ADBI Working Paper Series

**THE IMPACT OF INCREASED IMPORT COMPETITION
FROM THE PEOPLE'S REPUBLIC OF CHINA ON INCOME
INEQUALITY AND HOUSEHOLD WELFARE IN VIET NAM**

Matthias Helble, Trang T. Le,
and Trinh Quang Long

No. 864
August 2018
(Updated February 2019)

Asian Development Bank Institute

Matthias Helble is a senior economist and co-chair of the research department, Asian Development Bank Institute (ADBI), Tokyo, Japan. Trang T. Le is an assistant professor at the Banking Academy in Viet Nam. Trinh Q. Long is a research consultant, also at ADBI.

Abstract

The empirical literature on the effect of increased trade with PRC on economic outcomes in developing countries is still relatively thin. We contribute to this emerging literature by studying the surge of imports from the PRC to Viet Nam from 2000 to 2014 and its impact on income inequality and household welfare in Viet Nam. Using household level data from the Viet Nam Household Living Standard Survey and combining it with measures of trade exposure, we find that increased imports led to a fall in inequality at the provincial and district level. In order to better understand the relative gains and losses across income groups, we apply a quantile regression approach. Our results indicate that increased imports were more often positively correlated with household income for households located in the lower quantiles. In contrast, for households in the upper quantiles the correlation is either negative or less pronounced. Adding to the literature, we distinguish between intermediate and final goods imports. We find that a surge in intermediate goods' imports increased income in almost all income groups in all years, whereas the opposite is true for final goods.

JEL Classification: F1, D63

Contents

1. INTRODUCTION

Opening up to international trade has been found to be an important engine for economic growth. Numerous empirical studies (e.g., Dollar and Kraay 2004) demonstrate that, in general, open economies are more prosperous than their more protectionist counterparts. Trade is a catalyst for growth because it triggers a reallocation of resources toward more productive use. Labor and capital move across and within sectors to the most productive firms. Overall, this reallocation results in a more efficient economic structure across countries and, under standard assumptions, all countries are better off with trade than without. However, this reallocation does not happen without frictions. Some labor and capital might not be able to switch to a more efficient use. It might also take time to retrain labor and redeploy capital. As a consequence, wages in certain sectors might fall and unemployment rates soar, which is likely to have implications on income inequality.

Income inequality is not only driven by the supply of labor. Households are also consumers of goods and services. Trade opening might change the availability, variety, and prices of goods and services, thereby affecting purchasing power of households. The impact on income inequality depends on the change in the price of the consumption basket of each income group. For example, trade opening might lower the price of consumer electronics which weigh more heavily in the consumption basket of middle-income groups compared with high-income groups.

Various international trade theories show that, under standard conditions, the gains to winners are more than sufficient to offset any losses incurred by those suffering adverse effects from international trade. However, offsetting the losses of the adversely affected groups means that the government is able to redistribute benefits. In reality, governments might not collect enough taxes or might be unwilling to intervene. The government might also hope that the benefits of trade will slowly trickle down to all groups. If a government does not redistribute the benefits, then the impact of income inequality is uncertain. As a recent review of the empirical literature by Brambilla and Porto (2017) shows, trade opening can be pro-poor or pro-rich. Similarly, the impact on income inequality can go both ways, depending on which income groups gain or lose from trade opening.

The magnitude of the trade impact on various economic outcomes depends on the disruption associated with trade. The larger the reduction in tariff and non-tariff barriers, the larger the expected effect. Another determinant of the impact is the size of the trade opening by a country's trading partner. In recent years, the rapid inclusion of the People's Republic of China (PRC) into the world economy is a good example. Since the 1990s, the PRC has risen as a major player in the world economy. The PRC's share of world merchandized exports rapidly increased from 2.5% in 1993 to 10.6% in 2010 when the PRC became the largest exporter in the world (Balsvik et al. 2015). This rapid expansion was possible because of an expansion of international trade, while at the same time the PRC's goods replaced other domestic or foreign suppliers. The rise of imports from the PRC has recently triggered numerous empirical studies on the effects of import competition on local labor markets, especially in the United States (e.g., Autor et al. 2016; Acemoglu et al. 2016). Most of the studies provide evidence that the increase in imports from low- and middle-income countries in general, and from the PRC in particular, had disruptive effects on labor markets in developed countries. In the United States, the share of manufacturing jobs quickly declined, while the number of jobs in professional services within manufacturing industries increased (Fort et al, 2019).

In this paper, we examine the impact of increased imports from the PRC to Viet Nam on income inequality in Viet Nam. Covering the time period 2002 to 2014 and using a

quantile regression approach, we find that increased imports lowered the income inequality in Viet Nam's provinces.

Our paper is related to the study by Bui et al. (2016) who analyze the impact of international economic integration on poverty and inequality for rural households in Viet Nam. However, in contrast to Bui et al., our study focuses on the impact of the PRC's emergence as the main trading partner of Viet Nam. In addition, the database allows us to investigate the impacts on both rural and urban areas and control for differences between provinces by using province-level fixed effects. Another important difference is that Bui et al. (2016) use FDI penetration as a proxy for international economic integration level,[1] while we use trade data, weighted by the distribution of employment in sectors at the district level. We argue that our method provides a more accurate measure of trade exposure.

Furthermore, the paper contributes to an increasing branch of literature which examines the role of the PRC's emergence as a large trading partner. While most of the current studies examine the role of the PRC's export boom at the macroeconomic level (i.e., the PRC acts as a third party in one country's exports) or firm level (firm productivity, firm innovation, or product diversification), to our knowledge, our study is one of a few studies that look at welfare effects at the household level.

Finally, our study also extends the literature on the heterogeneous effects of trade on welfare, which focuses on examining the different welfare effects of types of products, either as factor inputs or final goods within the context of the complicated relationship between trade liberalization and household welfare. Previous studies have emphasized the effect of import tariff removal or availability of production inputs to household welfare. However, few have focused on how the penetration of imported final goods could influence household welfare. The relevant argument here is that: If the imported final goods are complementary to domestically produced final goods, they may have positive effects on household welfare; meanwhile, if the former is a substitute for the latter, the welfare effect seems to be ambiguous. Consequently, while households may enjoy a greater variety of products, workers making factory-produced final goods may suffer. By distinguishing between intermediate input and final goods imports, we expect to make a contribution to the relevant literature.

Import competition from the PRC affects the local labor markets, poverty reduction, and household welfare mainly through two channels: product markets (i.e., prices, quantities, and increased variety) and factors markets, (i.e., wages, employment, and new job opportunities). Specifically, through the product market channel, imports from the PRC affect households, both as consumers and as producers of goods, by offering additional quantities and variety, and consequently creating changes in price. Through the factor markets, trade offers various employment and job opportunities, which could potentially raise the wages of skilled or unskilled labor.

---

[1] This method may cause downward bias on the effect of internationalization since most of the FDI projects are concentrated in areas with adequate infrastructure and close to the extensive market (such as Hanoi and Ho Chi Minh City).

1.1 Literature Review

Several studies have examined the effects of import competition from the PRC on the labor markets of developed countries. Autor et al. (2013) examined the changes in labor-market outcomes from 1990 to 2007 across US local labor markets to changes in exposure to Chinese import competition. They found that rising imports (from the PRC) caused higher unemployment, lower labor force participation, and reduced wages in local labor markets where import-competing manufacturing industries are located. They estimated that around 20% of the reduction in the employment share of manufacturing in the US from 1990 to 2007 resulted from the increase in import competition from the PRC during the period. Acemoglu et al. (2016) further showed that import competition from the PRC, which surged after 2000, was a major force behind both recent reductions in US manufacturing employment and weak overall US job growth during the 1999–2011 period. Using Norwegian data, Balsvik et al. (2015) found negative employment effects for low-skilled workers and observed that low-skilled workers tended to be pushed into unemployment or leave the labor force altogether during the period from 1996 to 2007. They also found that import competition from the PRC explained almost 10% of the reduction in the manufacturing employment share during the studied period. Import competition from the PRC is also demonstrated to be strong in some developing countries. Mendez (2015) found that the increase in competition decreased the employment share in manufacturing for the average Mexican local labor market. This effect was found to be larger for regions with high exposure to Chinese competition in the U.S. market, showing that there was a significant, negative indirect effect from the PRC's trade growth. However, import competition from the PRC does not significantly affect wages of Mexican workers.

1.2 Trade Relations between Viet Nam and the PRC

The PRC and Viet Nam are neighboring countries sharing a 1,281 kilometers border and a longstanding trade relationship. Since the two countries normalized their diplomatic relations in 1992, the trade relations between them have undergone a continuous and rapid growth.[2] While the global economy has faced numerous difficulties and the momentum of economic growth in the PRC seems to have slowed down, the commercial ties between the PRC and Viet Nam have grown continuously stronger in recent years. According to statistics from Viet Nam,[3] the total trade turnover between the PRC and Viet Nam reached US$71.9 billion in 2016, an increase of 7.9% in comparison with 2015. The trade deficit of Viet Nam in its trade with the PRC decreased by 13.7% compared with 2015. The latest trade data (until August 2017) shows that total bilateral trade between the PRC and Viet Nam reached US$55.2 billion, increasing by 23.59% within the same period of 2016, while the deficit shrank to US$17.7 billion, declining 5.76%.[4]

The PRC is by far the largest trading partner of Viet Nam, both in terms of exports and imports. In terms of imports, Viet Nam sourced around 13% of its imports from the PRC

---

[2] According to VCCI of Viet Nam. See http://vccinews.vn/news/15382/trungquoc-tiep-tuc-la-doi-tac-thuong-mai-lon-nhat-cua-viet-nam.html (in Vietnamese language only); the trade turnover between Viet Nam and the PRC has increased more than 2,220 times, from US$30 million in 1991 to US$66.6 billion in 2015.

[3] It should be noted that according to Chinese statistics, the relevant proportion is even higher—approximately 50% higher in comparison with the statistics from Viet Nam. In the meantime, such figures do not include "informal" trade, which has been argued to be a large number in reality.

[4] Source: Ministry of Trade and Industry of Viet Nam, 2017.

in 2000. The percentage increased to 40% in 2014. The dominance is particularly strong for final goods of which over 50% were sourced in the PRC in 2014, compared to about 25% in 2000.

Figure 1: Imports from the PRC as a Percentage of Total Imports from the World
(%)
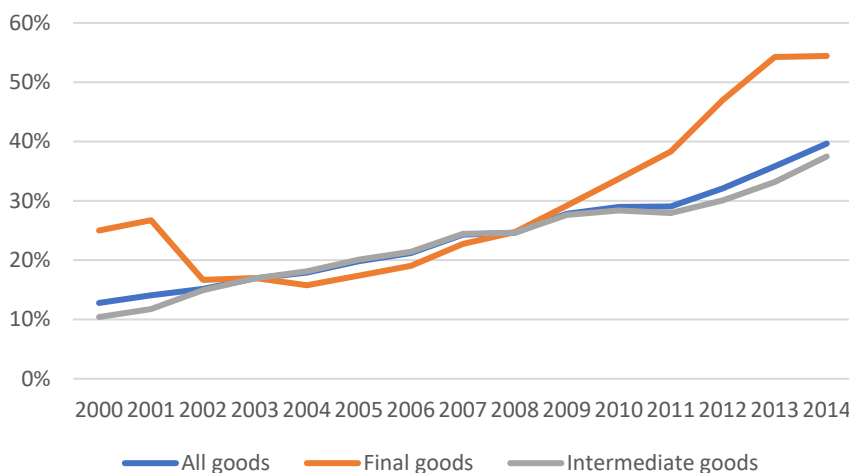
Note: All goods = Share of goods' imports from the PRC in total goods' imports. Final goods = Share of final goods imported from the PRC in total consumption goods' imports. Intermediate goods = Share of intermediate goods imported from the PRC in total intermediate goods imported to Vietnam.

Source: Authors' calculation from CHELEM.

From the perspective of the PRC, Viet Nam has become the biggest trading partner among ASEAN countries and ranked ninth among the biggest trade partners of the PRC in the global market in 2014. It has been widely argued that within the context of trade relations, the PRC and Viet Nam have become "inseparable partners". The dramatic change in the trade relationship between the two countries over the two decades has had the potential to affect many aspects of socio-economic development for both sides, especially for Viet Nam in which the change was felt more strongly.[5]

2. DATA

2.1 Data Sources

Several databases were utilized to measure the welfare and characteristics of households in Viet Nam, to compute the inequality level, and to construct a measurement of trade exposure. The main data source of our study is the Viet Nam Household Living Standard Survey (VHLSS) from 2002 to 2014. Table 1 summarizes the basic information (total individual observations and total household observations) for every round. The VHLSS is conducted by the General Statistics Office (GSO) of Viet Nam every two years and follows the World Bank's Living Standards Measurement Study. The survey

---

[5] In terms of product complexity, almost all products of Viet Nam are at the same level as PRC's products imported to Viet Nam, but given the scale of production, PRC's products may have lower prices than those from Viet Nam, thus potentially harming domestic producers. See Doan and Stevens (2012).

comprises major information reflecting the living standards of each member of the household and the basic socio-economic conditions of the commune/ward in which the household lives.

Table 1: Number of Observations in VHLSS Data

Order	Year	Total Individual Observations	Total Household Observations
1	2002	132,384	29,532
2	2004	40,438	9,188
3	2006	39,071	9,189
4	2008	38,253	9,189
5	2010	36,999	9,399
6	2012	36,655	9,399
7	2014	35,666	9,303

Source: Summarized from VHLSS Data.

In the VHLSS, information is collected through face-to-face interviews with the household heads, household members, and key commune officials, and includes information on demography, employment, labor force participation, education, health, income, expenditure, housing, fixed assets and durable goods, involvement in poverty alleviation programs, general economic conditions, agricultural production, local infrastructure and transportation, and social problems.[6]

In order to construct provincial exposure to trade, we used the 1999 Population and Housing Census data (Census 1999), which was conducted in 1999 by the GSO of Viet Nam. Census 1999 reports industry employment at the three-digit ISIC level, but for some individuals, it is only reported at the two-digit level. The Census 1999 sample is limited to individuals over 13 years old because individuals below that age were not asked about their employment status.

Trade data between the PRC and Viet Nam was calculated from UN COMTRADE and CEPII's CHELEM database. We used the COMTRADE database (HS 6-digit) to calculate intermediate goods imported and final goods imported from the PRC. Then, we used the HS6-ISIC v.3 concordance to calculate the share of intermediate goods and final goods of total imports from the PRC[7] for each ISIC v3 industry at the two-digit level. We relied on the CHELEM database[8] to calculate the value of intermediate goods and final goods imported from the PRC.[9]

In addition, in order to correct for possible inflationary effects of all data reported in national currency units, we used the GDP deflator reported by the General Statistical Office (GSO). Table 2 shows the GDP deflator index.

---

[6] See, for example, the introduction of VHLSS 2010, which is available online at http://www.ilo.org/surveydata/index.php/ddibrowser/1455/export/?format=pdf&generate=yes (accessed on 12 January 2019)

[7] We used the HS6-Broad Economic Category concordance to convert the trade figures from HS6-digit into final goods and intermediate goods

[8] http://www.cepii.fr/anglaisgraph/bdd/chelem.htm

[9] CHELEM International trade database was used instead of UN-COMTRADE because the former has harmonized trade data reported from both Viet Nam and the PRC in UN-COMTRADE, giving a consistent figure.

Table 2: GDP Deflator (Base Year 2000)

Year	GDP Deflator
2000	1.000000
2002	1.077516
2004	1.258075
2006	1.491593
2008	2.005999
2010	2.387949
2012	3.212022
2014	3.488172

Source: General Statistics Office of Viet Nam (2018).

In order to correct for contiguity between provinces in the PRC and Viet Nam, we created a border dummy capturing all Viet Nam's provinces bordering the PRC. According to the actual geography, there are a total of seven provinces which have a border with the PRC; namely, Dien Bien, Lai Chau, Lao Cai, Ha Giang, Cao Bang, Lang Son, and Quang Ninh Province.

2.2 Panel Data Generation (at the Provincial Level)

It should be noted that until 2008, the household sample was selected and coded based on the Population and Housing Census 1999; meanwhile, from 2010 onward, the sample was based on the Population and Housing Census 2009. As a result, there is no adequate direct link at the household code level to generate panel data throughout the whole period at such levels. However, for the purpose of this paper, only panel data at the provincial level is required instead of at the household level.

However, at the provincial level, due to several mergers or splits at the provincial level during this period, there exists an inconsistency in the province code over time, especially after a significant modification of administrative divisions by the government in 2008. While in some surveys (for example, in the VHLSS 2002 and 2004), there is information available on how to make provinces comparable across time, such information is not provided in every survey.[10] Consequently, just basing VHLSS would not be adequate to obtain a consistent classification for province code over time.

In this regard, we use the notes provided by McCaig (2009) on making the province codes consistent across the 1989, 1999, and 2009 Population and Housing Censuses as well as the 2002-2010 VHLSSs and the 2000-2010 enterprise data.[11] Following McCaig's notes, together with the visual checking and comparison with the updated official information on administrative divisions of Vietnam[12], the necessary and proper recoding and/or renaming have been cautiously executed. It should also be noted that

---

[10] For example, the province code connection between 2010 and 2008 is nil in the 2010 survey, when the significant change in the whole province code took place.

[11] See also the notes by Brian McCaig (Associate Professor at the Department of Economics, Wilfrid Laurier University) available at https://drive.google.com/open?id=0B5Kjg1b9s7JRalFNYW9CWXhxM2s (last access 10 February 2019)

[12] The information is published by the GSO of Vietnam (but in Vietnamese only) at its official website at https://www.gso.gov.vn/dmhc2015/ (last access 10 February 2019)

these changes create certain gaps in the province name list in the outputs (as illustrated in Appendix 1).

At the district level, we follow McCaig's approach that "in most cases, although not all, the changing of provincial boundaries was either a splitting or aggregating of existing provinces as opposed to districts being reallocated between provinces"[13]. For the purpose of our study, the best solution is to use district level data (670 districts, which did not majorly change over time) and to merge them based on province names (in total, 64 names).[14] This solution turned out to be workable with the availability of information on the history of province name changes by GSO.

The same solution (visually comparing and merging by province name) was applied in order to merge the Census 1999 Data with VHLSS. In fact, 3 conflicting codes in the province code and province names between VHLSS 2002 and Census 1999 were also cautiously recorded and harmonized to achieve consistency between the two relevant datasets.[15]

3. METHODOLOGY

3.1 Weight index and Gini Calculation

Following Topalova (2010), we exploited provincial variation in exposure to trade with the PRC, based on the structure of employment prior to the year the PRC joined the WTO (2001). We constructed provincial measures of exposure to imports from the PRC based on employment-weighted average industry exposure, using time-invariant pre-PRC shock employment data. For each industry i in province j, we estimated the number of workers, L_{ij}, using the 1999 Census.

We calculated the employment weights according to $\omega_{ij} = L_{ij}/L_j$, where L_j is the total number of workers in province j.

This method to calculate trade exposure has several shortcomings. First, it does not account for the variations in trade in general; nor does it account for GVC participation in particular provinces. Endowment differences across provinces determine their own comparative advantages and thus each province tends to specialize in the production of goods or services for which they enjoy a comparative advantage. Therefore, we propose an additional provincial weight, which takes into account the variations in trade and GVC participation across provinces as follows:

$$\omega_{ij}^* = \frac{L_{ij}}{L_j} * \frac{L_{ij}}{L_i}$$

The provincial import exposure from the PRC at time t was then calculated according to:

---

[13] See https://sites.google.com/site/briandmccaig/notes-on-vhlsss

[14] In fact, the panel data at the district name level (almost 670 district names) was also processed by our team. However, this information is not required for the purposes of this paper.

[15] The three differences include: Vinh Phuc (VHLSS 2002 province code 104, Census 1999 province code 219); Bac Ninh (VHLSS 2002 province code 106, Census 1999 province code 223); and Lam Dong (VHLSS 2002 province code 607, Census 1999 province code 703).

$$Exposure_{it} = \sum_{j=0}^{N} \omega_{ij} * TotalTrade_{jt}$$

where $Exposure_{it}$: import exposure of industry i at time t and ω_{ij} is employment weights in province j. TotalTrade measures the imports from the PRC. The summation includes overall workers, including workers in non-trade sectors.

Following Topalova (2010), Edmonds et al. (2010), and other literature, workers in non-traded sectors were assigned an exposure of 0. The idea of using time-invariant, pre-reform employment weights was to control for the unobserved counterfactual of what would have been the evolution of socio-economic indicators, such as poverty, across Viet Nam's provinces in the absence of the PRC's emergence. Thus, changes in employment that are a consequence of changing trade with the PRC should not be included in the calculation of provincial exposure.

To distinguish the impacts of intermediate input imports and final goods imports, we proposed two measures of exposure to intermediate inputs and final goods trade as follows:

$$FinalEx_{it} = \sum_{j=0}^{N} \omega_{ij} * Final\ Goods\ Trade_{jt}$$

$$InterEx_{it} = \sum_{j=0}^{N} \omega_{ij} * Intermediate\ Inputs\ Trade_{jt}$$

Finally, we used the Gini coefficient to measure income inequality. Among the most common indices (e.g., Gini, Theil L, and Theil T) the Gini coefficient is the most widely used because of its straightforward calculation. The measure is consistent across different population groups and independent of sample size and scale of the economy. The Gini coefficient was estimated using the difference between the distribution of income and the uniform distribution that represents equality.

$$G = \frac{n+1}{n-1} - \frac{2}{n(n-1)\overline{Y}} \sum_{i=1}^{n} \rho_i Y_i$$

where ρ_i is the rank of individual i by their incomes.[16] ρ_i is equal to 1 for the richest and increases for individuals with lower incomes. The Gini coefficient lies between 0 to 1 with a higher Gini coefficient representing greater income inequality.

3.2 Empirical Strategy

We first use a linear model to measure the impact of trade exposure on income inequality. Specifically, we regressed various inequality measures on a proxy variable

---

[16] For the purpose of this research, individual's income refers to the average income of each member in each household. Specifically, the individual's income is calculated as the total income of household allocated equally to each member, wherein the total income of each household comprises (summed) of all income from any available sources, including wage and/or profit from household's own business (agricultural or non-agricultural).

for economic integration between the PRC and Viet Nam while controlling for year dummy variable.

$$I_{jt} = \beta_0 + \beta_1 Exposure_{jt} + \beta_2 log(Incpc)_{jt} + \beta_3 log(Incpc)_{jt}^2 + \alpha_j + \varepsilon_{jt} \qquad (1)$$

Where I_{jt} is the Gini index of district j in year t; H_{jt} is a proxy for the exposure to trade in district j in year t; $log(Incpc)_{jt}$ is log of income per capita in district j in year t; α_j is time-invariant characteristics of district j; and ε_{jt} is the error term.

One may argue that the Gini coefficient does not provide an answer to the question of how various income groups are affected by increased trade with the PRC. For example, if all income groups lose relatively the same income, then the Gini coefficient will not change. It could also be that the Gini coefficient only improves because the lower income quintiles lose relatively less than the higher income quintiles. In order to better understand these dynamics, we apply a quantile regression approach. Using this approach, we estimated the income distribution effects that different levels of trade exposure may have had across the income distribution curve during our studied period.

We augmented a standard model of household income and consumption with control variables for the levels of economic integration in the district where the household resides (for standard income/consumption models, see Glewwe 1991) by inclusion of a variable indicating the PRC import exposure ($Exposure_j$). The logarithm of household income/living expenditure can be written as follows:

$$Q_\theta(Y_{ij}/X_{ij}, H_{ij}) = \beta_\theta + \beta_{\theta,1} Exposure_j + X_{ij}\beta_{\theta,2} + \epsilon_{ij} \qquad (2)$$

Where $Q_\theta(Y_{ij}/X_{ij}, H_{ij})$ is the θth conditional quantile of Y_{ij}; Y_{ij} is the welfare variable of household *i* in district *j* in year *t*; and X_{ijt} is a vector of household and community control variables, which includes household characteristics and geographical location (the summary statistics of the control variables are presented in the appendix—Table A.1). $Exposure_j$ is the proxy for import exposure in district/province *j*; and ε_{ijt} is the error term. We estimated the quantile equation year by year (2002, 2006, 2010, 2012, and 2014).

4. EMPIRICAL RESULTS

4.1 Impact of Imports from the PRC on Income Inequality

The estimation results of the impacts of imports from the PRC on income inequality in Viet Nam at the provincial level are reported in Table 3. We incorporated both measures of exposure to imports from the PRC (using Topalova's weight and our modified weight). Columns (1) and (2) show the estimation results using Topalova's measure. Overall, import exposure to the PRC and income inequality have a negative and statistically significant relationship, indicating that increased trade with the PRC helped to lower income inequality at the provincial level (Column (1)).

When distinguishing the impacts from intermediate input imports and final goods imports from the PRC, the results indicate both types of imports have significantly negative impacts on income inequality. The effects for final goods imports seem to be slightly stronger. One possible explanation for this result could be that importing more intermediate goods from the PRC helped local producers to increase their productivity, which eventually led to an increase in workers' wages. At the same time, importing more final goods from the PRC not only allows households to have more product varieties and lower prices, but could also offer more opportunities for additional income or even job

creation, especially in the retail and wholesale trade sectors. Estimations using our modified measure of trade exposure show similar results (Columns (3) and (4)). Imports from the PRC have significant impacts on income inequality, although the magnitude of the impact is relatively smaller compared to the previous result. Furthermore, the coefficient for final goods imports from the PRC loses its statistical significance.

Our results also tell an interesting story about income inequality in Viet Nam during the country's growth path. The coefficient for GDP per capita is negative and highly statistically significant, indicating that a higher income was associated with lower income inequality.

Table 3: Imports from the PRC and Income Inequality at the Provincial Level

	Provincial Level Gini Index			
	(1)	**(2)**	**(3)**	**(4)**
Explanatory Variable	**Standard Weight**		**Our Weight**	
Trade Exposure	−0.188***		−0.103***	
	[0.071]		[0.028]	
Intermediate input imports from the PRC		−0.063*		−0.040**
		[0.033]		[0.015]
Final goods imports from the PRC		−0.094**		−0.039
		[0.040]		[0.031]
Income per capita	−1.381***	−1.378***	−1.416***	−1.416***
	[0.226]	[0.230]	[0.233]	[0.243]
Squared income per capita	0.083***	0.083***	0.085***	0.085***
	[0.013]	[0.013]	[0.014]	[0.014]
Observations	420	420	420	420

Notes: The figures in parentheses denote z-statistics. *, ** and *** denote significant levels of 10%, 5% and 1%, respectively.
Sources: Authors' estimation from VHLSS.

Table 4 shows the estimation result at the district level. The estimation results are qualitatively consistent with those obtained when we use the provincial level data. Imports from the PRC seem to lower the level of inequality at the district level, regardless of the weights we adopt. Both intermediate goods and final goods help to reduce the inequality at different magnitudes.

Table 4: Imports from the PRC and Income Inequality at the District Level

	District Level Gini Index			
	(1)	**(2)**	**(3)**	**(4)**
Explanatory Variable	**Standard Weight**		**Our Weight**	
Trade Exposure	–0.118***		–0.079***	
	[0.018]		[0.011]	
Intermediate input imports from the PRC		–0.044***		–0.038***
		[0.008]		[0.006]
Final goods imports from the PRC		–0.062***		–0.031***
		[0.019]		[0.010]
Income per capita	–0.596***	–0.603***	–0.592***	–0.609***
	[0.074]	[0.075]	[0.073]	[0.074]
Squared income per capita	0.041***	0.041***	0.041***	0.042***
	[0.004]	[0.004]	[0.004]	[0.004]
Observations	3,907	3,907	3,907	3,907

Notes: The figures in parentheses denote z-statistics. *, ** and *** denote significant levels of 10%, 5% and 1%, respectively.

Source: Authors' estimations.

4.2 Impact of Imports from the PRC on the Household's Welfare

Using a quantile regression approach, we estimated the impacts of trade exposure (total imports, intermediate goods imports, and final goods imports from the PRC) on household income during the 2002–2014 period (see Tables 5, 6, and 7, respectively). To facilitate the reading, we only reported the estimated coefficients for the import variables. We estimated the quantile regressions for the years 2002, 2006, 2010, 2012 and 2014. The coefficients for each year are presented in columns of Tables 5, 6, and 7. The OLS estimations are presented in the first rows of Tables 5, 6, and 7. Coefficients on 10%, 30%, 50%, 70% and 90% quantiles are presented in subsequent rows.

Our OLS estimation results suggest that, on average, imports from the PRC have no statistically significant correlation with household income before 2010, but a positive correlation with household income in 2012 and 2014. As shown in Figure 1, imports from the PRC accelerated since 2010. The OLS regression model relies on mean regression analysis, which estimates the average earnings equation conditional on the covariates. Meanwhile, quantile regression estimates the household income equation in various conditional quantiles of household income. Using quantile regression provides us with more detail about the impact of imports from the PRC across different levels of household income groups.

Our estimation results presented in Table 5 indicate that, for the year 2002, import competition from the PRC had a negative correlation with household income for all quantiles. However, the effect was more pronounced for upper quantiles, reflected in an increase in the absolute value of the estimated coefficients. In 2006 and 2010, we did not find any effects of import competition from the PRC on household income, except for households in the 70% quantile (in 2006 and 2010) and households in the 90% quantile (in 2010).

Table 5: Total Imports from the PRC and Household Income

	2002	2006	2010	2012	2014
OLS	0.012	−0.032	−0.033	0.084***	0.139***
	[0.068]	[0.059]	[0.032]	[0.032]	[0.034]
q10	−0.038***	0.007	0.025	0.125***	0.103***
	[0.006]	[0.014]	[0.017]	[0.017]	[0.022]
q30	−0.047***	0.001	0.019	0.046***	0.047***
	[0.006]	[0.014]	[0.016]	[0.015]	[0.017]
q50	−0.048***	−0.010	−0.024	−0.005	0.016
	[0.007]	[0.010]	[0.015]	[0.012]	[0.013]
q70	−0.061***	−0.037***	−0.031***	−0.037***	−0.008
	[0.006]	[0.012]	[0.012]	[0.014]	[0.014]
q90	−0.086***	−0.031	−0.042***	−0.057***	0.009
	[0.012]	[0.024]	[0.014]	[0.021]	[0.023]

Note: The quantile regression uses the district level trade exposure and controls provincial fixed effect. The figures in parentheses denote z-statistics. *, ** and *** denote significant levels of 10%, 5% and 1%, respectively.

Source: Authors' estimations.

In 2012 and 2014, import competition from the PRC had a positive correlation with household income for households at the 10% and 30% quantiles and negative in relation to household income for the 70% and 90% quantiles (in 2012, but not in 2014). Across the years, we found that import competition with the PRC seemed to be negatively correlated with household income for households located in the 70% and 90% quantiles in the studied period. Meanwhile, for lower income groups, the PRC imports seemed to be positively correlated with household income. Figure 2 illustrates this pro-poor outcome.

Figure 2: Quantile Regression of Household Income for the Year 2014
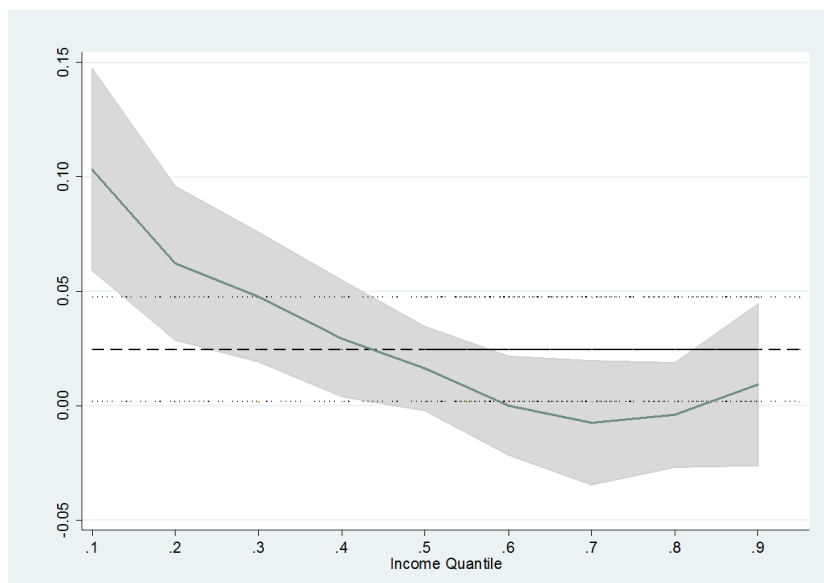
Source: Authors

When we distinguish between intermediate goods and final goods imports, the income coefficients are only statistically significant in 2006 and 2012 (Tables 6 and 7). We notice that, in 2006, intermediate goods imports exposure had a positive correlation with household income, but this relationship turned negative in 2012. Meanwhile, the relationship between final goods imports and household income was negative in 2006, but positive in 2012.

Table 6: Intermediate Input Imports from the PRC and Household Income

	2002	2006	2010	2012	2014
OLS	0.027	0.202***	−0.071	−0.092***	−0.030
	[0.022]	[0.044]	[0.050]	[0.035]	[0.094]
q10	−0.019	0.095***	0.068***	0.138***	0.095***
	[0.017]	[0.018]	[0.018]	[0.016]	[0.022]
q30	−0.020**	0.087***	0.078***	0.116***	0.073***
	[0.009]	[0.008]	[0.012]	[0.012]	[0.013]
q50	−0.029***	0.060***	0.066***	0.094***	0.067***
	[0.011]	[0.014]	[0.013]	[0.015]	[0.012]
q70	−0.039***	0.051**	0.057***	0.071***	0.052***
	[0.010]	[0.020]	[0.012]	[0.019]	[0.009]
q90	−0.037**	0.070**	0.031	0.060**	0.048**
	[0.018]	[0.033]	[0.022]	[0.026]	[0.023]

Note: The quantile regression uses the district level trade exposure and controls provincial fixed effect. The figures in parentheses denote z-statistics. *, ** and *** denote significant levels of 10%, 5% and 1%, respectively.
Source: Authors.

The effects of intermediate goods and final goods imports from the PRC on different household groups are presented in Tables 6 and 7, respectively. For intermediate goods imports' exposure, except for the year 2002, the effect was positive for all groups of household income. We also found that the effect of trade exposure is more pronounced in the lower quantiles, implying that increased intermediate goods imports is more beneficial for poorer households than for richer households. One possible explanation behind this effect could be that poorer households saw their incomes rise as firms were able to increase their productivity. However, with the data that we have to hand, we cannot pinpoint the exact cause.

Interestingly, exposure to final goods imports from the PRC often has a negative correlation with household income. Households in the middle quantiles (i.e., 30%, 50% and 70%) seem to consistently suffer most from the increase in the final goods imports from the PRC. The effect of import exposure is less pronounced for households in the 10% and 90% quintiles.

Table 7: Final Goods Imports from the PRC and Household Income

	2002	2006	2010	2012	2014
OLS	−0.017	−0.413***	0.147	0.621***	0.035
	[0.040]	[0.078]	[0.115]	[0.074]	[0.129]
q10	−0.027	−0.124***	−0.044***	−0.049*	−0.028
	[0.020]	[0.017]	[0.016]	[0.028]	[0.028]
q30	−0.034***	−0.126***	−0.062***	−0.107***	−0.043**
	[0.009]	[0.010]	[0.017]	[0.019]	[0.018]
q50	−0.027***	−0.116***	−0.092***	−0.129***	−0.065***
	[0.010]	[0.013]	[0.015]	[0.018]	[0.020]
q70	−0.030**	−0.119***	−0.088***	−0.129***	−0.060***
	[0.012]	[0.020]	[0.011]	[0.018]	[0.016]
q90	−0.061***	−0.137***	−0.063**	−0.112***	−0.035
	[0.018]	[0.025]	[0.026]	[0.026]	[0.028]

Note: The quantile regression uses the district level trade exposure and controls provincial fixed effect. The figures in parentheses denote z-statistics. *, ** and *** denote significant levels of 10%, 5% and 1%, respectively.

4.3 Robustness Check

For developing countries, income is often not considered to be an appropriate indicator of household welfare because income can be negative or zero. As a robustness check, we alternatively used data on living expenditure to re-calculate the Gini coefficients and re-estimated the impacts of trade exposure on inequality.The impact of trade exposure on income inequality (measured in terms of living expenditure) at the provincial level is reported in Tables A2.1 and A2.2 (see Appendix). Table A2.1 uses the Gini index computed by excluding negative values. Table A2.2 uses the Gini index that is calculated based on household's living expenditure. We incorporated both measures of trade exposure to imports from the PRC (using Topalova's weight and our modified weight) and also distinguished the impacts from intermediate input imports and final goods imports from the PRC.

To tackle the problem of negative income, a popular approach is to drop all the negative income observations and we also applied this method. Overall, the results show that imports from the PRC help to improve inequality in Viet Nam at the provincial level. More specifically, when distinguishing the impacts of final goods imports and intermediate goods imports, we find there is a negative correlation between intermediate goods imports and expenditure inequality. However, the impacts from final goods imports are not significant.

Tables A2.3 to A2.5 (see Appendix) report the impacts of total imports, intermediate goods imports, and final goods imports from the PRC on household living expenditure during the 2002—2014 period. In general, identical qualitative results are obtained when using living expenditure as a proxy for income.

5. CONCLUSION

The recent emergence of the PRC as the largest world exporter has attracted much attention and triggered a number of empirical studies on the effects of import competition from the PRC on local labor markets. In this paper, we investigated the impact of import exposure from the PRC on income inequality in Viet Nam at the provincial and district

levels. We are interested not only in the effects of total value of trade between the PRC and Viet Nam, but also in the differential effects of intermediate and final goods.

Our estimation results show that import competition from the PRC has helped to reduce income inequality in Viet Nam. Both intermediate goods and final goods imports contributed to the reduction of inequality in Viet Nam. Quantile regression provides us with a fuller picture on the effects of import competition from the PRC on different household income groups. At the beginning of our time period, all income quantiles seemed to have suffered from increased imports from the PRC. The negative effect increased with income, suggesting a degressive income effect. During the periods 2006 and 2010, no income group suffered a significant effect, except the highest income groups. The income effect completely changed in the two last periods (2012 and 2014). The two lowest income quintiles enjoyed a positive effect on their income, with the poorest group benefitting most. Overall, the results indicate that income inequality came down in Viet Nam because the lower income groups experienced a relatively lower decline of income at the beginning of our time period and an increase in income at the end. At the same time, trade exposure to the PRC led to a decline or stagnation of income for the two highest income quintiles.

This result is supported by the argument of Fajgelbaum and Khandelwal (2016) that trade brings more benefits to the poor whose expenditures focus more on the traded sector. However, a more detailed analysis is needed to corroborate this hypothesis. In the best-case scenario, one would have access to the price and origin of all products in the consumption baskets of households.

In addition, our study cannot tell us anything about how household income changes due to increased trade exposure. Distinguishing between intermediate and final goods trade exposure constitutes a first attempt to better understand these dynamics. Again, one would need to have firm data to better understand how increased trade with the PRC affected their productivity and wages.

The main contribution of this paper is to add new evidence on how increased trade with the PRC has affected household income and inequality in a developing country. Our results indicate that increased trade with the PRC has indeed affected incomes in Viet Nam. Overall, the effect was degressive with lower income groups benefitting more than higher income groups. This result will most likely not hold in every developing country. The Viet Nam's economy has been particularly successful in competing with the PRC. The result may also not hold across time in the same country. As both the PRC and Viet Nam are moving toward more high-skilled manufacturing and services, the effect of trade exposure might change.

REFERENCES

Acemoglu, D., D. Autor, D. Dorn, G. H. Hanson, and B. Price. 2016. "Import Competition and the Great US Employment Sag of the 2000s."Journal of Labor Economics, 34(S1): S141–S198.

Autor, D.H., D. Dorn and G.H. Hanson. 2013. "The China Syndrome: Local Labor Market Effects of Import Competition in the United States." American Economic Review, 103(6), 2121–2168.

Autor, D. H., D. Dorn, and G. H. Hanson. 2016. "The PRC Shock: Learning from Labor-Market Adjustment to Large Changes in Trade."Annual Review of Economics, 8: 205–40.

Balsvik, R. S. Jensen and K. G. Salvanes. 2015. Made in China, sold in Norway: Local labor market effects of an import shock, Journal of Public Economics,Volume 127, Pages 137–144,

Bhagwati, J. and T. N. Srinivasan. 2002. "Trade and Poverty in the Poor Countries."The American Economic Review, 92(2): 180–3.

Brambilla, I. and G. Porto. 2017. "Trade and Poverty Reduction." In: Win-Win: How International Trade Can Help Meet the Sustainable Development Goals. Edited by: Helble, M. and B. Shepherd. ADBI Press. 61–82.

Bui, T., Dungey, M., Nguyen, C. and Pham, P., 2016. "Impacts of Economic Integration on Living Standards and Poverty Reduction of Rural Households." MPRA Paper 71129, University Library of Munich, Germany.

Doan, T. and Stevens, P.2012 "Evolution of Competition in Vietnam Industries over the Recent Economic Transition" Economics - The Open-Access, Open-Assessment E-Journal, Kiel Institute for the World Economy (IfW), vol. 6, pages 1-24.

Dollar, D. and A. Kraay. 2004. "Trade, Growth, and Poverty."The Economic Journal, 114(493): F22–F49.

Fajgelbaum, Pablo D. and Amit K. Khandelwal. 2016. "Measuring the Unequal Gains from Trade,"The Quarterly Journal of Economics, 131 (3): 1113–80.

Friedrich, C., et al. 2013. "Financial Integration and Growth—Why is Emerging Europe Different?"Journal of International Economics, 89(2): 522–38.

Fort, T., J. Pierce and P. Schott. 2019 "New Perspectives on the Decline of U.S. Manufacturing Employment" presented at the American Economic Association Conference, Atlanta, Georgia.

Edmonds, E.V., Pavcnik, N. and Topalova, P., 2010. Trade adjustment and human capital investments: Evidence from Indian tariff reform. American Economic Journal: Applied Economics, 2(4), pp. 42–75.

Glewwe, P. 1991. "Investigating the Determinants of Household Welfare in Cote-d'Ivoire."Journal of Development Economics, 35(2): 307–37.

Goldberg, PinelopiKoujianou and Nina Pavcnik. 2007. "Distributional Effects of Globalization in Developing Countries."Journal of Economic Literature, American Economic Association, 45(1): 39–82.

Lundberg, M. and L. Squire. 2003. "The Simultaneous Evolution of Growth and Inequality."The Economic Journal, 113(487): 326–44.

McCaig, Brian. 2009 (updated June 2012). "The reliability of matches in the 2002-2004 Vietnam Household Living Standards Surveys Panel." Centre for Economic Policy Research Discussion Paper No. 622, ANU.

Mendez, O. 2015. "The Effect of Chinese Import Competition on Mexican Local Labor Markets."The North American Journal of Economics and Finance, 34: 364–380.

Oostendorp, R. H. and Q. H. Doan. 2013. "Have the Returns to Education Really Increased in Vietnam? Wage Versus Employment Effect."Journal of Comparative Economics, 41(3): 923–938.

Ravallion, M. and G. Datt. 2002. "Why Has Economic Growth Been More Pro-Poor in Some States of India Than Others?"Journal of Development Economics, 68(2): 381–400.

Razavi, S. 1998. "Gendered Poverty and Social Change: An Issues Paper." United Nations Research Institute for Social Development Discussion Paper No. 94.

Topalova, P., 2010. "Factor Immobility and Regional Impacts of Trade Liberalization: Evidence on Poverty from India."American Economic Journal: Applied Economics, 2: 1–41.

Van den Berg, M. and N. V. Cuong. 2011. "Impact of Public and Private Cash Transfers on Poverty and Inequality: Evidence from Vietnam."Development Policy Review, 29(6): 689–728.

World Bank. 2013. "2012 Vietnam Poverty Assessment: Well Begun, Not Yet Done—Vietnam's Remarkable Progress on Poverty Reduction and the Emerging Challenges." Washington DC, World Bank.

APPENDIX 1: LIST OF PROVINCE NAMES (IN VIETNAMESE LANGUAGE) THROUGH ALL VHLSS SURVEYS

Province Name	Year2014	Year2012	Year2010	Year2008	Year2006	Year2004	Year2002
ThànhphốHàNội	1	1	1	1	1	1	1
TỉnhHàGiang	1	1	1	1	1	1	1
Tỉnh Cao Bằng	1	1	1	1	1	1	1
TỉnhBắcKạn	1	1	1	1	1	1	1
TỉnhTuyên Quang	1	1	1	1	1	1	1
TỉnhLào Cai	1	1	1	1	1	1	1
TỉnhĐiệnBiên	1	1	1	0	0	0	0
Tỉnh Lai Châu	1	1	1	1	1	1	1
TỉnhSơn La	1	1	1	1	1	1	1
TỉnhYênBái	1	1	1	1	1	1	1
TỉnhHoàBình	1	1	1	1	1	1	1
TỉnhTháiNguyên	1	1	1	1	1	1	1
TỉnhLạngSơn	1	1	1	1	1	1	1
TỉnhQuảngNinh	1	1	1	1	1	1	1
TỉnhBắcGiang	1	1	1	1	1	1	1
TỉnhPhúThọ	1	1	1	1	1	1	1
TỉnhVĩnhPhúc	1	1	1	1	1	1	1
TỉnhBắcNinh	1	1	1	1	1	1	1
TỉnhHảiDương	1	1	1	1	1	1	1
ThànhphốHảiPhòng	1	1	1	1	1	1	1
TỉnhHưngYên	1	1	1	1	1	1	1
TỉnhTháiBình	1	1	1	1	1	1	1
TỉnhHà Nam	1	1	1	1	1	1	1
Tỉnh Nam Định	1	1	1	1	1	1	1
TỉnhNinhBình	1	1	1	1	1	1	1
Tỉnh Thanh Hóa	1	1	1	1	1	1	1
TỉnhNghệ An	1	1	1	1	1	1	1
TỉnhHàTĩnh	1	1	1	1	1	1	1
TỉnhQuảngBình	1	1	1	1	1	1	1
TỉnhQuảngTrị	1	1	1	1	1	1	1
TỉnhThừaThiênHuế	1	1	1	1	1	1	1
ThànhphốĐàNẵng	1	1	1	1	1	1	1
TỉnhQuảng Nam	1	1	1	1	1	1	1
TỉnhQuảngNgãi	1	1	1	1	1	1	1
TỉnhBìnhĐịnh	1	1	1	1	1	1	1
TỉnhPhúYên	1	1	1	1	1	1	1
TỉnhKhánhHòa	1	1	1	1	1	1	1
TỉnhNinhThuận	1	1	1	1	1	1	1
TỉnhBìnhThuận	1	1	1	1	1	1	1

Appendix 1 table continued

Province Name	Year2 014	Year2 012	Year2 010	Year2 008	Year2 006	Year2 004	Year2 002
Tỉnh Kon Tum	1	1	1	1	1	1	1
Tỉnh Gia Lai	1	1	1	1	1	1	1
TỉnhĐắkLắk	1	1	1	1	1	1	1
TỉnhĐắkNông	1	1	1	0	0	0	0
TỉnhLâmĐồng	1	1	1	1	1	1	1
TỉnhBìnhPhước	1	1	1	1	1	1	1
TỉnhTâyNinh	1	1	1	1	1	1	1
TỉnhBìnhDương	1	1	1	1	1	1	1
TỉnhĐồngNai	1	1	1	1	1	1	1
TỉnhBàRịa–VũngTàu	1	1	1	1	1	1	1
ThànhphốHồChí Minh	1	1	1	1	1	1	1
Tỉnh Long An	1	1	1	1	1	1	1
TỉnhTiềnGiang	1	1	1	1	1	1	1
TỉnhBến Tre	1	1	1	1	1	1	1
TỉnhTrà Vinh	1	1	1	1	1	1	1
TỉnhVĩnh Long	1	1	1	1	1	1	1
TỉnhĐồngTháp	1	1	1	1	1	1	1
Tỉnh An Giang	1	1	1	1	1	1	1
TỉnhKiênGiang	1	1	1	1	1	1	1
ThànhphốCầnThơ	1	1	1	0	0	0	1
TỉnhHậuGiang	1	1	1	0	0	0	0
TỉnhSócTrăng	1	1	1	1	1	1	1
TỉnhBạcLiêu	1	1	1	1	1	1	1
TỉnhCà Mau	1	1	1	1	1	1	1
TỉnhHàTây	0	0	0	1	1	1	1

APPENDIX 2: ESTIMATION RESULTS FROM ROBUSTNESS CHECK

Table A2.1: Imports from the PRC and Income Inequality at the Provincial Level

	Provincial Level Gini Index			
	(1)	(2)	(3)	(4)
Explanatory Variables	Standard Weight		Our Weight	
Imports from the PRC	−0.146***		−0.083***	
	[0.040]		[0.023]	
Income per capita	−1.126***	−1.128***	−1.156***	−1.158***
	[0.161]	[0.163]	[0.162]	[0.165]
Squared income per capita	0.072***	0.072***	0.074***	0.074***
	[0.009]	[0.009]	[0.009]	[0.009]
Intermediate input imports from the PRC		−0.053**		−0.033***
		[0.026]		[0.013]
Final goods imports from the PRC		−0.071		−0.035
		[0.058]		[0.029]
Constant	5.444***	6.931***	4.942***	5.813***
	[0.747]	[1.061]	[0.715]	[0.797]
N	419	419	419	419

Standard errors in brackets: * p<0.1, ** p<0.05, *** p<0.01.

Note: Gini index is computed by using household's net income excluding negative values.

Table A2.2: Imports from the PRC and Living Expenditure Inequality at the Provincial Level

	Provincial Level Gini Index			
	(1)	(2)	(3)	(4)
Explanatory Variables	Standard Weight		Our Weight	
Imports from the PRC	−0.110***		−0.058**	
	[0.042]		[0.025]	
Income per capita	0.036	0.022	0.018	−0.003
	[0.170]	[0.172]	[0.172]	[0.172]
Squared income per capita	−0.002	−0.002	−0.001	−0.000
	[0.010]	[0.010]	[0.010]	[0.010]
Intermediate input imports from the PRC		−0.052*		−0.032**
		[0.027]		[0.013]
Final goods imports from the PRC		−0.074		−0.058*
		[0.061]		[0.031]
Constant	0.744	2.476**	0.344	1.573*
	[0.790]	[1.114]	[0.756]	[0.833]
N	419	419	419	419

Standard errors in brackets: * p<0.1, ** p<0.05, *** p<0.01.

Note: Gini index is computed by using household's living expenditure.

Table A2.3: Imports from the PRC and Income Inequality at the District Level

| | District Level Gini Index | | | |
| | (1) | (2) | (3) | (4) |
Explanatory Variables	Standard Weight		Our Weight	
Imports from the PRC	−0.101***		−0.071***	
	[0.012]		[0.008]	
Income per capita	−0.441***	−0.447***	−0.438***	−0.454***
	[0.046]	[0.046]	[0.046]	[0.046]
Squared income per capita	0.034***	0.034***	0.034***	0.035***
	[0.003]	[0.003]	[0.003]	[0.003]
Intermediate input imports from the PRC		−0.039***		−0.035***
		[0.008]		[0.005]
Final goods imports from the PRC		−0.048***		−0.028***
		[0.017]		[0.008]
Constant	2.101***	3.166***	1.510***	2.384***
	[0.215]	[0.315]	[0.205]	[0.224]
N	3,907	3,907	3,907	3,907

Standard errors in brackets: * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Note: Gini-index is calculated by using household's net income dropping all negative observations.

Table A2.4: Imports from the PRC and Living Expenditure Inequality at the District Level

| | District Level Gini Index | | | |
| | (1) | (2) | (3) | (4) |
Explanatory Variables	Standard Weight		Our Weight	
Imports from the PRC	−0.057***		−0.049***	
	[0.015]		[0.010]	
Income per capita	0.020	0.016	0.019	0.007
	[0.055]	[0.055]	[0.055]	[0.055]
Squared income per capita	0.001	0.001	0.001	0.002
	[0.003]	[0.003]	[0.003]	[0.003]
Intermediate input imports from the PRC		−0.020**		−0.021***
		[0.010]		[0.006]
Final goods imports from the PRC		−0.037*		−0.031***
		[0.020]		[0.009]
Constant	0.342	1.078***	0.005	0.699***
	[0.255]	[0.373]	[0.243]	[0.266]
N	3907	3907	3907	3907

Standard errors in brackets: * $p<0.1$, ** $p<0.05$, *** $p<0.01$.

Note: Gini-index is calculated by using household living expenditure.

Table A2.5: Total Imports from the PRC and Household Living Expenditure

	2002	2006	2010	2012	2014
q10					
	–0.098***	–0.082***	–0.002	0.055**	0.086***
	[0.006]	[0.012]	[0.014]	[0.025]	[0.015]
q30					
	–0.124***	–0.055***	0.002	0.029**	0.075***
	[0.005]	[0.011]	[0.008]	[0.013]	[0.013]
q50					
	–0.124***	–0.028**	0.022***	0.027***	0.062***
	[0.006]	[0.012]	[0.007]	[0.010]	[0.011]
q70					
	–0.106***	–0.014	0.017	0.033***	0.051***
	[0.007]	[0.011]	[0.012]	[0.009]	[0.011]
q90					
	–0.074***	0.023	0.034*	0.016	0.044***
	[0.010]	[0.019]	[0.019]	[0.011]	[0.013]

Standard errors in brackets: * p<0.1, ** p<0.05, *** p<0.01.

Table A2.6: Intermediate Goods Imports from the PRC and Household Living Expenditure

	2002	2006	2010	2012	2014
q10					
	–0.104***	–0.054***	0.060***	0.109***	0.099***
	[0.006]	[0.012]	[0.020]	[0.016]	[0.013]
q30					
	–0.131***	–0.029***	0.048***	0.093***	0.085***
	[0.006]	[0.006]	[0.010]	[0.010]	[0.008]
q50					
	–0.131***	–0.001	0.055***	0.071***	0.073***
	[0.006]	[0.008]	[0.008]	[0.008]	[0.010]
q70					
	–0.121***	0.010	0.055***	0.074***	0.063***
	[0.005]	[0.010]	[0.008]	[0.011]	[0.009]
q90					
	–0.102***	0.032**	0.055***	0.059***	0.058***
	[0.007]	[0.013]	[0.009]	[0.015]	[0.014]

Standard errors in brackets: * p<0.1, ** p<0.05, *** p<0.01.

Table A2.7: Final Goods Imports from the PRC and Household Living Expenditure

	2002	2006	2010	2012	2014
q10					
	–0.092***	–0.142***	–0.042***	–0.043*	0.065***
	[0.004]	[0.010]	[0.014]	[0.023]	[0.018]
q30					
	–0.117***	–0.144***	–0.029***	–0.043***	0.060***
	[0.005]	[0.011]	[0.009]	[0.014]	[0.014]
q50					
	–0.111***	–0.152***	–0.009	–0.021	0.054***
	[0.006]	[0.009]	[0.015]	[0.014]	[0.012]
q70					
	–0.075***	–0.115***	–0.007	–0.015	0.044***
	[0.007]	[0.011]	[0.013]	[0.015]	[0.014]
q90					
	–0.035***	–0.064***	0.013	–0.013	0.044**
	[0.008]	[0.016]	[0.019]	[0.018]	[0.017]

Standard errors in brackets: * $p<0.1$, ** $p<0.05$, *** $p<0.01$.