

INTERNATIONAL TRADE AND GENDER WAGE GAP IN CHINA

Hao Wei
Sui Yang
Shibin Liu
Jun Wu

School of Economics and Business Administration,
Beijing Normal University, China

Songlin Xiang
School of Social Sciences, Tsinghua University, China

Abstract

It is a new field to analyze how foreign trade impacts gender wage gap in China. Combining Chinese Household Income Project (CHIP) in 2002 and 2007, the paper aims at researching the impacts of international trade on gender wage discrimination. The paper finds that the development of foreign trade will increase gender wage inequality, which contradicts the neoclassical theory. Specifically, in the aspect of trade dependence, the import dependence and total trade dependence has a statistically significant and positive impact on gender wage gap. From the perspective of mode of trade, compared with processing trade dependency, the import dependency of general trade and foreign trade dependency have more statistically significant impacts on gender wage gap, and the impact of import of general trade on gender wage gap is sizable and statistically significant. From the perspective price, price of trade has a negative impact on gender wage gap, but compared with the price changes of total trade and processing trade, only import price of general trade and total price of import and export have statistically significant impacts on gender wage gap. Finally, changes of terms of trade have a positive impact on gender wage gap, but the impact is not statistically significant.

Keywords: Gender wage gap, foreign trade dependence, price of trade, mode of trade, terms of trade

Crossover study on international economics and labor economics is latest development and immediate field of research focus. Foreign scholars

focus on impact of foreign trade on internal income gap and wage gap. This issue is also regarded as a social focus by governments around the world and international organizations. Wage problem is an important topic in labor economics, and gender wage gap is an important part of wage problem. There are plenty of studies on the impact of foreign trade on wage, but there are few studies focus on the impact of foreign trade on gender wage gap in China. Considering it's urgent to do research on this issue, this paper aims to do exploratory research.

1. Introduction

Female labor force is an important factor in labor market. Female labor force participation varies greatly among regions, however, with women's share of the labor force ranging from 25% in the Middle East and North Africa (MENA) to 45% in Europe and Central Asia and in East Asia and the Pacific. Women's participation in export industries such as textiles, clothing, food processing, electronics and toy production, has been between 53% and 90% of the labor force. 80% of the jobs in light-manufacturing export sectors are held by women, and many jobs are located in export processing zones. Women's participation in export industries such as electronics, clothing, and pharmaceuticals, is 88% in China (Jane Korinek, 2005). Gender inequality remains an issue within labor markets globally. Women suffer multiple disadvantages in terms of access to labor markets, and often do not have the same level of freedom as men to choose to work. Gender differences in labor force participation rates and unemployment rates are a persistent feature of global labor markets. In 2008, an estimated 6.3% of the world's female labor force was not working but looking for work, up from 6.0% in 2007, while the corresponding rate for males was 5.9% in 2008, up from 5.5% in 2007(ILO,2009).

Since the early 1980s, there has been a tremendous change in the global economy. A much higher degree of global integration through trade expansion has been achieved. Accompanying integration have been major shifts in labor markets and changes in productivity. In many developing countries, rural labor force rushes into the urban areas for more job opportunities. Economic changes lead to prosperous new sectors, and flagging old sectors. In the short run, the new jobs will compete with the existing jobs, and the high-quality and high-skill labor will flow into new sectors. In this process, there are losers and winners (Ozler,2000). It is generally acknowledged that foreign trade promotes economic growth which will enlarge employment and improve living standards. This theory applies to both male and female, but foreign trade has different impacts on female and male (UNCTAD,2011).

It is generally acknowledged that foreign trade creates new jobs, and it also applies to females in export-oriented sector. Many countries

participate in international division of labor, and females in export sector are involved in global production system, which raises their wage level. Expansion of trade department also creates new jobs for females, and it enables females, who used to do unpaid work, to have access to paid work. The female work in the informal institution also has opportunities to work in the formal institution. However, many factors, such as continuous gender discrimination and low-skill, hinder female from achieving benefits from the foreign trade expansion. In many developing countries, female's education level is lower than that of male, and productivity and wage of female are also lower. Despite recent increases in female's educational attainment, the female continue to earn less than male in the labor market-even when they have the same education and years of work experience as men. In industrial countries female in the wage sector earn an average of 77 percent of what male earn; in developing countries, 73 percent (World Bank, 2001).

Both micro-level and macro-level studies indicate that gender inequality inhibits long-term growth. This is true for two reasons. Firstly, if women are better educated, there will be more resource in a family, and more resource could be spent on children's education, health and nutrition. Consequently, future generation will be more high-quality. This is particularly true in developing countries where household resources are relatively scarce. Secondly, unused female potential in terms of lower levels of education, employment, remuneration and access to productive resources implies that the allocation of economy-wide resources is sub-optimal. In contrary, gender equity is beneficial to improve efficiency and better development. Specifically, first of all, if females attain the same education, economic opportunity and capital with male, the productivity will be improved, and this is crucial in current circumstances (World Bank, 2012). Secondly, the rise of female's absolute position and relative position is not only in favor of achieving other development goals, but also offering better future for the next generation. Thirdly, fair competition makes it possible for female to participate in political affairs, reach a decision and influence policy. Thus the development institution and policy could be more representative and inclusive, and China can choose better development path.

It is urgent to do research on the impact of foreign trade on the gender wage gap in China. First of all, the female labor force is crucial in Chinese labor market, and it is also a major social and economic issue. Discrimination is not in favor of the female's participation in employment, self development and education. In the long run, the human resource can't be fully developed and utilized, which goes against the long-term economic growth. Secondly, in recent years, China's income gap is widening and gender income gap is an important aspect of income gap. The wage makes up most of the income, and it is necessary to analyze and narrow the income

gap through research on gender wage gap. Finally, foreign scholars draw different conclusions based on a few different research samples. On the other hand, domestic scholars barely research on the gender wage gap. Neither foreign scholars nor domestic scholars conduct empirical research on gender wage gap taking China as research sample. Therefore, it is necessary to conduct research foreign trade and gender wage gap in terms of theory.

2. Literature review

Trade liberalization is generally acknowledged as a driving factor for gender equity. The supporters of new liberalization economics regard market liberalization as the best mechanism to narrow gender gap. Because foreign trade accelerate economic growth, and the economic growth can provide better education, better jobs, and more opportunities for higher income (Christa Wichterich, 2009). The representative theory is the theory of discrimination, which argues that enterprises prefer to male labor force. Under imperfect competition, enterprises can afford male higher wage with excess profits. Under perfect competition, enterprises can't attain excess profits because of intensifying competition, and they may face negative profit even bankruptcy if they keep on discrimination (Berker,1971). After the theory of discrimination was introduced in international trade, Bhagwati (Jagdish Bhagwati,2004) argues that trade openness urge domestic enterprises to abandon gender discrimination, because discrimination increases production cost, which is to the disadvantage of competing with foreign enterprises. Specifically, trade openness generates intensifying competition, which reduces excess profits and narrows gender wage gap. The enterprises set about adjusting labor force structure and pay structure, aiming at saving cost and enhancing competitiveness. The enterprises will hire more female workers, which in turn, lead to narrowing gender wage gap (Artecona, Cunningham, 2002).

What's more, in terms of factor endowment theory, trade openness lead to more export of goods whose intensively used factor is abundant factor in home country. In turn, the demand of abundant factor will increase and the price of abundant factor will increase according to the Stolper-Samuelson theory. Generally speaking, the current situation of developing countries is that they are abundant in low-skill and unskilled labor force. Compared with the male, the female is less skilled in terms of education, work experience and so on. Since unskilled labor constitute the main asset of women, and women are more concentrated in unskilled jobs in comparison to men. Mainstream trade theory predicts that trade liberalization would contribute to reducing gender inequality in developing countries (Artecona,Cunningham,2002;Diane Elson et al., 2007).

However, the research conclusions disagree with the theory's expectation, according to several existing researches.

(1)Trade openness leads to expansion of gender wage gap.

According to Fatma's research on Egypt, trade openness leads to intensifying competition and more gender discrimination which is more serious in the tradable sector. According to the research of Gunseli Berik et al. (2006) on Taiwan and Korea, during 1980-1999, the gender wage gap is expanding along with the trade openness in Taiwan. With less trade openness in Korea, the gender wage gap in manufacturing is narrowing. In monopoly industries, the increase of import leads to expansion of gender wage gap in Taiwan, while the decline of export leads to narrowing gender wage gap in Korea. According to the research of Black and Brainerd (2004) on America, the industries with high concentration are able to carry out discrimination in American market. However, with more and more intensifying competition caused by foreign trade, the gender wage gap is narrowing faster in industries with high concentration than that in competitive industry. Foreign trade leads to decline of low-skill labor's relative wage, and increases the inequality in gender wage. However, foreign trade also benefits the female by reducing discrimination capability of enterprises. According to Menon and Rodgers (2007)'s research on India, during 1983-2004, foreign trade leads to expansion of gender wage gap in industries with high concentration. According to Ferrufino(2011)'s research on Mexico, after the signature of North American Free Trade Agreement(NAFTA), gender wage gap is expanding in manufacturing industries. According to the research of Yumiko Yamamoto (2007) on Japan, during 1980-2003, foreign competition, especially those come from neighbors in Asia, is proportional to gender wage gap, which means that the trade competitiveness expands gender wage gap. In some industries with high concentration or high-tech industries, export contributes to narrow gender wage gap. The expansion of gender wage gap in high-concentration industries with impact of import is more than that in high-concentration industries without the impact of import. According to Nursel(2010)'s research on Turkey, gender wage gap is larger in tradable sector than that in other sectors. What's more, according to the research of Oostendorp (2009) on dozens of developing countries and developed countries around the world, the impact of foreign trade on gender wage gap existing in low-skill labor is statistically significant, either in developing countries or developed countries. In developed countries, the impact of foreign trade on gender wage gap existing in high-tech labor is also statistically significant.

(2)Trade openness leads to decline of gap.

According to the research conducted by Artecona and Cunningham (2002), along with trade openness, the gender wage gap in Mexican manufacturing industries is expanding, but this situation is mainly brought about by wage spillover which was caused by male's higher skill. Foreign

competition caused by trade openness leads to domestic intensifying competition, which in turn brings about the decline of wage gap caused by discrimination. According to the research conducted by Ebru Kongar(2006)on American manufacturing industries, along with more and more imports, female in low wage industries will go through higher unemployment rate, and average wage of rest females will increase, leading to decline of gender wage gap. According to the research of Pham and Le(2008) on Vietnam, during 1993-2004, among all the factors impacting wage discrimination, trade factor is an important factor causing wage rise, and it has a significant influence on females. The trade openness narrows gender wage gap either in formal institution or in informal intuition.

At present, according to the literature we know, there are many researches on gender wage and gender wage gap about China, but there barely literature about the impact of foreign trade on gender wage gap.

Aiming at analyzing gender wage gap, Margaret(1997) conducted research on urban gender wage gap during 1988-1994 in China, and find that there is no evidence can prove that gender wage gap is narrowing, but the gender wage gap, which exists in state-owned enterprises and collectively-owned enterprises, is expanding. Rozelle (2002) argued that female's wage was lower than male's wage, and expansion of gender wage gap is mainly caused by industry wage gap instead of discrimination. They also find that the reform policies and market competition did not lead to any significant change in wage discrimination in China's rural industry. Wang Meiyang(2005) stated that 6.95% of wage gap could be explained by personal endowment gap, and the rest 93.05% couldn't be explained. Gender wage gap, which couldn't be explained by personal endowment, was caused by many indiscernible factors. Discrimination was the main factor causing gender wage gap instead of human capital. Rickne(2010) stated that women's average wages lag behind men's wages by 11%. The gender-wage gap is wider among workers with more than 12 years of education, mainly because of the higher relative wages received by skilled men in foreign-invested firms. Zeng Yuhao(2011) stated that the degree of gender wage gap varies with the positions of wage distribution during 1998-2001. The gap is big in lower positions and small in higher positions of the wage distribution. Female workers in lower positions suffer more discrimination and those in higher positions suffer less discrimination.

Considering different factors which cause changes of gender wage gap in China, scholars try to analyze this issue from different angles, but there is barely analysis based on foreign trade. Li Chunling (2008) argued that there was a steady and significant increase of gender income gap during the past two decades. Market mechanism was the major dynamics to expand the gap in the first decade while sex discrimination has become the more

important factor in the last decade. According to the research of Li Liying(2008), market circumstances and internal system were two important factors which can determine the gender wage gap in an enterprise. It was also found that firms which have a larger pay gap between men and women are more likely to operate in the market with fierce competition, subject to a hard budget constraint, adopt piece rates, and have a lower degree of employees' influence and a higher degree of internal wage dispersion. According to the research of Li Shi(2006), it was found that there was serious occupation segmentation between male and female workers in the late 1990s. In addition, the paper also provides evidence showing that the discrimination within occupations is the main cause for gender wage gap in urban China.

On one hand, the conclusions of researches on different countries are not the same, and even conclusions of researches on the same countries are different. There was barely research based on China. On the other hand, there are many analyses about gender wage gap and its causes in China, but there is barely analysis based on the foreign trade. Analysis about gender in China is almost a blind spot (Christa Wichterich,2008). China is a typical case which promotes reform and economic development by foreign trade, and reaches a significant achievement. The evidence offered by China on the impact of foreign trade on gender wage gap will provide preference for other developing countries' economic development. Over the past two decades or more, development economics is aimed at assessing the impact of foreign trade on gender wage gap, and it mainly focuses on macro-level foreign trade policy and micro-level gender inequality. Development economics stresses that macroeconomic policy may hinder or benefit gender equality, and gender inequality may hinder or benefit the achievement of macroeconomic goals. Macroeconomic policy and gender equality are involved in a bidirectional relationship.(Seguino, Grown,2006)Then, what's the current situation of the gender wage gap in China? What's the impact of foreign trade on gender wage gap in China? In order to answer these questions, it is urgent to analyze foreign trade and gender wage gap.

This paper combines micro-data in labor market and macro-data of foreign trade to empirically analyze. On the other hand, some relevant literature only conduct research in aspect of foreign trade dependence, while this paper conducts research in aspect of foreign trade dependence, mode of trade, price of trade, terms of trade and so on. Micro-data used in this paper is the survey data on urban residents in 2002 and 2007, and the data source is Chinese Household Income Project (CHIP). Specifically, on one hand, this paper will calculate the gender wage gap can't explained by own factors. On the other hand, this paper empirically analyzes the impact of foreign trade on gender wage which can't be explained.

3. Research design

3.1 research frame

This paper aimed at assessing the impact of competition caused by foreign trade on gender wage discrimination. Generally speaking, the competition caused by foreign trade will bring about intensifying competition for the domestic enterprises, and competition caused by foreign trade can reduce discrimination which can increase cost. In the terms of competition in domestic market, there is a correlation between the competition faced by domestic enterprises and industry concentration. The higher industry concentration is, the less domestic competition faced by enterprises. And then there is lower driving force to reduce cost, which brings about more discrimination for female. In contrast, the lower industry concentration is, the more domestic competition faced by enterprises. In order to avoid bankruptcy, the enterprises will reduce discrimination on female to reduce cost and enhance competition. Consequently, there is a correlation between changes of gender wage gap and competition caused by foreign trade if the factor of domestic competition is controlled (Berik, 2006).

Furthermore, because the situations of foreign trade in different regions are not alike, the influences of foreign trade on different regions are in different levels. Comparatively speaking, if foreign trade in a region is more developed, this region will be more impacted by foreign trade, and then the gender wage gap will be more impacted.

In the terms of forms of trade, there is export trade and import trade. In the international export market, the export enterprises not only face competition from domestic enterprises, but also face competition from other enterprises in the same industry around the world. When the enterprises are exporting goods, in order to rush into the international market or achieve more share of the international market, the enterprises will reduce cost and reduce discrimination on female, which is in favor of narrowing gender wage gap. Foreign trade brings about increase of import, and the increase of import will be a shock on the domestic market. Intensifying competition, reduced profit, and less discrimination are in favor of narrowing gender wage gap. (Berker,1971, Artecona , Cunningham ,2002,Jagdish Bhagwati,2004,Gunseli berik et al.,2006,Oostendorp,2009)

In terms of mode of trade, there is general trade and processing trade, and different modes of trade have different impacts on gender wage gap. Specifically, general trade is to export goods made of domestic raw materials, and processing trade is to export goods made of foreign raw materials, and both of them are inward processing. To some degree, enterprises engaged in different modes of trade play different roles. General trade is usually conducted by domestic enterprises, and these enterprises are

in command of the whole process which includes product research and development, producing, marketing and so on. Processing trade is usually conducted by foreign enterprises or the some related domestic enterprises. These enterprises are aimed at producing goods according to the requirements of head office or outsourcer, and they are not involved in other processes such as marketing and so on. Therefore, the changes in international market and domestic market have a shock on processing trade, but the changes have a much more strong shock to general trade because the enterprises engaged in general trade is more sensitive to the market than the enterprises engaged in processing trade. We can arrive at a conclusion that different mode types of trade have different impacts on gender wage gap.

The price of trade also has impact on gender wage gap. According to the Stolper-Samuelson theorem, the owners of abundant factor will have more wages because of international trade, and the owners of scarce factor of will have fewer wages because of international trade. In other words, the price of trade goods and their prices will impact producers' wage. The prices of trade goods and their prices can competition and its change. If the export prices are higher, enterprises can achieve more profit and are more likely to apply gender discrimination. There is a correlation between impact of import price on enterprises and the types of import goods. If the import goods are competitive final product, the higher import prices are, the weaker shock on the domestic enterprises, and there will be less impact on the application of gender discrimination. If the imports goods are not final products, the higher import prices are, the stronger shock on domestic enterprises, and there will be more impact on the application of gender discrimination. Furthermore, terms of trade are composite indicators of import and export prices. The better terms of trade are, the more profit of trade, and the trade enterprises are more likely to apply discrimination, which is to the disadvantage of narrowing gender wage gap. According previous research, gender wage gap in Mexican manufacturing industry was narrowing after the signature of North American Free Trade Agreement (NAFTA). In the long run, there is a positive correlation between the relative price of goods produced by female and the relative wage of female, and the relative wage of female will increases 0.1% if goods' relative price increases 1%.

What's more, there is a correlation between economic scale and gender wage gap. Specifically, first of all, economic development can increase productivity and create employment opportunities. Consequently, both male and female will benefit by obtaining more job opportunities, higher wages, and better living standard, and gender wage gap will be impacted in this way. Secondly, economic development can bring about more investment on infrastructure. The investment can reduce female's unpaid work and enable female to obtain education and work. In this way,

the female can be more competitive and narrow the gap with male. Thirdly, higher incomes for households can loosen the constraint on human capital investment. Gender differences in education, health care, nutrition will descend, and then there will be less gender differences in human capital. What's more, it is generally acknowledged that investment return on female is often lower than that of male. If the investment return of female increases because of the economic development and more income, households will be willing to increase investment on female's education, which in turn narrow gender differences in human capital. (World Bank ,2001)The relationship between economic development and gender equality is a double-edged sword. Economic development can promote gender equality, but it may also worsen the situation because economic development has different impacts on male and female. Male and female are different in many ways such as the resource they owned, the sector of economy they work in, and their work opportunities and so on. According to the situations of countries at different levels of development, most slow-growing countries are undergoing the expansion of gender wage gap, and most fast-growing countries are undergoing narrow of gender wage gap. In some low income countries and middle income countries, along with the development of investment and economy, the gender wage gap is expanding. Many educated women are likely to flood into the labor-intensive manufacturing industry, which is limited and export-oriented. Under the circumstances, if the enterprises have a high liquidity, facing with fierce competition and lacking union activities, then the enterprises are able to pay fewer wages to female workers. In this way, the enterprises can obtain higher profit, and economic development is to the disadvantage of female's wage. (Seguino, 2009)

3.2 Research approach

Based on the above analysis, considering the realities of our country, this paper mainly analyze impact on urban gender wage gap in terms of forms of trade, mode of trade, prices of trade and so on. At the same time, this paper will discuss impact of the changes of economic scale on gender wage gap, and predict impact of changes of economic scale on gender wage gap in China, providing reference for formulating policy in the future. This paper conducts empirical analysis from the perspective of provincial level.

3.2.1 Variables

Specifically, the explanations of variables are as follows.

(1)Dependent variable: gender wage gap (the unexplained part of gender wage gap after the excluding personal factors)

(2) Independent variable:

① Variables aimed at measuring degree of competition caused by foreign trade: Foreign trade dependence (total import-export

value/GDP), export dependence (export value/GDP), import dependence (import value/GDP).

②Regional economic scale (GDP).

③Industry concentration is replaced by market development degree since there is no indicator for industry concentration, and

④market development degree is measured by the ratio of non-state-owned enterprise’s value to local industrial output value.

⑤General trade dependence (general trade value/GDP), processing trade dependence (processing trade value/GDP).

⑥Prices of import, prices of export, and terms of trade (prices of import/prices of export).

In order to analyze the impact of trade liberalization on gender wage gap, it is significant to exclude the gender wage gap caused by personal factors like more education and so on. Oaxaca decomposition is widely used to study wage gap of different groups. Specifically, we will estimate the income functions of the two groups, and then assume that the two groups have the same coefficient. After that, we can conduct decomposition analysis on the difference of the two groups’ predicted average income.

In terms of decomposition of gender wage gap, this paper assumes that male’s average income is Y_m and female’s average income is Y_f . The corresponding explanatory variables are X_m and X_f . The gender wage gap is

$$Y_m - Y_f = \beta_m X_m - \beta_f X_f \quad (1)$$

The gender wage gap which is $Y_m - Y_f$ can be decomposed into two equations as follows.

$$Y_m - Y_f = \beta_m (X_m - X_f) + X_f (\beta_m - \beta_f) \quad (2a)$$

$$Y_m - Y_f = \beta_f (X_m - X_f) + X_m (\beta_m - \beta_f) \quad (2b)$$

$\beta_m (X_m - X_f)$ or $\beta_f (X_m - X_f)$ is wage gap caused by personal endowment gap or employment character gap, and it is often called explainable part or non-discrimination part. $X_f (\beta_m - \beta_f)$ Or $X_m (\beta_m - \beta_f)$ is wage gap caused by the difference of equation in two wage functions, and it is also called unexplained part or discrimination part. In equation (2a) and (2b), $\beta_m X_f$ and $\beta_f X_m$ is often considered as the counterfactual part. When the equation (2a) is discussing the impact of X_m and X_f on average gross income, it is assumed that female have the same coefficient with male whose coefficient is β_m . When we are discussing the impact of β_m and β_f . On average gross income,

it is assumed that male have the same coefficient with female whose coefficient is X_f . Equation (2b) is just the opposite.

In some cases, the results of two decompositions are different, and then this paper makes use of the mean value of two decompositions' results.

$$Y_m - Y_f = \frac{(\beta_m + \beta_f)(X_m - X_f)}{2} + \frac{(X_m + X_f)(\beta_m - \beta_f)}{2} \quad (3)$$

In equation (3), the first part on the right hand of equal sign is the impact of gender wage gap caused by personal endowments gap, and the second part is the result of coefficient difference which is often regarded as the impact of discrimination.

The unexplained part in equation (3) is recorded as U, and combining the following equations, we further analyze the impact of foreign trade on the unexplained part of gender wage gap.

$$U_{it} = \beta_0 + \beta_1 T_{it} + \beta_2 C_{it} + \beta_3 G_{it} + \beta_4 Y \quad (4)$$

In equation (4), i stands for different provinces, and t stands for the year. T stands for foreign shock which is trade related variables such as trade dependence, price of trade and so on. C stands for the regional internal competition, and it is measured by the ratio of non-state-owned enterprises' value to the gross value. G estimated the regional development level, and measured by the logarithm of GDP. Y is a dummy variable, and the value of 2007 is 1.

3.2.2 Equations

(1) The impact of trade dependence

Above all, from the perspective of export trade dependence and import trade dependence, we analyze the impact of trade dependence on unexplained part of gender wage gap.

The econometric equation of foreign trade dependence and gender wage gap is as follows.

$$U = c + \ln gdp + con + year + trade/gdp \quad (5)$$

In this equation, lngdp measures the local economic level. con measures competition degree in local market. trade/gdp measures foreign trade dependence. Specifically, we conduct our research from three perspectives including import trade independence (impgdp), export trade independence (expgdp) and gross trade dependence (tragdp).

(2) The impact of mode of trade

From the perspective of processing trade and general trade, we analyze the impact of trade structure.

The econometric equation of general trade and gender wage is as follows.

$$U = c + \ln gdp + con + year + gtrade/gdp \quad (6)$$

$gtrade/gdp$ measures the dependence of general trade. We conduct our research from three perspectives including dependence of general trade import($gimp\ gdp$), dependence of general trade export($gexp\ gdp$), and dependence of general trade($gtr\ gdp$).

The econometric equation of processing trade and gender wage is as follows.

$$U = c + \ln \text{gdp} + \text{con} + \text{year} + \text{ptrade} / \text{gdp} \quad (7)$$

In this equation, $ptrade/gdp$ measures the dependence of processing trade. We conduct our research from three perspectives including dependence of processing trade import($pimp\ gdp$), dependence of processing trade export($pexp\ gdp$), and dependence of processing trade($ptr\ gdp$).

(3)The impact of price of trade

According to regional value of foreign trade, we obtain export price and import price. Terms of trade are measured by the ratio of export price to import price, and terms of trade are divided into terms of general trade and terms of processing trade.

The econometric equation of trade prices and gender wage is as follows.

$$U = c + \ln \text{gdp} + \text{con} + \text{year} + \text{tradeprice} + \text{trade} / \text{gdp} \quad (8)$$

In this equation, $tradeprice$ stands for prices of trade, and $trade/gdp$ stands for trade dependence. We conduct our research from three perspectives including import price ($Imprice$), export price ($Expprice$) and gross price ($Traprice$).

The econometric equation of terms of trade and gender wage is as follows.

$$U = c + \ln \text{gdp} + \text{con} + \text{year} + \text{tracond} + \text{trade} / \text{gdp} \quad (9)$$

In this equation, $tradecond$ stands for terms of trade, and $trade/gdp$ stands for trade dependence. We conduct our research from three perspectives including total terms of trade ($totracond$), terms of general trade ($totracond$), and terms of processing trade ($ptracond$).

3.3 Data source

Micro-data used in this paper is the survey data on urban residents in 2002 and 2007, and the data source is Chinese Household Income Project (CHIP) conducted by Institute of Economics Chinese Academy of Social Sciences. Basic information of urban residents includes personal characteristics (such as residence registration, nationality, gender, date of birth, literacy, marital status, employment status, industry, occupation and so on) and income (Total income and statement like wage income, all measured by year). Detailed information of samples provides valuable research data for this paper. The samples in this paper are defined as people who are between 16 and 60 years old and have wage income. What's more, the involved trade

data is calculated according to the standard of destination and source destination. All the macro-data used in this paper comes from China Customs, China Statistical Yearbook over the year, China Industry Economy Statistical Yearbook over the year, provincial statistical yearbook over the year and so on. The data is organized according to different research objectives.

Data in 2002 owned by CHIP covers a municipality and 10 provinces including Beijing, Shanxi, Liaoning, Jiangsu, Anhui, Henan, Hubei, Guangdong, Sichuan, Yunnan and Gansu. There are 9651 available samples (people between 16 and 60 years old). Data in 2007 owned by CHIP covers 3 municipalities and 13 provinces including Beijing, Shanxi, Liaoning, Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Henan, Hubei, Hunan, Guangdong, Chongqing, Sichuan, Yunnan and Gansu. There are 14773 available samples. Sheet 1 lists the number of samples and average annual wage income. We can arrive at a conclusion from sheet 1 that the male's wage income is higher than female's, and the gap is expanding. Ratio of male's wage income to female's wage income is 1.23 in 2002, and increases to 1.36 in 2007.

We decompose the gender wage gap in 2002 and 2007 separately. Explained variable in wage function is logarithm of annual wage income. Explanatory variable includes literacy, age, nationality, marital status, industry and occupation. Due to the space constraints, estimation output of provincial wage function will not be listed. According to equation (3), we obtain the explained part and unexplained part of provincial gender wage gap in 2002 and 2007. In accordance with previous researches, regional wage gap is mainly caused by the unexplained part. From 2002 to 2007, unexplained part is accounting for an increasing share, and details in sheet 2.

Sheet 1 Sample Size and Average Annual Wage Income

Province	Sample Size		Average Annual Wage Income					
	2002	2007	2002			2007		
			Male	Female	Male/Female	Male	Female	Male/Female
Beijing	813	1232	18096.69	13392.53	1.35	34187.87	25892.31	1.32
Shanxi	800	809	10653.81	8635.94	1.23	20669.45	15772.03	1.31
Liaoning	1053	1041	11645.57	8416.00	1.38	19310.76	12154.46	1.59
Shanghai		793				39505.75	28739.93	1.37
Jiangsu	938	746	13410.43	10490.05	1.28	31506.95	22021.65	1.43
Zhejiang		804				34632.	25704.	1.35

Anhui	645	837	10784.44	8121.80	1.33	21160.83	14182.66	1.49
Fujian		1178				24858.89	17642.79	1.41
Henan	884	964	9876.20	7607.72	1.30	18146.86	14564.07	1.25
Hubei	1015	591	10689.97	8823.72	1.21	23787.63	15512.24	1.53
Hunan		1043				21158.21	18337.92	1.15
Guangdong	883	1588	20552.48	17405.54	1.18	38703.15	26758.56	1.45
Chongqing	399	628	11656.30	9553.93	1.22	18197.76	14952.06	1.22
Sichuan	788	846	10604.02	8897.87	1.19	19720.96	16323.99	1.21
Yunnan	872	804	11803.98	10599.64	1.11	17382.15	15096.28	1.15
Gansu	561	869	10316.72	8079.82	1.28	17290.31	12112.69	1.43
Total	9651	14773	12548.43	10187.00	1.23	25791.07	18988.02	1.36

Sheet 2 Oaxaca Decomposition of Provincial Gender Wage Gap

Province	2002				2007			
	Logarithm of Wage Gap	Explained Part	Unexplained Part	Proportion for Unexplained Part (%)	Logarithm of Wage Gap	Explained Part	Unexplained Part	Proportion for Unexplained Part (%)
Beijing	0.330	0.039	0.291	88.17	0.303	0.001	0.302	99.83
Shanxi	0.243	-0.068	0.310	127.88	0.323	0.026	0.296	91.85
Liaoning	0.352	0.193	0.159	45.10	0.464	0.110	0.354	76.30
Shanghai					0.386	-0.006	0.393	101.62
Jiangsu	0.302	0.119	0.183	60.70	0.331	0.100	0.231	69.78
Zhejiang					0.250	0.041	0.210	83.76
Anhui	0.315	0.174	0.141	44.71	0.412	0.024	0.387	94.07
Fujian					0.374	0.056	0.319	85.10
Henan	0.261	0.092	0.168	64.57	0.229	0.024	0.205	89.46

Hubei	0.210	0.108	0.101	48.35	0.449	0.115	0.333	74.28
Hunan					0.181	0.092	0.089	49.18
Guangdong	0.229	0.056	0.174	75.76	0.361	0.056	0.304	84.39
Chongqing	0.246	-0.266	0.512	208.14	0.172	0.039	0.134	77.52
Sichuan	0.226	0.131	0.095	42.16	0.180	0.052	0.129	71.22
Yunnan	0.082	-0.004	0.086	105.20	0.240	0.089	0.151	62.86
Gansu	0.261	0.082	0.179	68.66	0.381	0.121	0.260	68.19

Note: The explained part is negative, and this proves that gender wage gap is expanding instead of narrowing if the observable factors are controlled. It is also proved that gender wage gap is caused by the unexplained part.

4. Empirical Results

4.1 Impact of total trade on gender wage gap

We can draw an inferences from sheet 3 that gender wage gap is impacted by three significant factors including export trade, import trade, and total trade. Specifically, leaving out the factor domestic competition, the impacts of import dependence, export dependence and total trade dependence on gender wage gap are positive and significant, and details are in the empirical results of equation (2), equation (4) and equation (6). Considering the domestic competition, impacts of import dependence, export dependence and total trade dependence on gender wage gap are still positive, and they are significant except the impact of export dependence. Details are in the empirical results of equation (3), equation (5) and equation (7). Overall, the unexplained part of domestic gender wage gap will expand if the foreign trade is expanding, or the trade dependence is increasing, or the export value is increasing, or the import dependence is increasing. Briefly, development of foreign trade contributes to the expansion of gender wage gap. What's more, considering the domestic market competition, the impact of import on gender wage gap is largest in terms of influence degree. However, we also find that the impact of domestic gender wage gap is not significant, and local economic development is in favor of narrowing gender wage gap.

Sheet 3 Impact of total trade on gender wage gap

Equation	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Impgdp		0.24**	0.22*				
		(0.11)	(0.11)				
Expgdp				0.21*	0.18		
				(0.10)	(0.11)		
Tragdp						0.12**	0.10*
						(0.05)	(0.06)
Lngdp	-0.09	-0.07*	-0.12**	-0.08*	-0.11*	-0.08*	-0.12**
	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)
Con	0.47		0.38		0.30		0.33
	(0.31)		(0.30)		(0.32)		(0.31)
_Iyear_2007	0.07	0.09*	0.09*	0.09*	0.09*	0.09*	0.09*
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Constant	0.66**	0.74**	0.94***	0.81**	0.92**	0.80**	0.94***
	(0.31)	(0.29)	(0.32)	(0.32)	(0.34)	(0.31)	(0.33)
Observations	30	30	30	30	30	30	30
R-squared	0.15	0.22	0.27	0.20	0.23	0.22	0.25

Notes: *** p<0.01, ** p<0.05, * p<0.1.

Research results of this paper disagree with the expectations of neoclassical theory (Yumiko ,2007) based on discrimination theory (Becker,1971). According to the neoclassical theory, intensifying competition caused by foreign trade lead to declining gender wage gap, because enterprises tend to reduce discrimination if discrimination costs more. There is another theory named non-neoclassical theory (Darity , Williams,1985). Research results of this paper are in accordance with expectations of non-neoclassical theory. According to the non-neoclassical theory, competition does not conflict with monopoly. On the contrary, the intensifying competition leads to more monopolies and more industrial concentration, and then more discrimination and expanding gender wage gap(Gunseli berik,Rodgers and joseph,2006). It is generally acknowledged that competitiveness of export-oriented enterprises relies on the production cost, and when the competition is intensifying, the enterprises turn to wage difference policy, which means more discrimination on female, to reduce production cost. What's more, with the development of foreign trade and economic integration, enterprises pay more attention to innovation, which may cause skill premium, more negotiation power of skilled worker, and less negotiation power of unskilled worker or low-skilled worker. Generally, education level and technical level of male are higher than that of female in developing countries, and this situation causes expansion of gender wage gap(Jane Korinek,2005). What's more, employment opportunities offered by export-oriented enterprises attract a large number of unskilled workers, which leads to the declining of unskilled workers' wage.

The development of foreign trade based on manufacturing leads to the expansion of gender wage gap. This situation is caused by many factors, including upgrading transformation of foreign trade, gap between female's working skill and male's working skill, the structure unbalance, and output of rural surplus labor force and so on.

4.2 The impact of general trade and processing trade on gender wage gap

According to sheet 4, the impacts of import dependence of general trade and general trade dependence are significant, and export dependence doesn't have a statistically significant influence on gender wage gap. Specifically, no matter whether domestic competition is considered, the impacts of import dependence of general trade and general trade dependence on gender wage are positive and significant, and details are in the empirical results of equation (1), equation (2), equation (5), and equation (6). The impact of general export on gender wage is positive but not significant, and details are in the empirical results of equation (3), and equation (4). What's more, considering the domestic market competition, general import has the largest impact on gender wage in terms of influence degree. Impact of export is not significant and impact of total trade is the smallest.

Sheet 4 Impact of general trade on gender wage gap

Equation	(1)	(2)	(3)	(4)	(5)	(6)
gimpgdp	0.49*	0.47*				
	(0.24)	(0.24)				
gexpgdp			0.42	0.30		
			(0.26)	(0.29)		
gengdp					0.31**	0.26*
					(0.14)	(0.15)
Lngdp	-0.05	-0.11**	-0.05	-0.09	-0.06*	-0.10*
	(0.03)	(0.05)	(0.04)	(0.05)	(0.03)	(0.05)
con2		0.45		0.31		0.32
		(0.29)		(0.35)		(0.31)
_Iyear_2007	0.07	0.08	0.07	0.07	0.07	0.07
	(0.05)	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)
Constant	0.56**	0.83**	0.61**	0.73**	0.67**	0.82**
	(0.26)	(0.31)	(0.29)	(0.32)	(0.28)	(0.31)
Observations	30	30	30	30	30	30
R-squared	0.19	0.26	0.16	0.18	0.21	0.24

According to sheet 5, leaving out domestic market competition, the impacts of import dependence of processing trade, export dependence of processing trade and total processing trade dependence on gender wage are

positive and significant, and details are in the empirical result of equation (1), equation(3), equation (5). However, considering the domestic market competition, the impacts of import dependence of processing trade, export dependence of processing trade and total processing trade dependence on gender wage are positive but not significant, and details are in the empirical result of equation (2), equation(4), equation (6). What's more, considering the domestic market competition, the impact of import is largest, and the impact of total processing trade is smallest in terms of influence coefficient.

Sheet 5 Impact of processing trade on gender wage gap

Equation	(1)	(2)	(3)	(4)	(5)	(6)
pimpgdp	0.31*	0.27				
	(0.16)	(0.16)				
pexpgdp			0.25*	0.21		
			(0.14)	(0.14)		
progdp					0.14*	0.12
					(0.08)	(0.08)
lngdp	-0.07*	-0.11**	-0.07	-0.11**	-0.07*	-0.11**
	(0.04)	(0.05)	(0.04)	(0.06)	(0.04)	(0.05)
Con		0.38		0.37		0.37
		(0.30)		(0.31)		(0.31)
_lyear_2007	0.10*	0.09*	0.10*	0.09*	0.10*	0.09*
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Constant	0.73**	0.91**	0.75**	0.92**	0.74**	0.92**
	(0.31)	(0.34)	(0.32)	(0.35)	(0.32)	(0.34)
Observations	30	30	30	30	30	30
R-squared	0.19	0.23	0.17	0.22	0.18	0.23

Compared with empirical results of general trade in sheet 4, we can find that, if domestic market competition is considered, the impact of import dependence of general trade and gender trade dependence on gender wage are much larger and more significant than that of processing trade. Specifically, if import dependence of general trade increases by 1%, the gender wage gap will significantly increases by 0.47%. While if import dependence of processing trade increase by 1%, the gender wage gap will increase by 0.26%, but the increase is not significant. If export dependence of general trade increases by 1%, the gender wage gap will significantly increases by 0.26%. While if export dependence of processing trade increase by 1%, the gender wage gap will increase by 0.12%, but the increase is not significant. What's more, in terms of export and import, the impact of import of general trade on gender wage gap is more significant and larger than that of export of general trade.

4.3 Impact of price of trade and terms of trade on gender wage gap

According to sheet 6, prices of total trade don't have a significant impact on gender wage gap. Impacts of export price and import price of total trade on gender wage gap are positive but not significant under any circumstances. Considering the regional economic development and domestic market competition, if the import price increases by 1%, the gender wage gap decreases by about 0.02% and change is not significant. While if the import dependence increases by 1%, the gender wage gap will significantly increases by 0.31%. If the export price increases by 1%, the gender wage gap's change is quite small and not significant. While if the export dependence increases by 1%, the gender wage gap will significantly increases by 0.18%. If the total price increases by 1%, the gender wage gap increases by 0.01% and change is not significant. While if the total trade dependence increases by 1%, the gender wage gap will significantly increases by 0.13%. Details are in the empirical results of equation (4), equation (8), and equation (12). The impact of trade dependence on gender wage gap is close to the result in sheet 1, if price of trade is controlled.

Sheet 6 Empirical results of the impact of trade prices on gender wage gap (Total trade)

Equation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Imprice	0.0028	-0.0024	-0.0140	-0.0193								
	(0.01)	(0.01)	(0.01)	(0.01)								
Impgdp			0.31**	0.31**								
			(0.12)	(0.12)								
Exprice					0.0041	0.0020	-0.0002	-0.0010				
					(0.01)	(0.01)	(0.01)	(0.01)				
Expdp							0.21*	0.18				
							(0.11)	(0.12)				
Traprice									0.0048	0.0004	-0.0071	-0.0101
									(0.01)	(0.01)	(0.01)	(0.01)
Tragdp											0.14**	0.13**
											(0.06)	(0.06)
Lngdp	-0.02	-0.09	-0.08**	-0.15**	-0.02	-0.09	-0.08*	-0.11*	-0.02	-0.09	-0.08**	-0.13**
	(0.03)	(0.06)	(0.04)	(0.06)	(0.03)	(0.05)	(0.04)	(0.06)	(0.03)	(0.06)	(0.04)	(0.06)
Con		0.49		0.49		0.44		0.31		0.47		0.40
		(0.33)		(0.30)		(0.33)		(0.33)		(0.33)		(0.31)
_lyear_2007	0.06	0.07	0.12**	0.14**	0.06	0.07	0.09*	0.09*	0.06	0.07	0.11**	0.12**
	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Constant	0.36	0.67*	0.89**	1.20***	0.39	0.65*	0.81**	0.93**	0.38	0.65*	0.88**	1.08***
	(0.26)	(0.33)	(0.32)	(0.36)	(0.26)	(0.32)	(0.34)	(0.36)	(0.26)	(0.32)	(0.33)	(0.36)
Observations	30	30	30	30	30	30	30	30	30	30	30	30
R-squared	0.07	0.15	0.25	0.33	0.09	0.15	0.20	0.23	0.08	0.15	0.23	0.28

According to sheet 7, the import price and total price of general trade are important factors significantly impacting gender wage gap. Considering the regional economic development and domestic market competition, if the import price

increases by 1%, the gender wage gap will decrease by 0.05%. If the import dependence changes by 1%, gender wage gap will change by 1.1%. If total price increases by 1%, the gender wage gap 0.03%. If the trade dependence changes by 1%, gender wage gap will change by 0.47%. See details in the empirical results of equation (4) and equation (12). If import dependence of general trade is controlled, impact of import price of general trade on gender wage gap is significantly negative. Compared with results in sheet 6, the impact of import trade of general trade is more significant. After the dependence of general trade is controlled, impact of price of general trade on gender wage gap is negative, and the impact of import dependence of general trade is more significant than the results in sheet 6.

Sheet 7 Empirical results of the impact of trade prices on gender wage gap (General trade)

Equation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
gimprice	-	-0.01	-0.04**	-0.05***								
	0.00											
	(0.01)	(0.01)	(0.02)	(0.02)								
gimpdp			1.04***	1.10***								
			(0.31)	(0.29)								
gexprice					-0.0010	-0.0039	-0.0048	-0.0058				
					(0.01)	(0.01)	(0.01)	(0.01)				
gexpdp							0.48*	0.36				
							(0.28)	(0.30)				
genprice									-0.01	-0.01	-0.03**	-0.03**
									(0.01)	(0.01)	(0.01)	(0.01)
gengdp											0.51***	0.47***
											(0.16)	(0.16)
lngdp	-	-0.09	-0.09**	-0.18***	-0.02	-0.09	-0.06	-0.10*	-0.02	-0.10*	-0.08**	-0.13**
	0.02											
	(0.03)	(0.06)	(0.03)	(0.05)	(0.03)	(0.06)	(0.04)	(0.05)	(0.03)	(0.05)	(0.03)	(0.05)
con2		0.49		0.58**		0.52		0.35		0.54		0.37

		(0.32)		(0.26)		(0.32)		(0.35)		(0.32)		(0.28)
_Iyear_2007	0.07	0.08	0.16***	0.17***	0.07	0.08	0.08	0.08	0.08	0.09*	0.12**	0.13**
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Constant	0.38	0.70**	0.99***	1.40***	0.37	0.69**	0.65**	0.80**	0.38	0.71**	0.92***	1.11***
	(0.27)	(0.33)	(0.29)	(0.33)	(0.26)	(0.32)	(0.30)	(0.33)	(0.26)	(0.32)	(0.28)	(0.31)
Observations	30	30	30	30	30	30	30	30	30	30	30	30
R-squared	0.07	0.15	0.36	0.47	0.07	0.16	0.17	0.21	0.08	0.18	0.35	0.40

According to sheet 8, in terms of processing trade, impact of changes in prices of processing trade on gender wage gap are not significant. Considering the economic development and domestic market competition, if the price of import increases by 1%, changes of gender wage gap are quite small and not significant. If import dependence changes by 1%, gender wage gap changes by 0.26% and this result is not significant. If export price changes by 1%, changes of gender wage gap are quite small and not significant. If export dependence changes by 1%, gender wage gap changes by 0.21% and this result is not significant. If the price of total trade increases by 1%, changes of gender wage gap are quite small and not significant. If trade dependence changes by 1%, gender wage gap changes by 0.12% and this result is not significant. See details in empirical results of equation (4), equation (8) and equation (12). In accordance with results in sheet 5, the impact of dependence of processing trade on gender wage gap is not significant even the price of processing trade is controlled.

Sheet 8 Impact of trade price on gender wage gap (Processing trade)

Equation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
pimprice	-0.0009	-0.0015	-0.0004	-0.0010								
	(0.00)	(0.00)	(0.00)	(0.00)								
pimpgdp			0.31*	0.26								
			(0.17)	(0.17)								

pexprice					0.0030	0.0025	0.0029	0.0025				
					(0.00)	(0.00)	(0.00)	(0.00)				
pexpgdp							0.24*	0.21				
							(0.14)	(0.14)				
proprice									0.0034	0.0024	0.0033	0.0026
									(0.00)	(0.00)	(0.00)	(0.00)
progdp											0.14*	0.12
											(0.07)	(0.08)
lngdp	-0.02	-0.10*	-0.07*	-0.12**	-0.02	-0.08	-0.07*	-0.11*	-0.01	-0.07	-0.06	-0.10*
	(0.03)	(0.06)	(0.04)	(0.06)	(0.03)	(0.05)	(0.04)	(0.06)	(0.03)	(0.06)	(0.04)	(0.06)
con2		0.52		0.41		0.42		0.31		0.40		0.29
		(0.32)		(0.32)		(0.31)		(0.31)		(0.32)		(0.32)
_Iyear_2007	0.08	0.09	0.10*	0.11*	0.05	0.06	0.08	0.08	0.05	0.05	0.08	0.08
	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Constant	0.42	0.77**	0.74**	0.97**	0.36	0.61*	0.73**	0.88**	0.30	0.56	0.68**	0.83**
	(0.28)	(0.34)	(0.32)	(0.36)	(0.25)	(0.31)	(0.32)	(0.35)	(0.26)	(0.33)	(0.32)	(0.36)
Observations	30	30	30	30	30	30	30	30	30	30	30	30
R-squared	0.08	0.17	0.19	0.24	0.13	0.19	0.23	0.26	0.12	0.17	0.23	0.25

According to sheet 9, the impact of terms of trade on gender wage gap is positive but not significant. Considering the economic development and domestic market competition, if terms of trade increases by 1%, the gender wage gap will increase by 0.01% but the change is not significant. If change of dependence of total trade changes is 1%, gender wage gap will increase by 0.1% significantly. If change of terms of general trade is 1%, change of gender wage gap is 0.01%, but this result is not significantly. If the change of dependence of general trade is 1%, change of gender wage gap is 0.27%, and this result is significant. If the change of terms of general trade is 1%, the change of gender wage gap is 0.01%, and this result is not significant. If the change of dependence of general trade is 1%, the change of gender wage

gap is about 0.11%, but this result is not significant. See details in the empirical results of equation (3), equation (6) and equation (9).

Sheet 9 Impact of terms of trade on gender wage gap

Equation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Totrcond	0.02 (0.03)	0.02 (0.03)	0.01 (0.03)						
Tragdp			0.10* (0.06)						
Getrcond				0.01 (0.02)	0.01 (0.02)	0.01 (0.02)			
Gengdp						0.27* (0.15)			
Prtrcond							0.01 (0.02)	0.02 (0.02)	0.01 (0.02)
Progdp									0.11 (0.08)
Lngdp	-0.02 (0.03)	-0.09 (0.05)	-0.12** (0.05)	-0.02 (0.03)	-0.09 (0.05)	-0.10* (0.05)	-0.02 (0.03)	-0.09* (0.05)	-0.12** (0.06)
con2		0.47 (0.31)	0.33 (0.31)		0.46 (0.32)	0.29 (0.32)		0.49 (0.31)	0.39 (0.31)
_Iyear_2007	0.07 (0.05)	0.07 (0.05)	0.09* (0.05)	0.07 (0.05)	0.07 (0.05)	0.07 (0.05)	0.07 (0.05)	0.08 (0.05)	0.10* (0.05)
Constant	0.37 (0.26)	0.66** (0.31)	0.93** (0.34)	0.35 (0.26)	0.64* (0.32)	0.80** (0.32)	0.37 (0.26)	0.67** (0.31)	0.91** (0.35)
Observations	30	30	30	30	30	30	30	30	30
R-squared	0.09	0.16	0.26	0.08	0.15	0.26	0.09	0.17	0.23

Considering the impact of trade prices on gender wage gap under all kinds of circumstances, we can arrive at a conclusion that import price of general trade and total price of general trade are important and significant factors impacting gender wage gap, compared with the impact of prices of total trade and processing trade. What's more, this result offers another proof for Empirical Results of the Impact of Trade Prices on Gender Wage Gap (Total trade). That's to say, import dependence and trade dependence are significant factors impacting gender wage gap. Compared with processing trade, the impact of changes of price of general trade on gender wage gap is more significant, which means that the price conducting mechanism is more affective.

We already arrive at a conclusion about impact of mode of trade on gender wage gap that the impact of import dependence and total dependence of general trade is more significant and larger than that of processing trade. Compared with export, impacts of import of both general trade and processing trade are significant and large. Combined this conclusion with the conclusion about impact of price change on gender wage gap, we can arrive at a conclusion that the impacts of general trade' import dependence, import price, total dependence and total price on gender wage gap are large and significant, compared with processing trade. Change of scale of general trade will impact domestic market competition, and domestic enterprises will respond to the change of market competition, which in turn impact employment manner and gender wage gap. Changes of general trade prices impact enterprise behaviors, and enterprises' response against price change will impact employment. If export price is increasing, gender wage gap will decrease. Specifically, if import price of gender trade increases by 1%, gender wage gap will decrease by 0.05%. If import dependence increases by 1%, the gender wage gap will increase by 1.1%.

Explanations are as follows.

(1) Domestic enterprises play different roles in general trade and processing trade. The changes of import price have little or no influence on enterprises involved in processing trade, because these enterprises are not responsible for sales and they only produce goods earning fixed profits. The changes of import price have a significant impact on enterprises involved in general trade, because these enterprises are self sustaining. The increase of import goods leads to higher production cost, and enterprises will cut cost by all means in a situation that competition is intensifying and export price is fixed or decreasing. Enterprises may cut cost by reducing worker's salary. Compared with male, female's wage is lower, and enterprises tend to hire female to replace male.

(2) The relationship of import goods of general trade with domestic goods is different from that of processing trade with domestic goods. Import

goods of general trade are mainly new technology or advanced machine equipment. On one hand, these goods compete with domestic goods. In order to deal with foreign competition, domestic enterprises focus more on research and development or try to reduce production cost which is to the disadvantage of female's employment. On the other hand, application of advanced machine equipment requires more skilled workers. This situation is not in favor of female's employment because males are usually more skilled. What's more, females are under the threat of replaced by machine. Import goods of processing trade are mainly raw materials, components and parts, partial manufactures and so on. These goods are mainly used to assembly process export goods, and have littler correlation with domestic commodity market and factor market. What's more, since enterprises involved in processing trade aim to earn processing charges, and have little influence on employment of both females and males.

(3) Restraint mechanisms of general trade enterprises and processing trade enterprises are different. In terms of processing trade, foreign client has stringent requirements on working environment, wage level and living conditions of domestic enterprises, and there is a typical standard called Social Accountability 8000 (SA8000). Considering foreign client's requirement, SA8000 contributes to promote working environment, advance wage, and reduce gender discrimination. In other words, SA8000 may increase production cost, but it has positive influence on employment security especially female's employment security and narrowing gender wage gap.

However, compared with processing trade enterprises, general trade enterprises are less constrained by SA8000, and they have more options on technology updating and employment. Therefore, competition caused by import of general trade has a larger influence on gender wage gap, and conducting impact of changes of prices of general trade import on gender wage gap is more affective.

5. Conclusions and Suggestion

5.1. Conclusions

Conclusions drew by this paper are as follows.

(1) In terms of foreign trade dependence, it is an important factor impacting gender wage gap. Dependence of import and total trade dependence have positive and significant impacts on gender wage gap, which means that increase of foreign trade dependence will expand domestic gender wage gap. In terms of degree of influence, dependence of import has the largest impact on gender wage gap.

(2) In terms of mode of trade, compared with processing trade, general trade is an important factor impacting gender wage gap. The impacts of import dependence of general trade and dependence of general trade are

significant, and impact of export dependence of general trade on gender wage gap is not significant. The impacts of import dependence of processing trade, export dependence of processing trade, and dependence of processing trade are not significant. Compared with processing trade, the impact of import dependence of general trade and dependence of general trade are significant and large. In terms of export and import, compared with export, the impact of import of general trade on gender wage gap is large and significant.

(3) In terms of prices of trade, trade price is an important factor impacting gender wage gap. Trade price has a negative impact on gender wage gap, but compared with changes of prices of total trade and processing trade, only the import price and total price of general trade has a significant impact on gender wage gap. After the factor of trade price is controlled, the impact of trade dependence is more significant.

(4) In perspective of terms of trade, terms of trade has a positive impact on gender wage gap, but this impact is not significant.

(5) Compared with competition caused by trade, the impact of domestic competition on gender wage gap is not significant. What's more, regional economic development contributes to narrowing gender wage gap.

5.2 Suggestions

Conclusions of this paper indicate that development of trade liberalization expand domestic gender wage gap along with the development of foreign trade. This conclusion is in accordance with the prediction made by non-neoclassical theory. That's to say, competition caused by foreign trade will aggravate discrimination instead of alleviating discrimination. Intensifying competition caused by trade liberalization lead to aggravating discrimination instead of forcing enterprises to reduce costly discrimination, which in turn bring about worse situation of female's employment and wage. Females bear more cost of trade liberalization than males (Braunstein, Brenner, Mark,2007;Christa Wicherich,2009).Trade liberalization brings about more employment opportunities for females, but gender discrimination still exist in employment market. If capital is not restricted, if government does not reposition public goods or social security and doesn't increase spending, it is impossible

It is impossible to achieve the goal of gender equality without government's support in restricting capital, reposition public goods or social security, increasing spending and so on.

Therefore, government should take measures to keep the balance between narrowing gender wage gap and economic development.

From the perspective of trend of economic development, economic integration is inevitable. In this context, in order to development economics, China adheres to the basic national policy of opening up, develop

comparative advantages, promote foreign trade, expand the breadth and depth of opening up, and improve the level of open economy. In order to keep balance between narrowing wage gap and development of economic and foreign trade, government should focus on following aspects.

Enable females to have access to more education opportunities and learning working skill. Improve females' education opportunity, knowledge and working skill is an important factor to reduce gender discrimination and narrow gender wage gap. With regard to females on job, professional projects offered by enterprises aiming at improving skill contribute to improving female's work ability and employment fields, which in turn increase females' relative wage.

Local government should avoid emigration of enterprises, and attract migration of outside enterprises. If enterprises migrate to avoid paying higher wage, the policy of raising female wage can't achieve its goal. On the other way around, the policy will worsen employment condition, leading to worse situation for females engaged in highly liquid enterprises (Seguino, Grown, 2006). From the perspective of local government, if local government can offer reduced infrastructure cost, institutional cost, and stable economic environment, enterprises will not migrate even they have to pay higher wages. What's more, policy aimed at attracting outside enterprises will provide more employment opportunities for females, which in turn narrow gender wage gap.

(3) Implement full employment policy and reduce the economic volatility. Implementation of full employment policy will lead to labor shortage, and make it possible for females to work in the male dominated and higher-wage industry, realizing integration of employment and narrowing gender wage gap. Full employment also helps to tighten labor market, force enterprises to pay more to female, and raise female's relative wage. Reducing economic volatility and remain stability of economic development contribute to raising the stability of female employment and reducing volatility of female wage.

(4) Develop economy by all means. From the perspective of international experience, gender wage gap will narrow along with the increase of per capita GDP (Oostendorp ,2009). Conclusion of this paper also indicates that the impact of provincial GDP on gender wage gap is negative. Consequently, developing economy is a feasible way to raise female's wage and narrow gender wage gap.

(5) Alter the pattern of economic growth, and make use of government's management function. Alter the pattern of profit-leading and export-oriented to wage-leading and full employment economy, and keep balance between gender equality and economic development (Seguino, Grown,2006). In order to achieve the goal, governments should expand its

impact on policy making and economic management. For example, implement investment policy and trade policy to develop strategic industry with high wage. Encourage domestic enterprises to pay more attention on products with low price elasticity to reduce employment risk. Implement policy which is in favor of acquiring education and technology, which in turn to promote the productivity of the female dominated industry. Provide female with more equal social safety net by using finance resource, and set minimum wage and promote labor standards to promote female's work environment in informal institution.

References:

- Artecona and Cunningham, 2002, impacts of trade liberalization on the gender wage gap in Mexico, world bank working paper.
- Berker, Gary, 1971, *The Economics of Discrimination*, Chicago : university of Chicago press.
- Bhagwati J., 2004, In *Defense of Globalization* New York: Oxford University Press.
- Black, Sandra E. and Brainerd, Elizabeth, 2004, "Importing Equality? The Impact of Globalization on Gender Discrimination," *Industrial & Labor Relations Review*, Vol. 57, No. 4, 540-559.
- Braunstein, Elissa/Brenner, Mark ,2007, Foreign Direct investment and Gendered Wages in Urban China, in: *Feminist Economics*, Vol. 13, No. 3&4, 213–237.
- Christa Wichterich, 2009, gender and trade: focus china and india, FES Briefing paper No.7.
- Darity, W., & Williams, R., 1985, Peddlers forever? Culture, competition and discrimination, *American Economic Review*, 75(2), 256–261.
- Ebru Kongar, 2006, "Importing Equality or Exporting Jobs? Competition and Gender Wage and Employment Differentials in U.S. Manufacturing," Working Paper No. 436, Dickinson College Economics Department.
- Elson Diane, Caren Brown and Nilufer Cagatay, 2007, "Mainstream, Heterodox and Feminist Theories of Trade" in Irene van Staveren et al. (2007).
- Ferrufino, 2011, what is the impact of trade on the gender wage gap in the Mexican manufacturing sector?, Macalester college.
- Gunseli Berik, Rodgers and Joseph, 2006, does trade promote gender wage equity? evidence from east asia, working paper no.373, university of Utah.
- ILO ,2009, Global Employment Trends for Women March 2009, www.ILO.org.
- Jane Korinek, 2005, trade and gender: issues and interactions, OECD Trade Policy Working Paper No. 24.
- Menon and Rodgers, 2007, international trade competition, market power and

- gender wage differentials in india's manufacturing sector, Rutgers university, working paper.
- Nursel Aydiner-Avsar,2010,international trade and gender wage gap, University of Utah, working paper, March, 2010.
- Ozler, Sule, 2000,Export Orientation and Female Share of Employment: Evidence from Turkey, *World Development*, vol. 28, no. 7.
- Pham Tra and Le Quan,2008, Gender inequality and labor market segmentation under trade reform: evidence of the gender wage gap from Vietnam, working paper,2008.
- Remco H. Oostendorp, 2009,Globalization and the Gender Wage Gap, *World Bank Economic Review*, Oxford University Press, vol. 23(1), pages 141-161.
- Seguino, S. ,2009, The road to gender equality: global trends and the way forward. In*Social Justice and Gender Equity: Rethinking Development Strategies and MacroeconomicPolicies*, Berik, Rodgers and Zammit, eds. London: Routledge.
- UNCTAD,2011,Gender Equality and Trade Policy,<http://www.un.org>.
- World Bank, 2012, gender equality and develop, www.worldbank.org.
- World Bank,2001, *Engendering Development--Through Gender Equality in Rights, Resources, and Voice*, World Bank Policy Research Report. New York: Oxford University Press.
- Yumiko Yamamoto, 2007, trage, technology and gender wage gap: a case of Japan, working paper, university of utah.