed to promote trade as a pathway to economic growth, provides countries in Sub-Saharan Africa with duty-free and quota-free access to the United States under the Generalized System of Preferences (GSP). Of the 37 AGOA countries, 22 have qualified for completely duty-free market access for apparel trade. The AGOA countries are also given Least Developed Country (LDC) status, which further encourages active participation in the global market.[3]

Since Bangladesh is not given this preferential access to the United States market, it appears their products are more expensive due to relatively higher import tariffs relative to other countries. In terms of tariffs and duty rates, the United States has consistently applied an average rate of 15.85% duty rate on apparel goods going into the US from Bangladesh. Broken down by category, the duty rates on Bangladeshi goods going into the United States are shown below in TABLE 1.1.

---

[3] Danielle Langton, *AGOA III: Amendment to the African Growth and Opportunity Act* (Library of Congress: Congressional Research Service, 2004).

TABLE 1.1

U.S. DUTIES ASSESSED ON APPAREL IMPORTED FROM BANGLADESH, 2000

Babies' garments (Category 239)	12.1%
Men's, boys' cotton woven shirts (340)	20.2
Women's, girls' cotton woven blouses (341)	15.5
Cotton sweaters (345)	18.2
Men's, boys' cotton trousers (347)	17.0
Women's, girls' cotton slacks (348)	17.0
Cotton nightwear (351)	8.8
Cotton underwear (352)	8.7
Other cotton apparel (359)	8.3
Other men's, boys' man-made fiber coats (634)	8.8
Women's, girls' man-made fiber coats (635)	11.4
Man-made fiber dresses (636)	16.4
Men's, boys' man-made fiber knit shirts (638)	32.9
Men's, boys' man-made fiber trousers (647)	20.3
Man-made fiber underwear (652)	15.7
Other man-made fiber apparel (659)	18.1
Subtotal	15.5
All Apparel	16.4

*Calculated Duties/Customs Value of Imports, in Percent

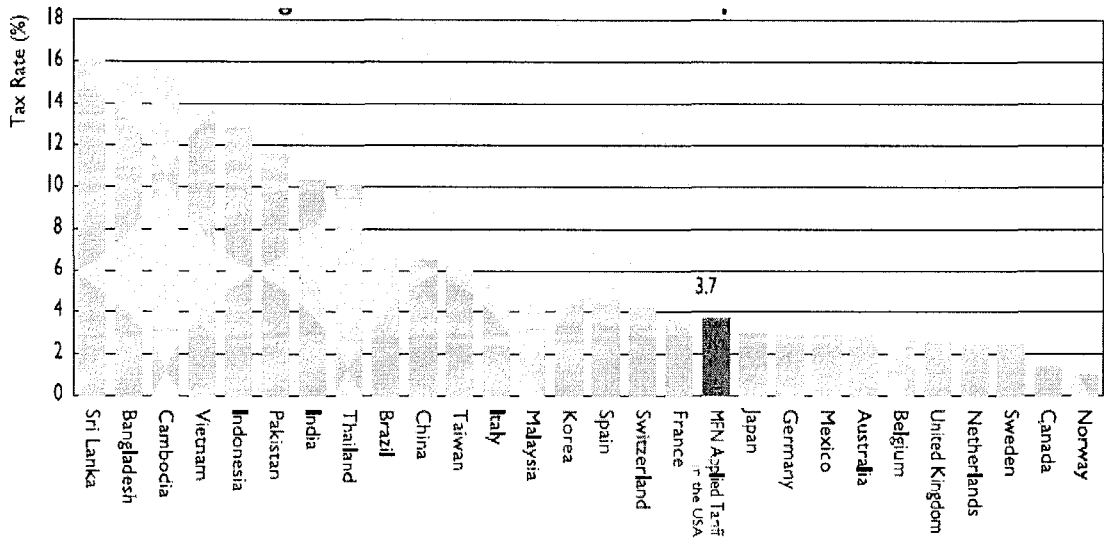
Source: *USITC interactive tariff and trade database.* [updated 2009]. Available online at: http://dataweb.usitc.gov/. Internet; accessed 18 January 2010.

The tariffs in Bangladesh are extremely high in comparison to the average tariff rates on other countries shown in FIGURE 1.3 below. Bangladesh and nearby country Sri Lanka consistently face the highest tariffs of all the listed countries. [4]

[4] Jagdish Bhagwati and T. N. Shrinivasan, "Trade and the environment: Does environmental diversity detract from the case for free trade" In *Fair trade and harmonization: Prerequisites for free trade? vol. 1: Economic analysis,* ed. J. Bhagwati and R. E. Hudec (Massachusetts Institute of Technology, 1996)..

FIGURE 1.3

EFFECTIVE TAX RATES ON IMPORTS INTO THE USA



Source: *USITC interactive tariff and trade database.* [updated 2009]. Available online at: http://dataweb.usitc.gov/. Internet; accessed 18 January 2010.

It is also evident from the graph above that developed countries, such as Belgium and Japan, face some of the lowest average tariffs followed by developing and transitional economies such as Korea and Taiwan, and the highest duties are put on least developed countries, like Bangladesh and Sri Lanka. However, considering that many of these least developed countries have some sort of supplemental trade agreement with the United States to further lower tariff rates, Bangladesh does not have any sort of supplemental agreement, thus creating higher relative tariff rates. The breakdown of the average tariffs for textiles and apparel in developed countries, developing and transitional economies, and least developed countries is shown in TABLE 1.2.

TABLE 1.2

IMPORT WEIGHTED AVERAGE TARIFFS IN THE UNITED STATES

Group of countries	1996	1998	2000	2002	2004
Developed countries	1.73%	1.33%	1.05%	1.09%	0.98%
Developing and Transitional economy	2.89%	2.73%	2.14%	2.12%	1.80%
Least developed countries	4.65%	6.80%	7.27%	6.02%	4.91%

Source: *USITC interactive tariff and trade database.* [updated 2009]. Available online at: http://dataweb.usitc.gov/. Internet; accessed 18 January 2010.

In comparison to specific developed countries Bangladesh pays significantly higher tariffs for goods going into the United States than other rich economies, shown in TABLE 1.3 below. Despite the fact that, Bangladesh has the lowest Per Capita GDP, and is the least developed and most impoverished nation of the countries in TABLE 1.3, Bangladesh is paying the highest tariffs proportional to the exports to the US. The percentages of the tariffs taken from TABLE 1.3 are 15.87% (Bangladesh), 1.37% (Canada), 2.44% (Sweden), 2.61% (Belgium), 4.53% (Spain), 4.14% (Switzerland), 5.5% (Malaysia), and 11.55% (Pakistan). [5]

---

[5] Rashed A. M. Titumir and M. I. Ahmed, "Unkept Promises: Non-Agricultural Market Access at the WTO A Case Study of Apparel Trade of Bangladesh"(Dhaka, Bangladesh: Unnayan Onneshan- The Innovators, 2005)

TABLE 1.3

TARIFFS PAID BY PRODUCTS ORIGINATING FROM BANGLADESHI VIS-À-VIS SOME RICH ECONOMIES

Country	Per Capita GDP US$)*	Exports to USA (US$ Mn)	Tariffs Paid (US$ Mn)
Bangladesh	445	2,073.57	329.12
Canada	31,500	7,253.88	100.06
Sweden	28,400	5,205.04	127.16
Belgium	30,600	4,804.46	125.48
Spain	23,300	3,827.63	173.62
Switzerland	33,800	4,241.71	175.65
Malaysia	9,700	4,237.80	234.62
Pakistan	470	2,552.57	294.88

Source: *USITC interactive tariff and trade database.* [updated 2009]. Available online at: http://dataweb.usitc.gov/. Internet; accessed 18 January 2010.

This paper examines rising employment of females in the garment factories in Bangladesh and how the trade barriers of the United States have a strong impact on the garment industry and its employment levels. The paper will show the relationship between US trade barriers to female employment in the Bangladeshi garment industry. The hypothesis of this thesis is that a negative relationship exists between US tariff levels and women's employment in Bangladeshi garment factories. This hypothesis is elaborated on in depth throughout the following chapters, outlined throughout the remainder of the introduction.

Chapter II will explore the pertinent literature associated with women, the Bangladeshi garment industry, and important elements of US trade policy. While there is a plethora of literature discussing women in Bangladesh, the Bangladesh garment industry, and US trade policy concerned with Bangladesh, this chapter will point out that the specific question of the link between US trade barriers and their effect on female

employment in garment factories. This link has not yet been discussed in depth in the literature.

Chapter III will discuss important trade theories that address the relationship between trade barriers, employment, and wage levels. The hypothesis of this paper pertains to female employment in Bangladesh and US trade barriers and draws from the theoretical arguments around labor and international trade. Important trade theories include Adam Smith's theory of absolute advantage, David Ricardo's theory of comparative advantage, the Heckscher- Ohlin model of trade, and the Stopler- Samuelson corollary to the Heckscher-Ohlin model.

Chapter IV will define the data and methodology used to prove this relationship. Using a mathematical regression, the relationships between the variables will explain whether this hypothesis is true or false. Chapter V will expand on the methodology and data laid out in Chapter IV and discuss the results and what they mean in terms of the hypothesis and theory. Chapter VI which will conclude the thesis and reiterate the fundamental points discussed throughout the paper.

CHAPTER II

LITERATURE REVIEW

"The benefits of garment factory work for women in Bangladesh seem to be uneven at best."[1]

Introduction

This chapter aims to review and highlight the literature about U.S. trade policy with Bangladesh and how it affects women's rights and employment in the textile industry. There is a plethora of literature on female laborers in Bangladesh, the Bangladesh textile industry, and U.S. trade policy with developing countries, including Bangladesh. In this section, the following recurring themes and trends apparent in the published literature will be identified. These themes include the strong effect that trade policy has on employment, the trend of female employment over the last 30 years, the logistics of the garments industry in Bangladesh, and US trade policy and trade barriers on Bangladesh and throughout developing countries.

In the first section of this chapter there will be an explanation of the traditional stigmas and customs associated with women and women's employment in Bangladesh. This section will look into the changing notions in Bangladesh about women going into the workforce and the ways in which the textile industry has gradually but easily adapted

[1] N. Kibria, "Culture, social class, and income control in the lives of women garment workers in Bangladesh," *Gender and Society,* 9, no. 3(1995): 307.

to the integration of women into their workforce. Furthermore, it will discuss the common employment conditions of females in the factories. In the second section there will be an exploration of the literature discussing the past, present, and future of industrialization in Bangladesh and South Asia as a result of globalization. This section will focus primarily on the textile industry and the history surrounding it over the past few decades.

The third section will analyze U.S. trade policy with the developing world and with Bangladesh. This will go into further depth on the differences between different laws and policies. It will cite specific trade policies implemented over the past decade within Bangladesh and briefly discuss the implications on the Bangladesh economy and garment industry. This section cites the GSP, the Trade and Development Act 2000, tariffs, export strategies, and the trade liberalizing tendencies of developing countries.

Women and Women's Employment

This sections aims to introduce the reader to literature regarding the lifestyles, traditions, and changing ideals about women and their place in society in Bangladesh. After discussing the traditional ideals associated with women in the public realm, this section will explain the discussions in literature about the rapidly changing traditions which make it feasible and normal for women to enter the workforce, most often the garment industry. Furthermore, it will cite how changes in these traditions have increased female employment drastically.

Within the context of rapid globalization and widespread economic changes, it is nearly impossible for ancient traditions and customs to withstand the changing and

modernized system. In Bangladesh, the traditional stigmas and customs surrounding the economic and social standing of women are constantly being questioned. Kibria (1995) defines the role of women in society as involving "the economic and social protection of women by men in exchange for deference to male authority (307, 1995)."[2] In literature discussing women in Bangladesh, the concept of *purdah*, which translates as 'curtain' or 'veil' constantly comes into discussion (Chen, 40, 1995). [3] Historically, Bangladeshi women are expected to take care of household and agricultural duties. This follows the belief of *purdah,* which implies female seclusion from the public realm. Also according to Kibria, this traditional framework prevents women from having exposure to the "outside world." Women must keep to the household while men venture into the public male sphere.

Upholding *purdah* has historically signified levels of family honor and status.[4] Dannecher (2000) defines *purdah* as prescribed behavior patterns and discusses how it can lead to traditional restraints in the rapidly industrializing world. He suggests that in some cases, as traditional means of financial support are eroded by industrial and other related social processes, women have no choice but to try to find work in order to support their families. Often, the man of the household will be unable to earn adequate funds to fully support the family, thus the women must to step in to contribute more. This is usually because of the rampant poverty throughout the country. Poverty can be further

---

[2] Ibid, 290.

[3] Martha Chen," Women's right to employment in India and Bangladesh," In *Women, culture, and development : A study of human capabilities,* ed. M. C. Nussbaum and J. Glover (Oxford: Clarendon Press, 1995): 40.

[4] Kibria, "Culture, Social Class, and Income Control in the Lives of Women Garment Workers in Bangladesh, 290.

exacerbated with globalization because as the world becomes more modernized and industrialized, impoverished people will be weighted down by the rapidly changing world and conditions and must step up to meet ends needs.[5]

Chen (1995) describes the meaning of the term, *purdah,* in a more modern setting and defines it as what is considered socially appropriate and acceptable work for women outside of the house[6]. For example, for most female garment workers, the woman goes discreetly to work in a *burkah* (a veil to cover the face), then enters her workplace. The workplace is headed by a male that acts as a guardian for the time that the woman is at work and away from the home. This way of working, for women, provides a means of upholding some sort of traditional social structure within the workforce because she is shielded by her *burkah* when in public and is subordinate to a male while at work. However, Feldman (1994) extends on the more modern definition of *purdah* than Chen defines and suggests that since in the 1970s and 1980s more forms of occupational *purdah* became present, females were less scrutinized when entering the formerly male public sphere. Thus, the garment factories have been much more lax towards women entering the workforce, and it is today a norm for women to work.[7]

As exemplified above, the balance and appeal of these traditions and customs based around female behavior are drastically changed or even erased with the rise of

---

[5] P. Dannecker, "Collective Action, Organisation Building, and Leadership: Women Workers in the Garment Sector in Bangladesh," *Gender and Development* 8, no. 3 (2000): 37

[6] Chen, "Women's Right to Employment in India and Bangladesh," 40.

[7] Shelley Feldman. "Contradictions of Gender Inequality: Urban Class formation in contemporary Bangladesh," In *Gender and Political Economy : Explorations of South Asian System,*. ed. A. W. Clark (Delhi; New York: Oxford University Press, 1993): 215.

factories as a result of industrialization and globalization. Historically the labor market in Bangladesh was segregated based on social standing and was primarily male dominated.[8] However, females have been rapidly entering the workforce over the past 40 years as the garment industry takes off in Bangladesh. According to Siddiqi (2000), "export potential and global competitiveness are contingent upon making available 'cheap female' labor. This raises interesting questions and concerns about female employment in Bangladesh. As Siddiqi puts it: Are these females "miracle workers for the economy" or "helpless victims of global capitalist exploitation?"[9] This is relevant to this paper in that it is evident that female labor is exploited in Bangladesh for the sake of cheap exports. However, in the same setting that this female employment is exploited, the women working in the garment industry are gaining GDP for Bangladesh and helping the economy to grow and adjust to the global market. While Siddiqi questions one or the other, I will show how the two extremes are inexplicably linked.

This thesis aims to look at female employment dynamics in the context of globalization and trade in Bangladesh. While the entry of women into the workforce has been studied in depth, this thesis will look at the amount of women that find and lose jobs over the years as a result of changes in international trade trends.

Today, the garment industry employs more women than any other formal manufacturing sector in Bangladesh. Largely, because of the social stigmas surrounding

---

[8] M. Murayama, "Globalisation and Female Employment in Bangladesh: Readymade Garment Workers in Post-MFA Era, *Employment in Readymade Garment Industry in Post-MFA Era: The Case of India, Bangladesh and Sri Lanka, Chiba: Institute of Developing Economies,* (2006): 77.

[9] D. M. Siddiqi, D. M. 2000. "Miracle Worker or Womanmachine? Tracking (Trans) national Realities in Bangladeshi Factories" *Economic and Political Weekly* 35, no. 21 (2000): 11.

women, employers are confident that female employment implies compliant, low cost, easily controllable workers.[10] According to Ahmed (2001), empowerment is linked by two basic characteristics; voice and exit. Workers are empowered if they can leave easily if conditions become unbearable (exit) and they can protest if there are problems (voice).[11] Scholars have argued that both of these things are impossible for females in the garment industry and thus they are not empowered. (sources) Furthermore, according to most literature, females make up approximately 80-90% of the labor force, in the garment factories (source and page#). However, the owners and top managerial positions remain almost entirely made up of males.

According to Ahmed, females are often reluctant to attempt to climb the ladder to higher positions because of the threat of sexual harassment from their male superiors. Additionally, Ahmed and Dannecker both argue that while individual progression is possible, collective action for females to move up into higher positions is nearly impossible. Dannecher points out that unions are often focused on the interests of males in the workforce and females are usually reluctant to join. Only recently have female started unions been established, such as the Bangladesh Independent Garment Workers Union started in 1994 by four women who had awful experiences in male run unions.[12]

Female employment conditions in Bangladesh mimic those of the traditional notions behind "sweatshops." According to Ward et. al. (2004) the average factory

---

[10] N Kabeer and S. Mahmud, "Rags, Riches and Women Workers: Export-Oriented Garment Manufacturing in Bangladesh," *Chains of Fortune: Linking Women Producers and Workers with Global Markets* (2004): 135.

[11] F. E. Ahmed, "The Rise of the Bangladesh Garment Industry," *NWSA Journal* 16 (2004): 35.

[12] Dannecker, "Collective Action, Organisation Building, and Leadership: Women Workers in the Garment Sector in Bangladesh," 32.

employ works 8-12 hour days, six to seven days a week, with very low wages and in some cases no wages because of promises from factory owners at the time of employment of higher wages over longer periods of time. When this happens, females are easily taken advantage of and not paid the wages at the end of the longer pay period established at the time of employment. Furthermore, their conditions are worsened by widespread sexual harassment, 'sweltering conditions, and less than hygienic facilities.'[13]

This thesis will look at another element that has not been sufficiently analyzed in literature on women's textile work in Bangladesh. The data will try to link the effect that foreign policies such, as limited trade preferences and high tariffs, often aimed at bettering the working conditions for employed women have on overall female employment in the textile industry. I will question whether the manner in which US trade barriers either exacerbate or mitigate the situation of female garment workers.

Bangladesh Textile Industry

This section will look at the logistics of Bangladesh's textile industry. It discusses important trade agreements that greatly influenced textile trade globally and it defines export-oriented ready-made garments (e-o RMG).

The Bangladeshi garment industry was established in a labor-intensive, low-wage economy. Therefore, the aim of the industry when it started in the 1970s was to create large amounts of 'ready-made' clothing to export at low costs. Kabeer and Mahmud (2004) explain that since women's wear (dresses, skirts, blouses, costly fibers) was

[13] K. Ward et al., "The Effects of Global Economic Restructuring on Urban Women's Work and Income-Generating Strategies in Dhaka, Bangladesh," *Critical Sociology* 30, no. 1 (2004): 78.

highly differentiated in production and therefore hard to create in an assembly based factory, Bangladesh tended towards men and boys wear (t-shirts, trousers, etc.) which is much less differentiated on the assembly line. [14] Since the industry was established on this trend, today the most manufactured apparel and textile goods are ready-made, often cotton, simple, and cheap in design such as woven trousers, shirts and blouses, and knitwear t-shirts and jerseys.[15] This makes them easy to export in large quantities, thus giving them the name export- oriented ready-made garments (e-o RMG).

As implied in the previous section, this paper draws off of the fact that the e-o RMG industry in Bangladesh has serious implications for labor and it is because of the assembly line, low-wage, compliant nature of the jobs that women were quickly drawn into the garment industry. Throughout the thesis I will attempt to prove that the prices and heavy exports of the RMG sector have a strong relationship to the level of female employment in garment factories.

A great contributor to the rise of the textile industry in Bangladesh was rapid industrialization and globalization throughout Asia within the last 40 years. Kabeer and Mahmud (2004) suggest that as a result of the establishment of the Multifibre Arrangement (MFA) in 1974, garment firms flocked to Bangladesh, which was a quota-free location according to MFA rules. It was easy to set up a strong garment sector in Bangladesh since the country did not yet have an established garment industry, which helped to establish a competitive edge, and, in addition, had a plethora of cheap female

[14] Kabeer and Mahmud. "Rags, Riches and Women Workers: Export-Oriented Garment Manufacturing in Bangladesh," 134-135

[15] Ibid, 141.

labor. By 1982, the country announced an 'export-led growth strategy' as an attempt to reform the economy and create financial stability.[16]

Kabeer and Mahmud eloquently explain the origin and significance of the MFA:

"At a time when protective barriers were being dismantled in other areas of trade, the MFA ensured that trade in textiles and garments (along with agriculture) remained the most regulated in the world. The agreement set the acceptable rate of increase in exports allowed from developing to developed countries at 6 per cent a year and allowed importing countries to impose 'quotas' or quantitative restrictions on the volume of exports from any particular country which grew at a rate higher than bilaterally agreed levels."[17]

Basically, the MFA helped developed countries adjust to imports coming in from developing countries. Since there was such abundant and cheap labor in most developing countries, the markets of developed countries were unable to keep prices on labor-intensive goods low enough to compete in the global market. According to the World Monetary Fund, the MFA cost the developing world 27 million jobs and $40 billion loss in exports per year as a consequence of these various trade restrictions. However, as mentioned above, countries such as Bangladesh gained from the MFA as quota-free countries because they did not have modernized garment factories established at the start of the MFA and thus did not have established quotas in the global garment market since at the time their garment manufacturing was limited to domestic garment work. This encouraged producers and buyers from the Newly Industrializing Economies such as Taiwan, South Korea, and Hong Kong to 'quota hop' from countries with established quota levels to the aforementioned low-wage, quota-free markets.[18] According to

---

[16] Ibid, 162.

[17] Ibid.

[18] Ibid.

Rahman (2006), when the MFA was first established, it created the 'initial stimulus' for the materialization of the e-o RMG industry. Unfortunately, however, because of the benefits that Bangladesh's garment industry reaped from the MFA, they were suggested to be hit the hardest when the MFA was finally dismantled because it was established on the premise of a quota and duty free market. [19]

Through the history of the RMG industry in Bangladesh, the MFA the WTO Agreement on Textiles and Clothing have had an enormous impact globally. Since the final phase out of the MFA on January 1, 2005, the export-oriented RMG industry has undergone serious ramifications.

Although the MFA and WTO-ATC are not discussed in depth throughout the rest of this thesis, the effects that they have had on the present state of the Bangladeshi garment industry is drastic. Since Bangladesh flourished during the time of the MFA because of its quota-free status, it had to quickly adjust when the MFA was dismantled to high duty rates and no quota restrictions. The premise of this paper will look at how the aftermath of the MFA and how the adjustment drastically changed the competitive edge of Bangladeshi garments as all other garment-exporting countries no longer had quota restrictions.

Ward et. al state that in 2003 there were 3600 garment factories in Bangladesh which directly employed 1.8 million workers, 80-90% of which were women. However, the industry has been facing pressure since then for a number of different issues. Throughout the world, changes in trade agreements have altered the balance of competition and have greatly threatened the competitive edge of Bangladesh garments. Furthermore, there was a sharp decline in garment orders after September 11, 2001,

[19] Mustafizur Rahman, *Bangladesh After MFA Phases Out* (Lahore, Pakistan South Asian Media, 2005).

which made its garment industry temporarily plummet. It is estimated that directly after, 1300 factories closed putting more than 400,000 women out on the streets, completely powerless to find another formal job.[20] Nevertheless, despite the shock of 2001-2002, Kabeer and Mahmud suggest that the RMG industry has averaged approximately 8% employment growth per year.[21] The data used in this thesis in later chapters accounts clearly shows this difference in production and employment in 2001.

An element of the garment industry in Bangladesh, which is a reoccurring theme, is the fact that it is the industry which contributes the most to GDP as a result of its high exports. This research will further link the rise of the garment factories with female employment by looking at the amount of exports and their relation to GDP and trade barriers.

Trade Barriers and Trends: Bangladesh and the US

This section explores the literature behind trade policy, mostly within the United States, and how it affects the Bangladeshi economy and the garment industry. It discusses specific policies that contribute to the trade trends and competitive edge of Bangladesh. Also, it identifies trade policies created by developed countries for developing countries in the global market.

---

[20] Ward et al. "The Effects of Global Economic Restructuring on Urban Women's Work and Income-Generating Strategies in Dhaka, Bangladesh," 78.

[21] Kabeer and Mahmud. "Rags, Riches and Women Workers: Export-Oriented Garment Manufacturing in Bangladesh," 162

Globalization today encompasses a number of different interpretations. Carr and Chen (2002) present a broad definition that is relevant to the reason that the main issues and themes presented in this thesis are relevant.

> *"Globalization means different things to different people. In its broadest sense, the term encompasses all types of economic and cultural differences between nations- including domination of the media and widespread use of the World Wide Web. In a narrower sense, it refers to the economic exchange of goods an services internationally and international financial flows"*[22]

With the vast globalization and industrialization mentioned in the quotation above, it comes as no surprise that there have been mass increases in international trade flows over the past 40 years. According to Milner and Kubota (2005), it is because of this increase in globalization and international trade that countries, both developed and developing, have diminished their trade barriers, liberalized their trade policies, and diverted away from protectionist tendencies in order to fully compete in the global market.[23]

Since 1991 when Prime Minister Begum Zia's BNP (Bangladesh National Party) government pursued economic reform, Bangladesh's economy has grown and become more stable.[24] Hossain and Alauddin (2005) suggest that this stabilization came as a result of the effects of two previous economic reforms, in the 1980s, both of which marked a turn to a more liberalized policy. The transition period into a liberalization era

---

[22] M. Carr and M. A. Chen, "Globalization and the Informal Economy: How Global Trade and Investment Impact on the Working Poor," *ILO Employment Sector Working Paper on the Informal Economy* (2002).

[23] H. V. Milner and K. Kubota, "Why the Move to Free Trade? Democracy and Trade Policy in the Developing Countries," *International Organization* 59, no. 01 (2005): 108.

[24] Bruce Vaughn, *Bangladesh: Background and U.S. Relations.* (Congressional Research Service, 2007).

came between 1983 and 1991.[25] With this liberalization in the economy, Bangladesh has been able to further industrialize and greatly increase its exports to other countries. Nevertheless, according to Vaughn (2007) "the Bangladeshi economy has been described as "mostly unfree," as a result of high levels of trade protectionism and regulation, and an extensive black market economy."[26] This conflicting view contributes to the reason that US tariff rates are higher for Bangladeshi exports, which will be examined within the thesis.

In Bangladesh, there is a huge emphasis on reducing poverty by increasing exports. The Export Promotion Strategy Papers of 2006-2009 and 2009-2012, recommend how Bangladesh can meet their goals set out in the Poverty Reduction Strategy Paper which aims to cut poverty in half by 2015 by generating jobs and incomes for its citizens. The main goal in their strategy is to promote global trade by creating a competitive advantage and fully using their abundant labor force. In terms of e-o RMGs, there will be an emphasis on the growth of labor-intensive export-oriented industries. Within this there will be encouragement of the establishment of:

> *"incentive for diversification and encouragement of exports, low-interest loan facilities, infrastructural development, establishment of backward and forward industries, development of utility services, establishment of modern laboratories for controlling the quality of export products, establishment of product-based clusters, ensuring easy access to the raw materials for export products, ensuring regular supply of updated information on market and technology to producers, and on the overall development of the Chittagong Port including the simplification of goods unloading procedures."* [27]

---

[25] M. A. Hossain and M. Alauddin. 2005. "Trade Liberalization in Bangladesh," *The Journal of Developing Areas* 39 (2005): 129.

[26] Kabeer and Mahmud. "Rags, Riches and Women Workers: Export-Oriented Garment Manufacturing in Bangladesh," 141

[27] Ministry of Commerce, Government of the People's Republic of Bangladesh, *Export Policy 2006-2009.* (Dhaka, Bangladesh, 2007)

Potentially undermining Bangladesh's export-oriented poverty reduction plan, Mohiuddin (2007) suggests that Bangladesh faces almost $500 million in garment export duties to the US every year. Many garments imported into the US from Bangladesh face duties up to 20% duties. The US insists that Bangladesh improve labor standards in order to reduce export duties. However, Mohiuddin recommends instead that the US implement a gradual reduction in export duties with a simultaneous incremental improvement to labor standards. The author expands to suggest that by implementing this system, the garment industry would grow faster and millions more women could be hired, within better working conditions, implying (much like the argument of this thesis) that US trade barriers stand in the way of higher levels of employment.[28]

This is an interesting theory to tie into the strong link that US trade policy and lowering of tariffs has on the overall condition of the Bangladeshi economy as well as the implications that it has for female employment in the garment industry. This paper will find that the employment of female workers will potentially give the garment industry the income that it needs in order to comply to the US requests for better labor standards, which will probably be more prompt by diminishing the trade barriers. While Mohiuddin looked at trade barriers and their relationship to changes in workers' conditions, this paper will look at trade barriers and how drastically they change the rate of female employment growth overtime.

One major element of US trade with developing countries is the Generalized System of Preferences. Basically, the GSP serves as a way for developing countries to enjoy special trade preferences vis-à-vis developed, industrialized nations in order to

---

[28] Shamarukh Mohiuddin, "Can U.S. Trade Policy Help Safeguard Workers' Rights in Bangladesh?," (Bangladesh The Progressive Bangladesh, 2007).

"increase the export earnings,... promote the industrialization, and.... accelerate the economic growth" of the GSP countries.[29] According to Ozden and Reinhardt (2004) the GSP has been the main system for nonreciprocal trade preferences since the establishment of the General Agreement on Tariffs and Trade (GATT) 33 years ago. With GSP status developing countries do not face such high tariff rates, which, all else equal, should lead to higher export levels.

Since 2006, Bangladesh has been in the process of regaining GSP eligibility from the US which was lost because The American Federation of Labor and Congress of Industrial Organizations (AFL-CIO) has continuously expressed concerns based on Bangladesh's labor environment and workers' rights.[30] Mohiuddin states that Bangladesh must adhere to the International Labor Organization's five core labor rights, which include:

> *"(i) freedom of association, (ii) the effective recognition of the right to collective bargaining, (iii) the elimination of all forms of compulsory or forced labor, (iv) the effective abolition of child labor including the worst forms of child labor, and (v) the elimination of discrimination with respect to employment and occupation."*[31]

While many people and nations agree with the benefits of the GSP program, many critics argue that it is not the best way to increase trade and GDP for developing countries. Oxden and Reinhardt (2002) make the argument that countries that have been denied or dropped from GSP status will subsequently liberalize their import policies in

---

[29] Ç. Özden and E. Reinhardt, "The Perversity of Preferences: GSP and Developing Country Trade Policies, 1976–2000," *Journal of Development Economics* 78, no. 1 (2005): 5.

[30] Bangladesh, 27 July 2009, available from http://www.ustr.gov/countries-regions/south-central-asia/bangladesh; Internet; accessed 18 January 2010.

[31] Mustafizur Rahman, "Bangladesh After MFA Phases Out" (Lahore, Pakistan South Asian Media, 2005).

the hopes of stimulating reciprocal trade barrier- lowering on the part of their trading partners.[32] They argue that developing countries with GSP who withdrawal from it will accordingly lower its own trade barriers.[33] This condition is especially true in Bangladesh where the import duties are as low as possible for the country.

On January 24, 2000 the United States put into law the Trade and Development Act of 2000 (TDA2000). Bhattacharya and Rahman (2000) describe the Act below:

"The Trade and Development Act 2000 consists of the African Growth and Opportunity Act and the United States- Caribbean Basin Trade Partnership Act as well as other trade measures. The Act aims to introduce a new trade and investment policy for Sub-Saharan Africa (SSA), expand trade benefits to countries in the Caribbean Trade Initiative (CBI), enhance the Generalised System of Preferences (GSP), and strengthen the US trade adjustment assistance (TDA) programmes. The TDA2000 provides preferential trade access, especially in textile and apparel sectors, to the countries of Africa and Caribbean Basin (Bhattacharya and Rahman)"[34]

This act and its implications for the Bangladesh textile industry has generated much discussion in the literature. The Bangladesh Garments Manufacturing and Exporters Association (BGMEA) initially expressed great concerns about the act because it would potentially disadvantage the Bangladesh textile industry. Baughman et. al. (2001) states that the trade benefits created from acts such as this diverts exports from Bangladesh's garment industry to the producers of garments in these countries.[35] Because

---

[32] Ward et al. "The Effects of Global Economic Restructuring on Urban Womne's Work and Income-Generating Strategies in Dhaka, Bangladesh," 78.

[33] Ibid.

[34] D. Bhattacharya and M. Rahman, "USA Trade Development Act 2000: A Response from Bangladesh Perspective," *Occasional Paper Series* 6 (2000).

[35] L. M. Baughman et. al., "Estimated Effects on the United States and Bangladesh of Liberalizing US Barriers to Apparel Imports" (Trade Partnership Worldwide, Washington D.C., 2001).

of this act, Bangladesh's garment industry has struggled to keep its competitive edge in garment exports because producers move to the parts of Africa and the Caribbean Basin that do not have high tariffs on exported goods.

This paper will look at import tariffs on goods going from Bangladesh into the United States. Because of the TDA2000 and the GSP, the countries included don't face import duties and thus have a competitive edge over Bangladesh. Tariffs act as a main indicator of trade policy, and in the case of Bangladesh, have one of the largest impacts on the RMG sector of trade. The main argument that I set out in the paper is that since US trade barriers effect the RMG sector of trade and its competitive edge in the global market, female employment in the garment industry is affected because of the strong effect that disruptions in the trade patterns have on labor.

This chapter has looked at the literature associated with female employment in Bangladesh, the e-o RMG sector and its significance in Bangladesh, and trade policies and barriers to and from Bangladesh. What the literature has not looked at specifically is the direct relationship that US trade barriers, notably US tariff rates, have on the female employment level in the e-o RMG sector. Chapter III will address the theory behind this relationship.

CHAPTER III

THEORY

"Why do nations trade what they do? Is trade a good thing? The theory of international trade provides answers."[1]

Introduction

This chapter will discuss and elaborate on international trade theory and its application to the argument regarding female employment in Bangladeshi garment factories. Ultimately, the context and theory presented in this chapter will help to establish the working hypothesis and lay the groundwork for the data analysis in subsequent chapters. This chapter will also evaluate the trade policy and it's affect on the relationship between the theory and the regression analysis results. The primary question that this research paper aims to address is: How do US trade barriers affect female employment in the Bangladeshi garment industry?

This chapter will first explain international trade theories in general. Second, it will discuss more narrowly contemporary scholarship on labor and trade. Third, it will explain the parts of these theories that inform the hypothesis and allow it to generate a regression equation in the next chapter.

---

[1] James E. Anderson, "International Trade Theory," In *New Palgrave Dictionary of Economics,Ssecond Edition,* ed. S. N. Durlauf and L. E. Blume (Palgrave MacMillon, 2008) : 1

Traditional International Trade Theories

Adam Smith's Absolute Advantage

In 1776 Adam Smith published his essay *An Inquiry into the Nature and Causes of The Wealth of Nations* and first presented the concept of absolute advantage. Most simply, absolute advantage is the comparison of one person, firm, or country to another. Absolute advantage is the ability of one producer to produce a good using fewer inputs, such as labor hours, than another producer. Take an example of two countries, A and B. If country A is more productive in producing a good than country B, then country A has an absolute advantage over country B. For example, if country A produces 10 shirts per hour and 8 hats per hour, and country B produces 9 shirts per hour and 7 hats per hour, then country A has the absolute advantage in the production of both shirts and hats.

David Ricardo's Comparative Advantage

The concept of comparative advantage adds to the original concepts behind absolute advantage. Colonel Robert Torrens presented the first rough outline of comparative advantage in *An Essay on the External Corn Trade* (1815). However, the term comparative advantage was first coined and explored in depth by David Ricardo in his publication *On the Principals of Political Economy and Taxation* (1817).[2] He expanded on Smith's theory to account for a country's opportunity cost or relative productivity levels in producing only one good and importing the other good. The producer who gives up less of other goods to produce good X has the smaller opportunity

[2] Morgan Rose, "A Brief History of the Concept of Comparative Advantage,"(Liberty Fund Inc., 2001).

cost of producing good X and is said to have a comparative advantage in producing it.[3] When one producer specializes in producing the good for which he or she has a comparative advantage, total production in the economy rises. Thus, both countries benefit from trade by obtaining a good at a price lower than their opportunity cost. For both parties to gain from trade, the price at which they trade must be in between the two parties' opportunity costs.[4]

Ricardo's and Smith's theory stipulates that the value of a commodity is primarily concerned with one factor of production, labor. Land, capital equipment, and other factors of production in this setting are assumed to be (1) not significant, (2) a fixed proportion with labor because they are evenly spread over all labor inputs, or (3) a representation of stored-up labor. Extended versions of the portion of this theory concerning trade explain that it is necessary to standardize labor units into standard units so they can conform to the value of commodities produced.[5]

To expand on his implications behind labor productivity as the factor of production in comparative advantage, it is assumed that exporting countries have a comparative labor productivity advantage. Labor may be differently productive across sectors and countries because of available technologies, specific skills and aptitudes, cultural and geographical context, etc.

---

[3] Kiminori Matsuyama, 2008. "Ricardian Trade Theory," In *New Palgrave Dictionary, Second Edition,* ed. S. N. Durlauf and L. E. Blume (Palgrave MacMillon, 2008): 2

[4] Ibid.

[5] Robert H. Heller, *International trade: Theory and empirical evidence* (Englewood Cliffs, New Jersey: Prentice-Hall, Inc, 1968): 6

Heckschler-Ohlin Theory

Bertil Ohlin formed the Heckschler-Ohlin Theory in 1933 expanding on the new-found concepts provided by his teacher Eli Heckscher in 1919. Ohlin suggested a theory that comparative advantage is based on relative factor endowments.[6] The theory accounts for differences in factor prices because of the differences in relative factor supplies. Differences in factor prices explain why Country I would have lower production prices on a good with the same inputs as Country II. However, other goods produced in Country I that have a different input combination will subsequently be more expensive than in Country II. Through this explanation it is evident that the Heckscher-Ohlin model is built from the theory of comparative advantage. [7] The model is based on the assumptions that (1) countries are characterized by different factor endowments, (2) there are different factor intensities between products, and (3) factor intensities for each product are the same in all countries, as are the returns to scale, thus assuming identical production functions.[8]

The Heckscher-Ohlin factor-proportions theory of comparative advantage stipulates that international commerce compensates for the uneven distribution of productive resources. The basic idea behind this theory is that countries will trade commodities, and that commodities are really bundles of factors such as land, labor, and capital. Thus the idea of international trade comes from the assumption that countries will

---

[6] William R. Allen, *International Trade Theory: Hume to Ohlin* (Random House Study in Economics, 1965): 27-28

[7] Ibid.

[8] Heller, *International Trade: Theory and Empirical Evidence,* 38.

transfer services, which would otherwise be immobile factors, from places where the factors are abundant to places where they are not. This is the idea of indirect factor arbitrage. As a result, the local markets in countries are transformed into an international market and the derived demand for inputs becomes much more elastic.[9]

Stolper-Samuelson Theorem

The Stolper-Samuelson theorem stipulates that an increase in the price of a good will lead to an increase in the price of the most intensely used factor in that industry and a decrease in the price of the other factor. It demonstrates how changes in output prices affect the prices of the factors when positive production and zero economic profit are maintained in each industry. It is useful in analyzing the effects on factor income, either when countries move from autarky to free trade or when tariffs or other government regulations are imposed within the context of a Heckscher-Ohlin model. In this context, factor income refers to the wages of workers and how they can affect employment conditions[10]

Theories on the Effects of Policy

This section looks at how US policy could be a source of trade disadvantage. In the case of the Bangladeshi garment industry and its link to US trade policy, the source of comparative advantage (or disadvantage) can be discussed in terms of policy. In their

---

[9] Allen, *International Trade Theory: Hume to Ohlin,* 27-28

[10] Ibid, 29.

paper *Trade and the Environment: Does environmental diversity detract from the case for free trade?,* Bhagwati and Srinivasan discuss environmental policy implications as a source of comparative disadvantage in international trade. This is a departure from comparative advantage theories that locate the advantage in higher labor productivities or cheaper inputs/ factor abundance.

In the paper, the authors argue against the harmonization of standards across countries. The term "harmonization" refers to the global adoption of uniform social standards/norms, usually pertaining to labor and the environment. For the most part, the purpose of harmonization of standards is to make standards the same across the whole world market.[11] Bhagwati and Srinivisan's argument is concerned with Mexican and United States fisherman and dolphin-safe fishing methods. By harmonizing costly standards for dolphin protection across Mexico and the US, Mexican fishermen's production costs are increased and thus their incomes are reduced. While the same goes for the wealthier US fishermen, the Mexican fisherman are more harmed because they are poorer and thus value marginal increases in their incomes more than their wealthier US counterparts. This idea follows the law of diminishing marginal utility. In broader terms, the policy imposed, in this example for safeguarding dolphins, hurts the ability of Mexican fisherman to compete in the world market because of the higher production costs associated with the policy. In addition, Mexican fishermen are hurt in their livelihoods because of the decrease in their incomes. [12]

---

[11] Candice Stevens, "Harmonization, Trade, and the Environment" *International Environmental Affairs* 5, no. 1(1993): 42.

[12] Bhagwati and Shrinivasan. "Trade and the Environment: Does Environmental Diversity Detract from the Case for Free Trade"

This argument concerning policy can be easily applied to differential US trade preferences and tariffs in the world market. The high tariffs on Bangladesh's garment exports in relation to the quota-free exports from countries granted preferences by the US implies that Bangladesh is less competitive in the garment market. Since the tariffs raise the price of Bangladesh textiles for US consumers, there are less Bangladeshi garments sold to the US and the incomes of textile workers are subsequently reduced. According to the theory laid out by Bhagwati and Srinivasan, this issue has more of a negative effect on workers with smaller incomes.

Hypothesis and Theory

As mentioned in the introduction of this chapter, this thesis aims to answer the following hypothesis: Does US trade policy have a direct effect on female employment in garment factories? This section will explain the basic theory behind the hypothesis as an introduction to the regression that will be formulated in Chapter IV.

Trade policy includes a number of different variables as discussed in Chapter II. The hypothesis of this thesis looks at the portion of trade policy that deals with trade barriers. One of the most essential and easy methods for trade policy is the enforcement of tariffs/ import duties. The methodology used in this thesis will define trade barriers as tariff rates from goods exported from Bangladesh and imported to the United States. It should be noted, however, that this definition is based on the assumption that tariffs are a main indicator of trade policy, yet there are other variables that will also affect trade policy.

The theory of this research is that the opening up of trade by the US in relation to Bangladesh will lead to higher employment of women in the textile industry. As stated

above, opening up trade will mean cutting down restrictions, i.e. the United States reducing tariffs. Thus in theory, the effective tariffs on garments to the US from Bangladesh will be inversely related to the amount of females employed in the garment industry.

Following this logic, lowering tariff rates on garments will raise exports of garments as the cost of imported garments from Bangladesh decreases for US consumers. Therefore, the lower price of garments for US consumers will increase demand for garments from Bangladesh, increase Bangladeshi garment exports and increase the demand for garment workers in Bangladesh. Since females primarily fill the garment industry's workforce, this rise in employment will increase female employment in the garment industry, thus proving that a decrease in tariffs on Bangladeshi garments will increase the female workforce in the garment industry.

The trade theories discussed in this chapter help reveal that US trade barriers have a negative impact on female employment in the Bangladeshi textile industry. Having set out the working hypothesis, the next chapter will test it using a regression model. Chapter IV will go into depth on the variables and logistics of the theory.

CHAPTER IV

DATA AND METHODOLOGY

Introduction

The purpose of this chapter is to empirically test the theory laid out in Chapter III. While Chapter III was used to discuss theory behind trade as well as my theory pertaining to the hypothesis, this chapter will lay out the variables that are needed in order to run a regression that links trade policy to female employment. First, I will explain why a regression is the best method for testing this hypothesis. This part will examine the strengths and weaknesses of a regression. The dependent variable, which is yearly female employment in the garment industry in Bangladesh, will be explained in depth. Following this will be in explanation of the independent variable; it's meaning, and how it is found. Next, the control variables that also cause the dependent variable to change will be explained, followed by a brief explanation of where all of the data sets were found. Throughout the rest of the second section, the regression equation will be laid out and interpreted in order to fully define the theory behind the concepts.

Regression Methodology

Econometrics in literal terms means "economic measurement." Econometric techniques use quantitative data to measure and analyze economic phenomena, in

particular "the evaluation of alternative theories with quantitative evidence" or hypothesis testing. Most quantitative research is approached with three possible steps: "(1) specifying the models or relationships to be studies, (2) collecting the data needed to quantify the models, and (3) quantifying the models with the data." While steps 1 and 2 are common in almost all quantitative data analysis, step 3 can be performed with a number of different techniques. Econometricians often use regression analysis to manipulate the data to make estimates of economic relationships that have never been analyzed empirically. Regression analysis is one of the most commonly used techniques for step 3 (quantifying the models with the data).[1]

The relationships that regressions attempt to prove are statistical techniques used to explain movements between a dependent variable and an independent variable, in addition to other explanatory or control variables. Included in basic multiple regressions[2] are statistics techniques such as: what percentage of variation in Y can be explained by all of the X's, how much error there is in the equation, the validity of the model as a whole, as well as many other statistics which will be explained further in Chapter V. The relationships estimated in a regression equation are important because they statistically explain the degree to which each control variable and the independent variable cause the dependent variable to change[3].

A regression is the best technique for proving the relationship between trade barriers and female employment because it can show a direct link between the two

---

[1] A. H. Studenmund, A. H. *Using econometrics: A practical guide (5th edition)* (Prentice Hall, 2006): 6-7.

[2] Multiple Regression: A statistical regression method consisting of one dependent variable and more than one independent/ control variable. (Studenmund, Glossary).

[3] Studenmund, *Using Econometrics: A Practical Guide (5th Edition)*, 6-7.

variables and incorporates a wide variety of data. Furthermore a regression is the most common way to predict the *amount* of change from one variable to another. Since the data is primarily quantitative, the regression equation will adequately explain what the different numbers within the data mean in relation to the variables used. Furthermore, the equation will set out to estimate what proportion of female employment is explained by US tariffs as well as the other controls that need to be incorporated in order to adequately explain the relationship.

The weaknesses of a regression approach have to do with the superficial picture of a given relationship that mathematical equations can present. Although they can show a definite relationship between variables, they give a very straightforward, numerically based explanation for a wide variety of data which often times requires qualitative explanation techniques to capture the whole picture of the affects of one variable on another. For example, the conclusions drawn from a regression linking trade barriers to female employment go a long way to only prove a little bit about a lot of data. Potential qualitative issues that can be explored in more depth are not questioned given the definite variables laid out. Issues such as, what job creation means for women working in the garment factories in Bangladesh, their wellbeing, lifestyles, empowerment, etc. represents some of the qualitative variables that cannot be explained through mathematical techniques. Furthermore, other issues such as the specifics and reasons behind consumer preferences, production, trade policy, etc. are only briefly addressed and surfaced in a purely mathematical sense.

The basic equation for a multiple regression equation uses an intercept term followed by the independent variables to explain the dependent variable. The equation that this regression will build off of is shown below in equation 4.1.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_i X_i + \varepsilon \tag{4.1}$$

In equation 4.1, Y represents the dependent variable, β_i represents the coefficient, which describes the extent to which the independent variable causes changes in the dependent variable, X_i represents the independent and control variables, and ε represents the random error variable. The next section of this chapter will elaborate on the dependent and independent variables followed by an explanation of the equation that will be used to prove the relationship between female employment in the garment industry and the US trade policy.

Dependent Variable: Female Employment in Bangladeshi Garment Industry

The dependent variable in this regression equation is female employment in the garment industry in Bangladesh. This thesis aims to look primarily at job creation and not at wages for very specific reasons. First off, for the bulk of women working in the garment factory, the normal wage is set by Bangladesh's current government-mandated minimum wage level. While there are often disputes and workers rebellion because of low wages, workers are for the most part powerless to change their garment-work based income and the national minimum wage rate. However, since Bangladesh is riddled with widespread poverty, the Bangladeshi government, like others in South Asia, work hard

on job creation.[4] Since Bangladesh is trying to accomplish Millennium Development Goals, they are constantly attempting to decrease unemployment, especially female unemployment since it is so much higher than male unemployment. Therefore, a main aim of the garment industry is to expand and increase its revenue so that there is increased potential for job creation.[5]

In the equation, female employment (*FEM_EM)* is the number of females employed by the garment industry each year. The reason that the absolute number of females employed is used, is because it reflects the level of employment in the garment factories as well as the changes in female employment over time. A percentage of females in the garment factories as a proportion of the total employment was not used because there is not a significant percentage change from year to year.

Independent Variable: Tariff Rate

The main independent variable used for this model is US import duties/ tariffs (*TARIFF*). The average import duties paid on apparel and textile goods coming into the United States from Bangladesh have been consistently average at 15.85%. However, this is unusually high for a developing country because Bangladesh does not enjoy any trade preferences with the United States and thus pays higher tariffs on all imports. In the model tariffs are measured using commodities #61 and #62 according to the Harmonized Tariff Schedule. Tariff #61 is defined by the USITC as articles of

---

[4] Ejaz Ghani and Sadiq Ahmed, *Accelerating Growth and Job Creation in South Asia.* (New Dehli: Oxford University Press, 2009): 4

[5] Kabeer and Mahmud. "Rags, Riches and Women Workers: Export-Oriented Garment Manufacturing in Bangladesh," 162

apparel and clothing accessories, knitted or crocheted. Tariff #62 is defined as articles of apparel and clothing accessories, not knitted or crocheted, this includes woven goods. The reason that these two goods were chosen is because the garment industry in Bangladesh is primarily focused on making ready-made garments, their exports consist of both knitted and woven, assembled clothing which falls under the category of #61 and #62.[6]

To get the average tariff rate for these two commodities, the total calculated duties by year were divided by the landed duty paid value. Defined by the USITC, calculated duties are the estimated import duties collected on a given commodity, based on the Harmonized Tariffs Schedule. The landed duty paid value is the sum of the c.i.f. import value and the calculated duties.[7] The tariff rates used were found on the US International Trade Commission Trade DataWeb.[8]

Control Variables

This section is intended to explain the control variables that are also important in determining female employment levels in Bangladeshi garment factories. The control variables used in the model are GDP of the United States, GDP of Bangladesh, consumer

---

[6] USITC interactive tariff and trade database, 2009, available from http://dataweb.usitc.gov/; Internet; accessed 18 January 2010.

[7] The c.i.f. (cost, insurance, freight) import value is the sum of the import charges plus customs value, it represents the landed value at the first port. The Customs value is the value of imports as appraised by the U.S. Customs Service. This value is defined as the price actually paid or payable for merchandise, excluding U.S. import duties, freight, insurance, and other charges. Import charges are defined as the aggregate cost of all freight, insurance, and other charges (excluding U.S. import duties). (Source: USITC interactive tariff and trade database.)

[8] USITC interactive tariff and trade database.

price inflation in both Bangladesh and the United States, and the exchange rate between Bangladesh and the United States. Population growth is reflected in the dependent variable. To be consistent with the dependent and independent variables, all of the control variables are time-series data from 1989-2007.

Gross Domestic Product is defined as the sum of gross value in the economy by all resident producers, including any taxes and excluding subsidies not included in the value of the products.[9] The GDP of both Bangladesh and the United States are essential to the equation as controls because as the GDP fluctuates in either country it could change the trade flows between the countries. The United States GDP is significant in the prices of foreign goods, tariffs, and quantity of imports. In Bangladesh the GDP has a strong influence on employment because if the country has GDP growth, employment is expected to rise. Furthermore, since readymade garment exports account for such a great amount of the country's GDP, the industry's success is likely to change in the same direction as GDP, thus potentially affecting female employment in the garment industry. In the model shown later in this chapter, the GDP of Bangladesh is used as a fraction of the GDP of the United States in order to account for strong correlation between the two controls. Strong correlations exist between the two country's GDPs because Bangladesh is so reliant on the United States economy; due to the fact that a vast amount of Bangladesh's trading activities are with the United States.

---

[9] WDI online: World development indicators, 2009, available from http://0-ddp-ext.worldbank.org.tiger.coloradocollege.edu/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=6; Internet; accessed 18 January 2010.

Inflation of consumer prices based on the consumer price index in both Bangladesh and the United States are also important controls to be integrated into the equation. In the United States the inflation on consumer prices is important because of consumer purchasing power. Since the exports from Bangladeshi garment factories into the United States are strongly influenced by demand for Bangladeshi garments by consumers in the United States, inflation on the prices for consumers will change demand for garments bought from Bangladesh. Therefore, with a decrease in demand for Bangladeshi garments, inflation of consumer prices in the United States could have a strong impact on female employment in the garment industry. In addition, consumer price inflation for Bangladesh also impacts female employment because of the nature of wages for garment workers. Since the majority of garment employees get minimum wage, if consumer prices are highly inflated, employment will be affected because of the opportunity cost of the factory employing more workers and paying them wages.[10]

Exchanges rate are used as a control variable because changes in exchange rate over time need to be reflected in the equation since both inflation of consumer prices and GDPs are also incorporated. Also, exchange rate changes impact trade flows between Bangladesh and the United States. Ceteris paribus, if the dollar appreciates relative to Bangladesh currency then US customers will buy more Bangladeshi garments, because of the relatively lower prices. The World Bank defines official exchange rates as "the exchange rate determined by national authorities or to the rate determined in the legally

[10] Ghani and Ahmed, *Accelerating Growth and Job Creation in South Asia*, 5.

sanctioned exchange market. It is calculated as an annual average based on monthly averages (local currency units relative to the U.S. dollar)"[11]

Data Sources

The data used to test the model comes from a number of different resources. The time series for the data ranges from 1989 to 2007 and includes full data sets for the given variables. Data on the dependent variable, female employment in the Bangladeshi garment factories came from the Bangladesh Garment Manufacturers and Exporters Association (BGMEA). As mentioned above the United States International Trade Commission's Trade DataWeb provides in depth export and import datasets as well as information on country tariffs/ duty rates. DataWeb provided the calculated duties and total landed duty paid for HTS categories #61 and #62, the necessary data for the independent variable. Lastly, World Bank World Development Indicators provided the datasets for the control variables: official exchange rate, consumer price inflation for the US and Bangladesh, and GDP for the US and Bangladesh.

Regression Model

Given the variables stated above the basic regression equation for this theory is presented in equation 4.2:

---

[11] WDI online: World development indicators.

$$FEM\_EM = \beta_0 + \beta_1(TARIFF) + \beta_2\,(GDP\_B)/(GDP\_US) + \beta_3(INF\_US) + \beta_4(INF\_B) + \beta_5\,(EXCHANGE) + \varepsilon \quad (4.2)$$

This equation works off of the basic regression equation laid out in equation 4.1. *FEM_EM* is the dependent variable and is equivalent to Y in equation 4.1. The β_i term in front of each variable represents coefficients which will explain the extent to which each variable causes *FEM_EM* to change. Last, the independent variable and the control variables are all incorporated into the model (which is represented as X_i in equation 4.1) as well as an error term, ε, to account for anything that could cause *FEM_EM* to change. As mentioned above, control variables *GDP_B* and *GDP_US* are combined to help remedy an econometric problem which is explained in more depth in Chapter V.

TABLE 4.1 provides a brief description of the dependent, independent, and control variables and their meaning.

TABLE 4.1

Description of Variables

Abbreviated Variable	Definition
FEM_EM	Yearly female employment level in garment factories
TARIFF	Average percentage rate of tariffs for HTS categories #61 and #62

TABLE 4.1- Continued

GDP_US	Total annual GDP for the United States
GDP_B	Total annual GDP for Bangladesh
INF_US	Annual inflation on consumer goods measured by CPI in the United States
INF_B	Annual inflation on consumer goods measured by CPI in Bangladesh
EXCHANGE	Official exchange rate between Bangladesh and the United States
ε	Error term[12]

Null Hypothesis

The point of this model is to examine whether the independent and control variables on the right hand side of the equation are important factors in explaining female employment in garment factories. If so than the sample value for β_i, where *i* represents

[12] Error term is defined as the difference between the *actual* value of an observation minus the *predicted* value for the observation. The error term captures all factors, including purely random ones, that a regression model has failed to take into account. (Source: Kahane)

the coefficient, should be greater than zero in absolute terms, because if it is not than the slope intercept term will be zero and thus have no impact on the left hand side of the equation. Writing this out mathematically creates the null and alternative hypothesis in equation 4.3:

$$H_0 : \beta_i = 0$$
$$H_1 : \beta_i \neq 0 \tag{4.3}$$

If we find that H_0 is true, than the hypothesis would be false because $\beta_0 = \beta_1 = \beta_2 = \beta_3 ... = \beta_i$ which means that none of the variables would have any impact on the independent variable. However, if we find that H_1 is true, than the hypothesis is potentially correct because the independent variables will have an impact on the dependent variable.

In order to adequately prove the regression equation, many possible errors need to be checked to make sure that the equation is viable. The ordinary least squares process will provide the necessary statistics to assess the model's accuracy, however, this is assuming that error variables are constant, there is no problem with heteroskedasticity, there is no multicollinearity, and there are no problems with auto and serial correlations.[13]

Conclusion

Chapter IV has laid out the methodology and the data required to test the theory behind the thesis. This information will be the basis for the following chapters, which

---

[13] Ordinary Least Squares is a regression technique that calculates the β s so as to minimize the sum of squared residuals. The coefficients are chosen such that the sum of the squared residuals is minimized. Heteroskedasticity is the case where the variance of the error terms is not constant throughout the regression line. Multicollinearity is an econometric problem where one of the independent variables is related to one or more of the other independent variables. Auto/Serial Correlation is a problem where the error term from one period in a regression is correlated with the error term from the previous period. (Source: Studenmund)

will build off of equation 4.2 and present a full regression analysis. Chapter V will analyze the results of this method and apply the data to the equation presented in this chapter. It will account for and explain any issues that may arise with error variables, heteroskedasticity, multicollinearity, and autocorrelation.

CHAPTER V

RESULTS

Introduction

This chapter will discuss the results of the ordinary least squares regression model laid out in Chapter IV. It will start by explaining the significant determinants associated with each variable and the model and how far each variable goes to explain the relationship explained by the model. The second section of this chapter will look into the different econometric problems that arise with this equation and how these can be fixed or why they might be present. It will expand to suggest options for how to remedy these problems. Finally, this chapter will discuss how the results are related to the theory laid out in Chapter III and why International Trade Theory is important in explaining the regression relationship.

Ordinary Least Squares Results

The following section will discuss the significant statistics for each of the variables. TABLE 5.1 below will show each variable followed by its coefficient, standard error term, t-statistic, and probability. These results are based on the years 1989-2007 and thus include 19 observations. Also, the model was adjusted at the outset for White-

Heteroskedasticity which automatically accounts for consistent standard errors and covariance.

TABLE 5.1

ORDINARY LEAST SQAURES REGRESSION RESULTS: VARIABLES

Variable	Coefficient	Std. Error	t-Statistic	Probability
C	-1.728881	0.800378	-2.160082	0.0500
TARIFF	-20.12051	2.991536	-6.725812	0.0000
GDP_B/GDP_US	841.3638	147.8238	5.691668	0.0001
INF_US	-0.558585	2.936552	-0.190218	0.8521
INF_B	-0.759904	0.948243	-0.801381	0.4373
EXCHANGE	4.526717	0.209617	21.59513	0.0000

The coefficient of each variable represents the extent to which each control/ independent variable causes changes in the dependent variable. Since the coefficient for *TARIFF* is negative, it conforms to the hypothesis that *FEM_EM* and *TARIFF* would have a negative relationship. In addition, *FEM_EM* has a negative relationship to the *INF_US* and *INF_B,* however since coefficients for both are so small they do not represent much of the cause of change in *FEM_EM. GDP_B/GDP_US* and *EXCHANGE* are positively related to *FEM_EM.* The coefficient of GDPs shows that they cause much of the change in *FEM_EM.* This makes sense considering that when GDP increases, it effects employment throughout the economy and also stimulates the Bangladeshi garment industry, thus creating jobs. The coefficient for *C* represents the model's intercept term.

The standard error of the coefficient terms is a measure of the reliability of a variable. The smaller the standard error, the more reliable a variable is as an estimator, relative to the size of the coefficient. Considering the sizes of each variable's coefficient, most standard errors are considered to be reliable because they are small in comparison to each variable's coefficient. The standard errors for *INF_B* and *INF_US* are not as reliable as the other variables because their standard errors are larger than their coefficients.

The t-statistic is the coefficient divided by the standard error of each variable. Assuming that the model is normally distributed (which will be explained later in this chapter), the t-stat can be used to test the hypotheses. The t-stat is further explained by the probability or P value. This value confirms or rejects the null hypothesis laid out in Chapter IV. The p-values of *TARIFF, GDP_B/GDP_US,* and *EXCHANGE* all reject the null hypothesis at the 99% confidence level.[1] However, *INF_B* and *INF_US* do not show significant p values.

Now that the statistics based on each of the individual variables have been explained, the important statistics regarding the model's significance as a whole will be interpreted. TABLE 5.2 shows the R-squared term, Adjusted R-squared term, Standard Error of the regression, F-Statistic, and Probability of the F-statistic.

[1] The p-value tests whether a sample estimate of a coefficient is statistically different from zero. It represents the probability of achieving the estimated coefficient for the sample at hand if the population's coefficient were zero. If the p-value is less than the chosen level of significance, than the zero hypothesis is rejected. (Kahane)

TABLE 5.2

ORDINARY LEAST SQUARES REGRESSION RESULTS: MODEL

R-Squared	0.978091
Adjusted R-Squared	0.969665
Standard Error of Regression	0.103966
F-Statistic	116.0731
Prob (F-Statistic)	0.000000

The R-Squared or coefficient of determination in simple terms describes the "goodness of fit" of the model. It is a measure of what percentage of variation in Y around its mean can be explained by all of the X's.[2] Or, in the case of this model, what proportion the right hand side of the model explains *FEM_EM*. As shown above the R-Squared is 0.978091. This means that 97.81% of Y is explained by the X's. This is obviously a very good proportion; the closer that R-Squared is to 1, the more Y is explained by X. The adjusted R-Squared, which is directly below the R-Squared in TABLE 5.2 is the proportion of X that explains Y adjusted downward for the number of variables in the equation. Since there are not many variables in the equation, and there is only one equation to analyze, the adjusted R-Squared in this model does not differ significantly from the R-Squared.

The Standard Error of Regression Statistic measures the positive square root of the variance of the errors. Basically it measures the typical size of the error term in the

---

[2] Leo Kahane, *Regression basics, 2nd edition* (SAGE Publications, 2007).

equation.[3] Since the standard error of regression is only 0.103966, the size of error is very small and thus the model is considered to be more accurate than if the number were higher.

The F-Statistic checks to see if all of the independent variables together do anything to explain the movement of the dependent variable, *FEM_EM*. It tests the validity of the model and like the t-tests, aims to address the alternative and null hypotheses.[4] The significance of F is shown in TABLE 5.2 as Prob (F-Statistic). This, like the P values in TABLE 5.1, measure the probability that the model as a whole proves that the null hypothesis laid out in Chapter IV is correct. Since the number is essentially zero, there is 99% confidence that the null hypothesis can be rejected and that a proportion of the model definitely explains the movement in *FEM_EM*.

Econometric Problems

This regression test was run using the option to automatically make the model homoskedastistic with constant standard errors and covariance. Therefore many of the possible econometric problems associated with regression analysis were accounted for automatically, but this section will go through the possible econometric problems and how they are related to the model.

The first possible problem addressed in this model was that of normality of errors. Basically, if the assumption that the error term is distributed normally is not necessarily true, the t-tests, F-test, and R-Squared come into question because those statistics are based on the assumption that the error terms are normally distributed. Therefore, a

[3] Ibid

[4] Ibid

histogram of the residuals needs to be looked at as well as the Jarque-Bera test number.[5] In this model, the histogram of residuals looks normally distributed and the Jarque-Bera is 0.156825. To run this test the Jarque-Bera statistic must be smaller than a Chi-Squared with 2 degrees of freedom which is 5.99 for a 95% confidence level. Therefore, in this model since $0.156825 < 5.99$ the error term follows a normal distribution.

The next problem with econometrics that this model looked at was serial or auto correlation. This problem occurs when one error term from one period is correlated with another error term from another period in a time-series dataset.[6] The model presented no problem with autocorrelation. Autocorrelation is tested using the Durbin-Watson test. In this model the Durbin-Watson Stat is 2.029988. For there to be no evidence of autocorrelation in a model with 5 degrees of freedom and 19 observations, the Durbin-Watson stat should be above 1.767 and below 2.233. This result is found using a Durbin-Watson chart.

The last econometric problem looked at was that of Multicollinearity. This problem occurs when two or more X's are correlated which usually creates insignificant t-tests and good R-Squares. To test multicollinearity a correlation matrix is run and it presents a problem if any of the numbers on the matrix are greater than 0.5. In this model, there was a problem with multicollinearity because the GDPs were correlated as well as the consumer inflation rates. In order to remedy the correlation between *GDP_US* and *GDP_B* the model presented *GDP_B* as a fraction of *GDP_US.* Combining variables can sometimes fix the problem of multicollinearity. Despite this combination of variables, numerous tests were done with consumer inflation rates and the results continued to be

---

[5] Ibid

[6] Ibid

inconclusive. Further research can be done to remedy this problem by considering more data options, additional variable, and strategies for diminishing the strong correlation between the variables incorporated into the model.

Results and Theory

This section will explain how the trade theories are consistent with or differ from the results found through the data and regression analysis. Chapter III explained the different fundamental trade theories and how they relate to the concepts laid out in this thesis. As stated in Chapter III, the hypothesis of this thesis is that the opening up of trade—through a decrease in tariffs—from the United States, in relation to Bangladesh, will lead to higher employment of women in Bangladesh's textile industry. Since the variables show significance because of the t-test, F-test, and R-Squared, the model proves that tariffs, GDP of Bangladesh, consumer inflation in the US and Bangladesh, and the exchange rate all contribute in some way to the flow of female employment in the garment industry.

The Heckscher- Ohlin model stipulates that countries are better off if they participate in trade. The findings of this thesis support the implications behind the Heckscher-Ohlin theory. The United States is able to take advantage of the cheap labor in the exporting countries since they import apparel and textiles instead of produce them. This advantage enables them to focus their capital on less labor-intensive goods. Therefore, the United States benefits when trading apparel with developing countries regardless of what country it imports from. In the case of Bangladesh, the apparel industry creates jobs in a poverty stricken country and the income generated from the

exports of apparel helps both the Bangladesh economy and the textile industry to grow because of the revenue gained from trade, thus enabling increased job creation and generating GDP growth.

The data presented throughout this chapter implies the positive relationship between women's employment in the garment sector and garment exports to the United States. Following the basic assumptions behind the Heckscher-Ohlin model, the trade of apparel between the United States and Bangladesh is good for both countries, because demand for garments equates to the amount of Bangladeshi garments consumed by the United States each year. Consumer price inflation and GDP of both countries reflect changes in demand for Bangladeshi garments in the United States, which subsequently affects the amount of revenue generated for the textile industry. The data shows a negative relationship between consumer price inflation and female employment. When inflation rates are higher for consumers, they will not buy as many goods and the demand for Bangladeshi garments decreases. GDP is positively related to female employment. Therefore, when GDP increases in Bangladesh and the United States, female employment rises because of the concurrent increase in demand.

The Stolper-Samuelson corollary to the Heckscher-Ohlin model further explains tariffs and their effect on trade. Tariffs on Bangladeshi exports are negatively related to female employment in Bangladeshi textile factories. The United States will continue to import apparel from around the world regardless of the situation in Bangladesh. Therefore, tariffs will change the output price of goods in Bangladesh, as the corollary suggests. As stated above, trade affects consumer price inflation rate, GDP, and the exchange rate. Therefore, barriers on trade will affect GDP in Bangladesh negatively.

The positive relationship between female employment and GDP, will also negatively affect female employment which is why it has a negative relationship to tariffs, as evidenced in the data. Bangladesh will continue to export goods to the United States regardless of tariff rates in order to compete in the global market at the cost of lowering their output prices. Since the industry is labor intensive, employment will continue to rise as long as Bangladesh continues to compete.

For the most part, the current model illuminates the applicability of the Heckscher-Ohlin and Stolper-Samuelson theories in terms of benefits from trade and changes in price due to tariffs. The data proves that US tariffs put on apparel exports from Bangladesh have an effect on female employment in the garment factories which is similar to the implications of the two theories. However, the current model could expand on the extent to which a drastic change in US tariffs would impact female garment factory employment proportionally to past levels. While the model certainly shows a strong relationship between the control variables and tariffs to the dependent variable of female employment, it could be significantly expanded with more research (i.e. qualitative) and more data (i.e. additional variables) to incorporate stronger relationships and conclusions. Such findings could go further in explaining the direct effect that US trade policy and trade barriers have on the females in the Bangladeshi garment industry as well as the Bangladeshi work force as a whole. Chapter VI will expand on these possibilities as a conclusion to the results and theory drawn from this thesis.

CHAPTER VI

CONCLUSION

This thesis examined the relationship between US trade barriers and female employment in the Bangladeshi garment industry. Looking at the years 1989-2007, female employment was analyzed using an ordinary least squares regression against GDP in the US and Bangladesh, consumer price inflation in the US and Bangladesh, the exchange rate, and US tariffs. Demand for garments and US tariffs were based on commodities #61 and #62 according to the Harmonized Schedule of Tariffs. The garment industry in Bangladesh primarily produces ready-made garments. Their exports consist of knitted and woven, assembled clothing which falls under the category of #61 and #62, hence the choice of the two goods. The results indicate a strong relationship between all of the variables, but more research in necessary to analyze the relationship in more depth.

As mentioned above, the method used to explain the relationship in this thesis was an ordinary least squares regression. However, as expressed in Chapter IV, regression analysis only explains the statistical elements of the relationship. Were this thesis to be expanded, qualitative research could incorporate numerous elements of the argument that go into more depth and are more complex in theory. One could study the relationship between the United States and Bangladesh in terms of trade to understand the exact reasons there are such high trade barriers into the US market for Bangladeshi goods. For

example, the United States has expressed concerns about the conditions of workers in factories in Bangladesh, stipulating that in order for the country to gain preferential trade access, the government must work to better workers conditions and increase workers rights, as mentioned briefly in Chapter II.[1]

Furthermore, the issues of female employment in Bangladesh go much deeper than simply the need for job creation. Currently, females are not hired in many positions outside of garment work, and they rarely hold any sort of managerial positions within factories. These are still held primarily by men.[2] The argument concerning women and employment in Bangladesh could also examine the conditions and restraints holding these women back in Bangladeshi society.

The data, as well as the issues mentioned above, have major implications for potential policy changes in the United States and in Bangladesh. As stated in the introduction, currently in Bangladesh 50%[3] of people are living below the poverty line and a mere 8.4% of women work for wages.[4] Despite the fact the female employment has risen drastically since the 1970s (and continues to rise), the tariff rates imposed by the United States have a negative effect on the increased potential that Bangladesh has for female job creation. Lowering trade barriers imposed by the United States would allow Bangladesh to have a more competitive edge in apparel trade. Without the revenue in the textile industry to increase production and employment, the potential for money used to improve workers' conditions and increase female empowerment is inhibited.

---

[1] Mohiuddin, "Can U.S. Trade Policy Help Safeguard Workers' Rights in Bangladesh?"

[2] Chen, "Women's right to employment in India and Bangladesh," 40

[3] United Nations Development Program in Bangladesh.

[4] United Nations, Bangladesh, Country Profile: Bangladesh.

Furthermore, export-oriented development is only exacerbated in Bangladesh when United States import duties make costs so much higher.

The information surrounding issues between trade and employment is infinite, and complexities arise in the argument and factors contributing to the situation between Bangladesh and the United States. This thesis is helpful in defining some sort of relationship in the vast amount of information regarding the topic.

In Chapter I of the thesis explained the background behind United States tariffs and trade between the US and Bangladesh. In addition, the introduction skimmed the surface of the issues surrounding female employment. Chapter II followed with a discussion on the literature surrounding the important issues of the topic. This chapter included literature on females in Bangladesh and their employment, the history and issues surrounding the garment industry, and important policies surrounding US trade policy and the barriers put on Bangladesh by the United States.

Chapter III introduced a discussion of the theory behind trade and labor which included basic and fundamental trade theories and new theories that have expanded on traditional trade theories. Finally, this chapter laid out the basic theory by which the thesis argues the relationship between US trade policy and female employment.

Chapter IV discussed the methodology for interpreting the theory, the regression, the different variables, and the data. In Chapter V the regression was run and analyzed based on the theory in Chapter III and the methodology in Chapter IV. The empirical results showed a strong relationship in the link between the independent and dependent variables, namely that US import tariffs and female employment in Bangladeshi garment factories are negatively related.

WORKS CONSULTED

Ahmed, F. E. "The Rise of the Bangladesh Garment Industry." *NWSA Journal* 16 (2004): 34-45.

Allen, William R. *International Trade Theory: Hume to Ohlin.* Random House Study in Economics, 1965.

Anderson, James E. "International Trade Theory." In *New Palgrave Dictionary of Economics, Second Edition.* Edited by S. N. Durlauf and L. E. Blume. Palgrave MacMillon, (2008)

Bangladesh. [updated 2009]. Available online at: http://www.ustr.gov/countries-regions/south-central-asia/bangladesh. Internet; accessed 18 January 2010.

Baughman, L. M., J. F. Francois, and D. Spinanger. "Estimated Effects on the United States and Bangladesh of Liberalizing US Barriers to Apparel Imports." Washinton D. C.: Trade Partnership Worldwide, 2001.

Bhagwati, Jagdish, T. N. Shrinivasan. "Trade and the Environment: Does Environmental Diversity Detract from the Case for Free Trade." In *Fair trade and Harmonization: Prerequisites for Free Trade? Vol. 1: Economic Analysis.* Edited by J. Bhagwati and R. E. Hudec. Massachusetts Institute of Technology, 1996.

Bhattacharya, D., M. Rahman. "USA Trade Development Act 2000: A Response from Bangladesh Perspective." *Occasional Paper Series* 6, 2000.

Carr, M., M. A. Chen. "Globalization and the Informal Economy: How Global Trade and Investment Impact on the Working Poor." *ILO Employment Sector Working Paper on the Informal Economy,* 2002.

Chen, Martha. "Women's right to employment in India and Bangladesh." In *Women, Culture, and Development : A Study of Human Capabilities.* Edited by M. C. Nussbaum and J. Glover. Oxford: Clarendon Press, 1995.

Dannecker, P. 'Collective action, Organisation Building, and Leadership: Women Workers in the Garment Sector in Bangladesh." *Gender and Development* 8, no. 3 (2000): 31-39.

Export Policy 2006-2009. Dhaka, Bangladesh: Ministry of Commerce, Government of the People's Republic of Bangladesh, 2007.

Feldman, Shelley. "Contradictions of Gender Inequality: Urban Class Formation in Contemporary Bangladesh." In *Gender and Political Economy : Explorations of South Asian Systems.* Edited by A. W. Clark. Delhi; New York: Oxford University Press, 1993.

Ghani, Ejaz, and Sadiq Ahmed ed. *Accelerating Growth and Job Creation in South Asia.* New Dehli: Oxford University Press, 2009.

Heller, Robert H. *International trade: Theory and empirical evidence.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc, 1968.

Hossain, M. A., M. Alauddin. "Trade Liberalization in Bangladesh." *The Journal of Developing Areas* 39 (2005): 127-150.

Kabeer, N., S. Mahmud. "Rags, Riches and Women Workers: Export-Oriented Garment Manufacturing in Bangladesh." *Chains of Fortune: Linking Women Producers and Workers with Global Markets* (2004): 133–62.

Kahane, Leo H. *Regression basics, 2nd edition.* SAGE Publications, 2007.

Kibria, N. "Culture, Social Class, and Income Control in the Lives of Women Garment Workers in Bangladesh." *Gender and Society* 9, no. 3 (1995): 289-309.

Langton, Danielle. *AGOA III: Amendment to the African Growth and Opportunity Act.* Library of Congress: Congressional Research Service, 2004.

Matsuyama, Kiminori. "Ricardian Trade Theory." In *New Palgrave Dictionary, Second Edition.* Edited by S. N. Durlauf and L. E. Blume. Palgrave MacMillon, 2008.

Milner, H. V., K. Kubota. "Why the Move to Free Trade? Democracy and Trade Policy in the Developing Countries." *International Organization* 59, no. 01 (2005): 107-143.

Mohiuddin, Shamarukh. "Can U.S. Trade Policy Help Safeguard Workers' Rights in Bangladesh?." Bangladesh: The Progressive Bangladesh, 2007.

Murayama, M. "Globalisation and Female Employment in Bangladesh: Readymade Garment Workers in Post-MFA Era." *Employment in Readymade Garment Industry*

in Post-MFA Era: The Case of India, Bangladesh and Sri Lanka, Chiba: Institute of Developing Economies (2006): 53-101.

Özden, Ç., E. Reinhardt. "The Perversity of Preferences: GSP and Developing Country Trade Policies, 1976–2000." *Journal of Development Economics* 78, no. 1 (2005): 1-21.

Rahman, Mustafizur. *Bangladesh After MFA Phases Out.* Lahore, Pakistan South Asian Media, 2005.

Rose, Morgan. *A Brief History of the Concept of Comparative Advantage.* Liberty Fund Inc, 2001.

Siddiqi, D. M. "Miracle Worker or Womanmachine? Tracking (Trans) national Realities in Bangladeshi Factories." *Economic and Political Weekly* 35, no. 21 (2000): 11-17.

Stevens, Candice. "Harmonization, Trade, and the Environment." *International Environmental Affairs* 5, no. 1 (1993): 42.

Studenmund, A. H. *Using econometrics: A practical guide (5th edition).* Prentice Hall, 2006.

Titumir, Rashed A. M., M. I. Ahmed. *Unkept Promises: Non-Agricultural Market Access at the WTO A Case Study of Apparel Trade of Bangladesh.* Dhaka, Bangladesh: Unnayan Onneshan- The Innovators, 2005.

Trade Information. Bangladesh Garment Manufacturers and Exporters Association. [updated 2009]. Available online at: www.BGMEA.com/bd/home/pages/TradeInformation. Internet; accessed 18 January 2010.

United Nations Development Program in Bangladesh. [updated 2007]. Available online at: http://content.undp.org/go/newsroom/2009/november/undp-in-bangladesh.en. Internet; accessed 18 January 2010.

USITC interactive tariff and trade database. [updated 2009]. Available online at: http://dataweb.usitc.gov/. Internet; accessed 18 January 2010.

Vaughn, Bruce. *Bangladesh: Background and U.S. Relations.* Congressional Research Service, 2007.

Ward, K., F. Rahman, AKM Saiful Islam, R. Akhter, and N. Kamal. "The Effects of Global Economic Restructuring on Urban Women's Work and Income-Generating Strategies in Dhaka, Bangladesh." *Critical Sociology* 30, no. 1 (2004): 63.

WDI online: World development indicators. [updated 2009]. Available online at http://0-ddpext.worldbank.org.tiger.coloradocollege.edu/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=6. Internet; accessed 18 January 2010.