

The effects of NAFTA on Maquiladora women workers in Mexico

**By
Saori Yokoyama**


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Abstract

Saori Yokoyama for the Degree of Bachelor of Arts in the Department of Economics to be received June 2004.

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International trade plays an important role for a low-income country's economic growth. Since NAFTA was implemented in 1994, more foreign firms especially the U.S. firms have invested production facilities in the border region of Mexico and the U.S. In this paper, I examine the effects of NAFTA on wages of Mexican women workers who work at assembly plants in the border region, Maquiladoras. The regression analysis shows that under NAFTA wages of workers in the border region are higher than the rest of the country, and the implementation of NAFTA has increased their wages even more, and wages have increased more for Maquiladora women workers relative to wages of other women workers in the rest of the country. However, the evidence also suggests that overall wages of the workers in the country fell dramatically after 1994 due to the non-NAFTA factor, peso crisis. This paper also surveys various literature on the consequences of NAFTA in Mexican society in order to explain the complicated effects and issues that NAFTA has generated for Mexico.

1. Introduction

The North American Free Trade Agreement, NAFTA, is a trade agreement among Canada, United States and Mexico implemented in 1994. This free trade agreement has been a controversial issue because it was the first agreement among developing and developed countries. Some people argue that Mexico will gain from free trade due to its comparative advantage in low wages. Maquiladoras, the factories along the border region of Mexico and the U.S., have **increased** their number of workers and production under NAFTA. Therefore, many have suggested that free trade stimulates the Mexican economy. Other people argue that the only ones **who gain from this trade are American companies** while Mexicans are forced to work in a poor environment, and Mexican citizens do not gain anything from this agreement. Is it true that the U.S. is just taking advantage of Mexican economy, or is this international trade beneficial for Mexico and its citizens as well?

The effects of NAFTA in Mexico are different depending on regions, occupations, gender, and the economic status of the people. The overall effects from trade do not tell us much about how Mexicans' lives have been affected because certain groups of people may bring up the average wage, while others do not have any effects. Women tend to be at a disadvantage economically and sociologically in this country. Studying the effects of NAFTA on women in Mexico will enable us to examine the true gains from free trade. The goal of this study is to determine which groups of people in Mexico are influenced under NAFTA. With a particular focus on the change in wages of Maquiladora women workers in Mexico since the border region had many foreign firms coming in under NAFTA. I will be using a regression analysis to examine the wages of these workers.

An overview of NAFTA and the Maquiladora region of Mexico, and various theories of

the effects of international trade are introduced in the literature review in the following section. Some previous works have shown that trade cannot hurt one country's economy, while others argue that free trade actually worsens the workers' conditions, including discrimination against certain types of workers such as pregnant workers, and adverse effects on the environment. The loss of traditions is a crucial matter to be discussed as well. There are a lot of papers focusing on changes in wages under NAFTA, but not many of them focus on women who are more likely to have disadvantages in a society. Most of the newly constructed Maquiladoras hire more women than ever in Mexico, and this study will help us understand the effects of NAFTA on specifically these women workers.

International trade is an important element for the economic growth of a developing country. Yet, it is always a controversial issue because not just one element, but more variables affect the results of free trade. Studying both economical and sociological perspectives on the development theories is crucial for the deeper understanding of international trade. Studying this area is important because international trade between the U.S. and Mexico is still ongoing, not just history, so this study might be able to show what should have been done under NAFTA in order to eliminate the problems being discussed. Also, it will give important lessons for the future agreements; for example, the Central American Free Trade Agreement¹ and the Free Trade Agreement of Americas², have very similar issues to NAFTA.

In this paper, I use over 36,000 observations to examine changes in Mexican wages over

1 CAFTA is a free trade agreement that is currently being negotiated between the U.S. and the five Central American nations: Guatemala, El Salvador, Honduras, Nicaragua and Costa Rica. The Dominican Republic also agreed to become fully integrated into the recent U.S.-CAFTA by assuming the same general obligation and commitments as CAFTA participants. For more information on the CAFTA go to: <http://www.ustr.gov/new/fta/cafta.htm>

2 FTAA is currently being negotiated between the U.S. and all the countries of Latin America with the exclusion of Cuba. For more information on the FTAA go to: <http://www.iatn.org/FTAA/FTAAResrouces.htm>

the period during which NAFTA was implemented. To see the impacts of NAFTA on Maquiladora workers, I use data for four cities at the border region and four cities in the interior region. The results showed that there is a distinct difference between these two regions; workers in border cities are paid 19.36% higher than rest of the country. More importantly, this study suggests that the wages of Maquiladora women workers increased by 4.42% more under NAFTA relative to the workers in the rest of the country. The overall decrease in wages in Mexico after 1994 is often seen as the effect of NAFTA, but this paper suggests the importance of considering non-NAFTA factors such as the Mexican peso crisis in 1995 in order to explain this dramatic change in wages.

2. Overview of NAFTA and Maquiladora

In February 1991, the U.S., Mexico, and Canada agreed to begin negotiating a free trade agreement that would create, at the time, the largest trading bloc in the world with a combined GDP of US\$7.0 trillion and 366 million consumers (Ramirez, 2003). NAFTA is the first free trade agreement established among developed countries and a developing country, so there are many discussions about NAFTA. Some people compare this trade area with the European Union (EU), but NAFTA is distinct from EU because it does not suggest any common external policies, internal policies or a common market. The objectives of this Agreement are mainly to eliminate barriers to trade in, and facilitate the cross-border movement of, goods and services between the territories of the parties and to promote conditions of fair competition in the free trade area (Legal Text NAFTA).³

³ The complete legal text of NAFTA is available from <http://www.nafta-sec-alena.org> (The NAFTA Secretariat)

This free trade area was expected to bring increased prosperity, trade, and new jobs in each country. The formal negotiations of this agreement started in June 1991, and on August 1992, it was announced that the three nations had endorsed NAFTA. This rapid agreement is often seen as a political strategy rather than economic development policy in the U.S. because of George H.W. Bush's election campaign and the Uruguay round⁴ impasse situation. The reason why Mexico agreed rapidly is because Mexico was in a huge deficit in 1991, so they needed to **expand** their exports, and the investment of the U.S. was necessary (Takahashi, 1993).

The name Maquiladora came from Spanish term "maquila" which is the payment in corn that a miller keeps for milling. It stands for an assembly plant located in the U.S.-Mexican borderlands. The term Maquiladora became popular with the implementation of NAFTA, but the origin of Maquiladora was back in 1930's when the Mexican government attempted to promote the industrialization and economic development of the borderlands through the establishment of free trade privileges in the region (Williams, 1995). Maquiladora started to grow in 1964 due to the termination of the Bracero program⁵. The Bracero program allowed Mexicans to work in the U.S. as seasonal workers, but because of the termination of this program, unemployment became a problem in the borderlands in Mexico. Maquiladoras did not suddenly appear with NAFTA, but the agreement increased the number of Maquiladoras from 2,000 in 1994 to 3,333 in 1999. First, in order to receive preferential NAFTA tariffs, a minimum of 50 percent of most products' content had to come from Mexico, Canada, or the U.S. Second, NAFTA provided for the eventual reduction of tariffs to zero for products containing sufficient North American content.

⁴ New multilateral trade negotiations on which entered into negotiation at the GATT Cabinet meeting held in Uruguay in 1986, and it came to agreement after more than for seven years.

⁵ In 1942, the U.S. and the Mexican government set up a program for bringing Mexican workers to American fields because the U.S. was suffering from a shortage of workers due to the WWII. Theses workers came temporarily for a specific task and a limited period of time.

Third, special import and tariff provision, such as those enjoyed by the Maquiladoras, were required to be phased out by 2001 (Brouthers et.al. 1999).

What we need to be aware of is that a part of border regions was already a free trade zone before 1994, and these content requirements and tariff reductions were coupled with the already existing Maquiladora laws in Mexico. Since NAFTA, Maquiladoras have attracted more foreign firms, and have become even more competitive. Maquiladoras serve as low-cost export platforms to attract companies. Many people were concerned about workers' situation under NAFTA, which the next section will discuss more. What we will be looking at in this paper is the **wage difference** for the women workers in Maquiladoras before and after the implementation of NAFTA.

3. Literature Review

In this section, we will consider the effects of international trade under NAFTA on the economic growth and development in Mexico. Conducting a study of one specific region in one industry is necessary, but not sufficient to explain the bigger picture of the effects of international free trade because each region is different economically and sociologically, and the short-run and long run effects are different. Therefore, various literature will be introduced in this section in order to show different perspectives on international trade in Mexico.

While some scholars suggest that the U.S. is only taking advantage of Mexico's comparatively low wages and that the market will not guarantee that economic activity benefits the citizens, (Wise, 2003) and Orme (1993) suggest that international trade could be beneficial for **the both** countries since trade is not a competition among countries just because one gains does

not mean that the other loses. Isbister (2001) suggests that manufacturing is a key to distribute the wealth evenly in order for the poor to have markets in rich countries. He seems to support this foreign policy because international trade generates economic growth. However, whether the Mexican economy is large enough to compete against international market is questionable, and how to distribute the wealth evenly is going to be an issue.

Apart from the effects of international trade on economic growth, many scholars are concerned about three main problems: environmental issues, workers' conditions, and traditions. First of all, Shields (1995) and Bandy (2000) discuss environmental issues. They have shown that international trade can make people's lives impoverished because it has led to environmental issues in the region of Tijuana. The city of Tijuana has begun to artificially extend the mesa so that more polluting plants can tower above the workers' communities; the Mexican government also built a taxpayer-financed highway to connect two Maquiladora areas for the convenience of the foreign managers. On top of these changes, more factories release toxic chemicals into three drainage ditches that pass through the neighborhoods to the river, and now concentrations of lead, copper, zinc, cadmium, arsenic and chromium all exceed legal limits. People who reside in this area suffer various health problems including learning disabilities. This is just an example of many cases that they have shown in their research.

Not only the natural environment, but also the workers' problematic working conditions are mentioned. One survey found that 60 % of Matamoros' 60,000 Maquiladora workers reported injuries or other health problems related to their work. However, company representatives have been denying the claims and refused to address the conditions (Wise, 2003). Violations of workers' rights and threats to their health and well-being are discussed by Abell (1999). She claims that women workers' wages are not enough to provide for their family, and these women

also face the chemical hazards, which causes them reproductive health problems. One factory in Tijuana reported more than 20 miscarriages and four anencephalic births during three months in 1996.

Last but not least an important sociological argument is the loss of traditional value of Mexicans. Kingsnorth (2003) argues that the impact under NAFTA is far from the development and economic growth that it promised because traditional agriculture has been destroyed and replaced with an industrialized American agribusiness in some regions. The Zapatista movement⁶ is known all over the world nowadays because it rebelled against the Mexican government on the same day as NAFTA took effect in 1994. Foreign firms and the government sought the rich resources of this area the government targeted. The massive oil deposits that are suspected to lie in the mountains and rainforests of Chiapas targeted where Mayan people have traditionally inhabited. One analysis puts potential reserves at 3.7 billion barrels of oil in the Chiapas region (Hayden, 2003). Oil is certainly attractive to a poor country like Mexico, especially with NAFTA, because there will be less trade barriers, so it would be more advantageous compared to the Middle Eastern countries for Mexico to export this oil. Therefore, the indigenous people in Chiapas really lost their ability to live on their own land with the Mexican government's pressure. This situation was intolerable especially for the indigenous people. Land is life itself for these people, and without a land, they do not have their culture. Their spirituality belongs to the land, so it is not replaceable with anything. Zapatistas simply resisted what the government insisted for them, but their resistance has resulted in more than 2,000 indigenous people's death since 1994.

⁶ **Zapatista Army of National Liberation (Zapatistas)** is a well-armed, well-trained guerrilla group that was thrust into national prominence in 1994 when its members captured several towns in the southern state of Chiapas. They suggested opposition to NAFTA and support for Indian rights as objectives of the movement (Suchlicki, pp158-9).

(Zapatistas vs. NAFTA). This concept is hard for us to understand because the destruction of their cultural value is not something we can measure.

The researchers mentioned above do not support NAFTA, but other scholars have different perspectives towards these factors. Krugman (1993) points out that a lot of people misunderstand international free trade especially NAFTA. He sees NAFTA as a foreign policy rather than an economic strategy since imports from Mexico to the U.S. are actually a small part of the U.S. economy, and he even suggests that this policy has a good impact on the environment in Mexico. The reason why he believes this is because the United States has made the environment an issue, and as a result Mexico will enforce its environmental laws more strictly. Therefore, they will be cleaner than they would otherwise have been. Also, environmental problems could be temporal according to the environmental Kuznet's curve⁷. With foreign companies from developed countries coming in, cleaner technologies will be brought in to the country.

Some evidence shows that NAFTA has been gradually contributing to workers' rights. For years before 1994, attorneys and human rights groups claimed that the 2,700 border factories screened out pregnant applicants and many women who fell pregnant on the job were coerced into resigning. Under the law, companies are required to give maternity benefits to anyone who has worked there for more than seven months. GE, Zenith, Panasonic and Thomson Consumer Electronics officials all say they reject pregnant applicants mostly because their competitors do too. GE put out an advisory to its Mexican managers, asking them to stop administering

⁷ Environmental Kuznet's Curve's (EKC) original theory is from Kuznet's (1955), who hypothesized an inverted U relationship between a measure of inequality in the distribution of income and the level of income. If the EKC hypothesis held generally, it could imply that instead of being a threat to the environment, economic growth is the means to environmental improvement. That is, as countries develop economically, moving from lower to higher levels of per capita income, overall levels of environmental degradation will eventually fall.

pregnancy tests just last year. Since 1994, hearings have concerned the right of Mexican workers to form independent unions, and the situation seems to be getting better (Walt, 1998). The crucial point of a discussion of working conditions is that we are not sure whether these companies actually do have a control over the factory workers or not. Many of the Maquiladoras are outsourcing, so the parent companies in the U.S usually do not have control over their factories' working conditions.

Mercado (2003), which has conducted research on security and health in Maquiladoras suggests that the dynamic expansion of the productive scale and the problems of the health and the security in the work place of Maquiladoras do not seem to be correlated. The influence of the governmental demand in the degree of fulfillment of the assembly plant is quite large, and the normative requests and the audiences in which these certifications are based, as the series of ISO 9000 and 14000⁸ favor a corporate responsibility of the labor health as an important part of the integral quality. There is no evidence that Maquiladora industry has become a paradise of insecurity and unhealthy workplace.

As many researchers are concerned about Maquiladora workers, Maquiladora factories in Mexico have experienced phenomenal growth in the past three decades. During the 1970s, Mexico had a closed economy that relied heavily on public-sector expenditures. Mexico's short history of international trade and investment started after its economic crisis in 1982. The growth in Foreign Direct Investment to Mexico is paralleled by the growth in the Maquiladora industry (Brown, 2002). Initially employing about 3,000 Maquiladora workers in 1965 (less than 0.01 %

⁸ **International Organization for Standardization**

ISO 9000 and 14000 standards are implemented by some 610 000 organizations in 160 countries. ISO 9000 has become an international reference for quality management requirements in business-to-business dealings, and ISO 14000 is well on the way to achieving in enabling organizations to meet their environmental challenges.

of the total population), their total workers in the late 90's numbered more than 750,000 (7.8% of the total population) (Brouthers and MacCray, 1999). Through the Maquiladoras program, NAFTA has allowed and encouraged foreign businesses to set up factories to produce consumer goods for the exports. Over 80% of the Maquiladora workforce was female, however, gender equity and the position of women in the world economy is not mentioned in NAFTA. Nauman and Hutchison (1997), addresses the importance of understanding regional situation when we implement a trade policy. Women are often expected to and will accepted lower salaries than men for comparable labor women were accustomed to performing domestic chores without material remuneration. Therefore, even though women have paid jobs, gender discrimination at work is not always recognized as a problem to be solved in Mexico.

Looking at the wage difference is one way to see the effect of international trade. Many of the researchers have conducted a study of the effects of the trade liberalization on wages in Mexico. Hanson and Harrison (1999) have shown the effect of trade liberalization on the widened wage gap between skilled and unskilled workers during the 1980s using the Stolper-Samuelson theorem⁹. Trade liberalization causes the prices of skill-intensive goods to rise relative to those of the non-skill-intensive goods. The resulting shift in employment toward skill-intensive industries contributes to an increase in the relative demand for skilled workers, which causes their wages to increase relative to those of unskilled workers. The price changes reduce the demand for labor in non-skill-intensive industries and increase the demand for labor in skill-intensive industries. The important findings in their research are: during the 1980s, Mexico experienced an increase in the wage gap between skilled and unskilled jobs, and higher employment growth in skill-intensive

⁹ The Stolper-Samuelson theorem: When the relative price of a good rises, the wage of the factor used intensively in the production of that good will rise, while the wage of the other factor will fall.

sectors because of the higher FDI on skill-intensive goods due to the lower tariffs on these goods according to the Hecker-Ohlin theorem¹⁰. NAFTA provided a further trade liberalization in 1994, and Hanson shows the effect of NAFTA specifically on the wage levels in his recent study (2003). He shows that overall wage levels have had large temporary declines, however, wages in states on the Mexico-U.S. border have increased relative to wages in the rest of the country under NAFTA. Robertson (2000) agrees with Hanson and Harrison that trade liberalization increases the gap between skilled and unskilled workers' income. However, he suggests encouraging free trade because of the danger of protecting industries from the failure of the import substitution program in Mexico in the past. He is not concerned about widening gap of the wages because NAFTA encourages FDI, and it may contribute to the economic growth that will make investments in education feasible, and create more skilled- workers in Mexico. Ramirez (2003) does not agree with Hanson that overall declines of the wage level were caused by NAFTA. This declines was caused by multiple coincidental events. He sees that this worst drop in economic activity since 1932 (drop in real GDP of 6.2% in 1995, 3.47 pesos per dollar to 4.00 pesos per dollar, and continued to decline until reaching a level of 7.74 pesos per dollar on 30, June 1995) was caused by a series of politically explosive events and an unexpected economic crisis that would shatter Mexico's facade of modernity, and test the Institutional Revolutionary Party's hold on power in 70 years.

Anderson (1995) has conducted a study of the effect of a more open market under NAFTA on the economic status of Mexican women. The labor participation, especially for women, has increased in the export processing and tourism areas, and she has also found that that

¹⁰ Hecker-Ohlin- theorem: A country will tend to specialize in and export the good that uses its relatively abundant factor intensively.

because of the high demand for labor, education and experience do not affect wages. Although much of the literature has shown how NAFTA has affected the wages in Mexico, not many of them have focused specifically on Maquiladoras' women workers' wages. Long run effects differ from a short run effect, so in this particular study on the wage level of Maquiladora women **workers** comparison of the wages over time is a key.

4. The effects of NAFTA on Mexican women workers' wage at the border region

4.1 Data

The data set used for the analysis is a quarterly household survey, made available by Raymond Robertson at his website: <http://www.macalester.edu/~robertson/>. The total dataset consists of a sample of 36,193 workers in 8 different cities from 1987 to 1999. This data set was originally established by the Mexican National Institute of Statistics, Geography and Data (INEGI) In this paper, I chose to use the first quarter of every three years in this period. Robertson's data provides individual level data on multiple Mexican states and cities. Variables include information on wages, education, family indicators and employment sectors. The goal is to estimate the impact of NAFTA on wages of Maquiladora women workers, so this data allows us to compare the cities in border regions, Tijuana, Ciudad de Juarez, Matamoros and Nuevo Laredo, and other interior cities, Mexico D.F., Monterrey, Guadalajara, and Mexico State. Also, looking at the time period allows us to see the difference before and after implementation of NAFTA.

In addition to the household survey, I use price data by cities compiled also by Robertson. This data is also from INEGI, and it provides price data of 98 different products from 1980 to 2001 for 44 cities in Mexico. I will be only choosing two cities from the border region;

Tijuana and Ciudad de Juarez, and two cities from the interior region; Guadalajara and Monterrey. This data set will help us to estimate the effects on wages controlling for movements in consumer prices.

4.2 Methodology of Regression Analysis

To estimate changes in Maquiladora women workers' wages, I present results from Ordinary Least Squares (OLS) regression analysis. OLS is the most widely used method of obtaining numerical value for the coefficients of an otherwise completely theoretical regression equation. OLS is a regression estimation technique that calculates the coefficients of dependent variables so as to minimize the sum of the squared residuals. In this study, a fixed-effects model, using the areg command, is used. This model enables us to get rid of the macroeconomic factor such as inflation and peso crisis in this study. The "areg" command fits a linear regression absorbing one categorical factor. It specifies the categorical variable ("year" in this study) which is to be included in the regression as if it were specified by dummy variables.

To understand the determinants of wage differentials across gender and regions over time, this study specifies wages as a function of "female", " NAFTA", "border", "fborder", "fbordernaf", "mar", and "age2". A variable "female" specifies gender, " NAFTA" is the interaction variable between "female" and " NAFTA" (" NAFTA" specifies the data in 1996 and 1999, but it will not be an independent variable by itself because it is expected to pick up macroeconomics factors other than NAFTA), "border" is a variable, which combines four border cities such as Tijuana, Ciudad de Juarez, Matamoros and Nuevo Laredo, "fborder" is the interaction variable between "female" and "border", "fbordernaf" is the interaction variable among "female", "border", and " NAFTA", "mar" indicates whether a worker is married or not and finally, "age" and age squared "age2"

measure experience. The last three variables are included as controls commonly used in wage regressions. Dependent variable is the natural log of hourly wages in order to show the percentage change in each worker's wages.

I expect that "female" will be negatively correlated with hourly wages because not only in Mexico, but also in the rest of the world, women are paid less. Foreign firms pay relatively high wages compared with local firms, and the border cities have more foreign firms coming in relative to the rest of the cities in Mexico, so the coefficient of "border" is expected to be positive. There is no expected sign for the coefficient of "fborder" (the interaction terms between "female" and "border") because it is a combination of the negative and positive variables. A variable "fnafta" (the interaction terms between "female" and "nafta") and the interaction term between "border" and "nafta", "bordernaf" do not have expected signs because we do not know what the effect of NAFTA on these workers. The coefficient of the variable "fbordernaf"(an interaction term among "female", "border", and "nafta") is combination of positive and negative signs, but I expect this coefficient to be negative because relative to men, women have less opportunity to be affected by foreign policy like NAFTA. In Mexico, women are responsible for their house chore and children, so the sign of the coefficient of marriage depends on sex. Finally, as workers have more experience, they are paid more in general, so the coefficient is expected to be positive.

Since the sample size is over 36,000, I expect the significance level to be high, and bias will not be a problem. However, the data indicates random samples of the workers for each city, and it is not the sample only from Maquiladora workers. Therefore, I expect this data will show the effects of NAFTA to be smaller than they really are since this data includes the samples, which are not affected by this policy. Another problem I need to expect is that this data is collected by the Mexican government, therefore, workers who work illegally and people who are

not registered in each city might not be included in this data.

4.3 The Results of Regression Analysis

In this section, I examine the results regarding the effects of NAFTA on wages of women workers at Maquiladoras from regression analysis. The regression, a fixed-effects model, allowed me to control for macroeconomics effects, such as inflation and the peso crisis, through year dummies. The results are displayed in Table 1. The coefficients can be interpreted as the change in the natural log of hourly wages with respect to a unit change in the independent variables. In order to see the actual percentage change on wages, I have taken the regression coefficients out of the log, and subtracted one in order to see the marginal effects, and multiplied by one hundred (i.e. $(e^{\text{coefficient}} - 1) * 100$). These new values are displayed in Table 2. All of the variables are statistically significant at the 99% confidence level, and all of them that I have predicted, have their hypothesized sign. The R-squared (overall fit of the estimation) is 0.67.

The coefficient of variable “female” is negative as I expected, which means that female workers in the country are paid 6.19% less than male workers. The variable “border” has a positive sign as I expected; the workers in border cities are paid 19.36% more compared with the rest of the country.

The interaction variable “fnafta” has a positive sign, and shows that female workers’ wage increased 2.53% more than male workers’ after 1994. This result shows that the implementation of NAFTA had a bigger effect on women workers.

The interaction variable “fborder” is interpreted as female workers at the border cities. The coefficient -.023 indicates that female workers in the border regions are paid 2.27% less after taking out of the log minus one form, relative to the male workers in the same regions. Although

the coefficient for “fborder” is negative, female workers at the border are still paid

19.36%-2.27% = 17.09% higher than the rest of the country.

The interaction variable “bordernaf” allows us to see the impact of NAFTA specifically on the border regions. In the border regions, workers’ hourly wages were already 19.36% higher than rest of the country as I indicated above. On top of that, the coefficient of “bordernaf” shows us that the hourly wage increased by 5.23% after 1994 in the border region. This result implies that even though the border region was already a free trade area before the implementation of NAFTA, it encouraged more foreign firms to come into this region and had a significant impact on the wages.

The most important variable in this study, “fbordernaf”, has shown many interesting results. A variable “fbordernaf” is interpreted as the hourly wage of the female workers in the border region after 1994. This variable allows us to see the effect of NAFTA specifically on Maquiladora women workers. Its coefficient is negative relative to the hourly wage of the male workers in the border region after 1994. More skilled jobs can have a bigger change in wages, so men’s wages can grow more than women’s wages because women tend to have less education and end up working as unskilled workers. However, the total effect on women’s wages at the border region relative to men’s that can be attributed to NAFTA is

$$“fnafta”+“bordernaf”+”fbordernaf”=2.53\%+5.23\%+-3.34\%=4.42\%.$$

This shows that women’s wages did not grow as much as male workers’, but still increased by 4.42% in the years after NAFTA. This assumes that the year dummies are capturing only other macroeconomics effects, not those of NAFTA. Finally, to see the result relative to other women workers in the rest of the country, we calculate,

$$“bordernaf”+”fbordernaf”= 5.23\%+-3.34\%=1.89\%.$$

This 1.89% seems like a very small difference, but it is statistically significant. What this result tells us is that Maquiladora women workers are not worse off relative to the women workers in the rest of the country under NAFTA.

4.4 Summary Statistics of consumer prices

In this section, I determine how the price of products has been changed over time in order to measure purchasing power of these workers. The summary statistics are reported in Table 3. The increase in the price of the products varies in each city. For example, the average price of the products in Tijuana was 37.96 pesos before 1994, and 265.26 pesos after 1994. The increase in the price is about 7 times more which seems like a large increase; however, the peso crisis played an important role to explain this large increase, and this increase are very similar in each city, so the difference in price should not affect this study.

5. Conclusions

In this paper, I have surveyed literature on the impacts of NAFTA from various perspectives, and also I examined the impacts of NAFTA on the wages of Maquiladora women workers in Mexico, using regression analysis. The regression analysis has suggested three significant impacts on wages: (1) overall wages have fallen significantly after 1994 due to the peso crisis, (2) wages of workers in the border region were higher than the rest of the country, and the implementation of NAFTA has increased their wages even more relative to the rest of the country, and (3) wages have increased more for Maquiladora women workers relative to wages of other women workers in the rest of the country under NAFTA.

These findings are particularly important in understanding the controversial issues of

NAFTA. The peso crisis had occurred only a year after the implementation of NAFTA, and wages never fully recovered to the level of the 80's. Therefore, decrease in wages is often seen as **the negative effect** of NAFTA instead of the peso crisis. Border cities appear to have a definite advantage under NAFTA because this area had already been a free trade area to start with, so it was easy for foreign firms to come in with even fewer restrictions. The competition increase the wages, and these foreign firms tend to pay higher wages compared with the local firms. Therefore, the results from the regression analysis rejects what some of the literature suggests. We are still not sure if women workers' wages are enough to provide for their families or not, but NAFTA did not impoverish their lives. What we need to be aware of when we are talking about Maquiladoras is that they are distinct from "sweatshops."¹¹ What we are looking at is the overall change in wages of workers working at assembly plants located in the U.S.-Mexican borderlands. This particular study suggests that international trade can benefit even the women workers, who have less economical and sociological opportunities in this country.

As we learned from what the literature suggested, the effects of NAFTA vary depending on what we are looking at. Therefore, one aspect cannot explain the overall effects of trade. It is also hard to find out the effects of NAFTA from other non-NAFTA factors, such as macroeconomic effects, the Mexican peso crisis and more, and this paper provides only a partial contribution to our understanding of the complicated economic effects and issues that NAFTA has generated for Mexico.

In terms of economic growth, the workers who live in the border region, with better access to foreign markets, have fared better in the global economy under NAFTA. But the

¹¹ "sweatshops" here is meant a manufacturing operation where following circumstances prevails: workers put in long hours, the facility is crowded, working conditions are unsafe or unsanitary, pr treatment of workers is harsh.

conditions of workers without access to the global economy can result in cases like Chiapas. International free trade can bring more opportunity to create bigger economy for a county like Mexico, but an agreement should not be used as a political strategy because it tends to ignore the people who will be negatively affected. Mexico's experience under NAFTA holds important lessons for such future trade agreement as CAFTA and FTAA. While entering a globalized economy, governments should not forget that a matter of the highest priority in a country is its' citizen's human rights. They should always choose humane strategy to achieve their goals.

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Table 1: Regression of lnwage

Number of obs = 361963
 R-squared = 0.6667
 Adj R-squared = 0.6667

Inwage	Coef.	Std. Err.	t	P>t	
female	-0.064	0.0038	-16.91	0	
fnafta	0.025	0.006	4.21	0	
border	0.177	0.0037	48.66	0	
fborder	-0.023	0.006	-3.83	0	
bordernaf	0.051	0.0057	8.93	0	
fbordernaf	-0.034	0.0093	-3.67	0	
mar	-0.045	0.0012	-37.12	0	
age	0.092	0.0001	158.18	0	
age2	-0.001	7.97E-06	-134.91	0	
constant	-0.107	0.0097	-11.13	0	
yr	F(4, 361949) = 101664.326			0	(5 categories)

Table 2: Percentage point change in hourly wage

female	-6.19%
fnafta	2.53%
border	19.36%
fborder	-2.27%
bordernaf	5.23%
fbordernaf	-3.34%

Table 3: Consumer Prices

	Average price of products in 1986, 90, and 93	Average price of products in 1996 and 99
Tijuana	38	265.3
Ciudad de Juarez	34.2	254.7
Guadalajara	33.9	261.4
Monterrey	33.6	255.9