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ABSTRACT

Import Competition and Gender Differences in Labor Reallocation*

We study gender differences in the labor market reallocation of Peruvian workers in response to trade liberalization. The empirical strategy relies on variation in import competition across local labor markets based on their industrial composition before China entered the global market in 2001. We find that exposure to Chinese imports led to short-run declines in the employment share of women and men. However, the adverse employment effects are only persistent for women, leading to a reduction in their labor force participation. Lack of job market opportunities in the non-tradable sector act as a significant friction that prevents women from fully offsetting trade-induced displacements.

JEL Classification: E24, F14, J16, J71

Keywords: import competition, female employment, gender discrimination

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1 Introduction

A long-standing finding in the international economics literature is that trade increases welfare and productivity through the reallocation of resources across firms, industries, and countries. In theory, although workers are displaced from industries affected by import competition, the long-run impact of openness to trade on employment could be non-negative as workers can relocate to expanding sectors (Melitz, 2003). In contrast to these predictions, numerous empirical studies have documented adverse long-term labor market outcomes in response to import competition. These findings are consistent with the presence of labor market frictions which prevent workers from smoothly moving to other sectors, different occupations, or booming markets (Goldberg and Pavcnik, 2007; Autor et al., 2013; Acemoglu et al., 2016; Autor et al., 2016; Dix-Carneiro and Kovak, 2017).

The sources of labor market frictions, and the persistence of the trade shocks on labor market outcomes, are likely to vary by workers' characteristics. Gender and skill stand out as critical dimensions of this heterogeneity (Juhn et al., 2014; Gaddis and Pieters, 2017; Autor et al., 2018); however, the differential impact of exposure to trade on these groups is theoretically ambiguous. For example, by inducing skill-biased technical change, import-exposed industries may increase their demand for high-skilled workers at the expense of low-skilled workers, but the relative impact of trade across skill will depend on their degree of substitution (Galor and Weil, 1996; Weinberg, 2000). Moreover, because skill and educational distribution vary by gender in many countries, trade also has an ambiguous effect on gender inequality (Galor and Weil, 1996; Sauré and Zoabi, 2014).[1]

In this paper, we provide novel evidence on the effects of increased Chinese imports on Peruvian workers. To better understand the heterogeneous adjustment process, we analyze short- and long-run gender differences in labor market outcomes for workers with different

[1]For instance, technical change in exporting industries may provide more opportunities for women who were traditionally excluded from jobs that rely on physical strength (Juhn et al., 2014), while industrial or occupational segregation by gender might limit the ability of women to reallocate across sectors (Do et al., 2016).

levels of education, and examine the role of several labor market frictions that could lead to differential adjustments by gender and education. Our empirical strategy relies on China's accession to the World Trade Organization (WTO) in 2001. We use variation in exposure to Chinese imports across Peruvian provinces according to their initial industrial composition before China entered the global market (Topalova, 2007; Autor et al., 2013; Dix-Carneiro and Kovak, 2017). The mapping of trade shocks across local labor markets follows early studies by Bartik (1991), Blanchard and Katz (1992), and Borjas and Ramey (1995), as well as more recent work on the labor market effects of trade liberalization in developing countries (Topalova, 2007; Chiquiar, 2008; Topalova, 2010; Kovak, 2013; Gaddis and Pieters, 2017), and on the labor market effects of Chinese imports competition on U.S. workers by Autor et al. (2013).[2] Specifically, we estimate first-difference regressions at the local labor market level to identify the effect of import competition on labor outcomes. In addition to controlling for province-specific time-invariant characteristics, this approach allows us to estimate the net effect of exposure to trade, taking into account both displacement effects and movement within industries in the tradable sector, as well as shifts to informality and the non-tradable sector.

To support the validity of the empirical design, we identify the industries that contribute the most to the variation following Goldsmith-Pinkham et al. (Forthcoming). Importantly, we verify that the labor market shares of industries in trade-exposed markets are not correlated with other baseline local labor market characteristics, such as the share of female employment, the share of college-educated people, the employment share in manufacturing, and the employment share in the tradable sector.

In the main analysis, we start by estimating the impact of increased Chinese imports

[2]Chiquiar (2008) examines the impact of globalization on regional wages in Mexico. Topalova (2007) and Topalova (2010) examine the impact of trade liberalization on poverty and inequality in India. Kovak (2013) estimates the impact of reducing trade tariffs in Brazil on wages and migration, and Gaddis and Pieters (2017) estimate their effects on women relative to men in Brazil. Additional studies using cross-market variation to study the impact of trade on poverty, education, and employment include Edmonds et al. (2010), Kis-Katos and Sparrow (2011), McCaig (2011), and Hasan et al. (2012).

on the share of employment in the working-age population between 1998 and 2004.[3] We then expand our analysis window to the period of 1998-2008, which allows us to evaluate the persistence of the trade effects over time. To address any remaining concerns about the exogeneity of our trade exposure measure, we instrument for changes in Peru's imports from China. Specifically, we use changes in Chinese imports to other similar countries over the same period, such as Peru's neighboring countries or other upper-middle-income countries (Autor et al., 2013).

The results indicate that an increase of imports per worker from China between 1998 and 2004—evaluated at the average increase in imports per worker in that period ($20)—leads to a 0.42 percentage point decline in the share of employed people in the working-age population. When we expand the exposure window to 2008, we find a 0.61 percentage point decline in the share of employed people following an increase in imports per worker—when evaluated at their average increase between 1998 and 2008 ($170). The results are robust to controlling for baseline demographic and labor market characteristics and, importantly for our identification strategy, to including pre-trends in these demographic and labor market characteristics between 1998 and 2001.[4]

We proceed by estimating the effects of increased Chinese imports by gender and education. The results suggest that an average increase of $20 per worker in import competition from China between 1998–2004 leads to a 0.7 percent decrease in the employment share of women in the working-age population relative to their mean employment in 1998. The same increase in import competition is only associated with a 0.35 percent decline in the employment share of men. The larger displacement effects for women persist in the long-run. Specifically, we find that while an average decadal increase of $170 per worker between 1998–2008 leads to a 1 percent decrease in the share of employed women, the effects on men

[3]The primary analysis focuses on the population aged 25-55. As we show later, the results are robust to using more restrictive or expansive age groups. The results are also robust to using employment rates, calculated as a percentage of the group-specific working age population.

[4]The demographic and labor market characteristics include the share of employed women in the local labor market, the share of college graduates, the share of workers in the tradable sector, and the share of workers in the manufacturing sector.

are smaller in magnitude and statistically insignificant. Thus, the results indicate that trade liberalization led to a widening of the employment gap between men and women, and that women face labor market frictions that prevent them from fully mitigating the impact of import competition. Consistent with prior literature, the labor effects of increased import competition are concentrated among low-educated workers (Autor et al., 2013; Juhn et al., 2014; Gaddis and Pieters, 2017).

As we would expect, the decline in the employment share of low-educated workers is concentrated in the tradable sector. Specifically, an average increase of $170 per worker during 1998–2008 induces a 3.7 percent decline in the share of low-educated women employed in the tradable sector. In support of the hypothesis that workers reallocate across sectors, the increase in import competition over the same period leads to a 2.8 percent increase in the share of low-educated women employed in the non-tradable sector. In contrast, there is little evidence that the share of low-educated male workers in the tradable sector suffers from a persistent decline or that the share of male workers increases in the non-tradable sector. The results for men suggest that those displaced in the short-run due to increased import competition are absorbed in expanding (exporting) tradable industries. Consistent with these differences in labor market adjustments between men and women, we show that increased import competition is associated with a decrease in the share of low-educated women who participate in the labor force.

We analyze the importance of several mechanisms. For instance, we find that the impact of import competition on female workers is exacerbated in labor markets with an initially lower share of workers employed in the non-tradable sector. These results indicate that the lack of job opportunities for women in the non-tradable sector is an important factor that leads to persistent effects on their employment and labor force participation. In contrast, we do not find evidence for gender differences in moving to informality or in migration patterns in search of better employment opportunities.

This paper makes important contributions to the literature. First, we add to the em-

pirical work on the employment effects of trade, which have been extensively studied in the literature (Autor et al., 2013, 2016; Acemoglu et al., 2016; Pierce and Schott, 2016; Feenstra et al., 2017; Feenstra and Sasahara, 2017; Bloom et al., 2019), as well as its heterogeneous effects by gender and skill. In particular, previous studies on the relationship between trade exposure and gender inequality have found mixed results. For example, Gaddis and Pieters (2017) found that in Brazil, although import-competing sectors were male-intensive, trade liberalization did not improve women's relative labor market outcomes. In the Mexican context, Juhn et al. (2014) provide evidence that the wage and employment gender gaps of blue-collar workers were reduced in industries in which Mexico has a comparative advantage after NAFTA was implemented. This reduction in the gender gap is due to an increase in the demand for female workers in exporting industries that adopted new technologies that did not rely on physical strength.[5]

Second, we contribute to the empirical literature examining labor market frictions. Following the work by Dix-Carneiro (2014) and Autor et al. (2016), we consider the short and long-run effects of the import competition shock and describe the persistence of the impact of a trade shock by gender. To the best of our knowledge, our paper is the first to document this asymmetric persistence. Moreover, close to the results of Dix-Carneiro (2014), we find that the main channel for the differentiated response of women is related to labor market opportunities rather than to individual characteristics.

Third, unlike trade liberalization policies in other Latin American countries (such as Brazil or Mexico) or the U.S., both male- and female-intensive industries in Peru were exposed to a large influx of Chinese imports. Thus, the Peruvian setting provides a new lens to study the adjustment paths of female and male workers who experienced short-term displacements. Fourth, instead of using reductions in tariffs, we focus on increased imports from China. Unlike the U.S. or other major economies, China's entry into the global market

[5]Using U.S. data, Autor et al. (2018) showed that a trade shock in the manufacturing sector has asymmetric consequences for men and women in the marriage market. While shocks to labor demand on male-intensive industries reduce the fraction of young women currently married, shocks to labor demand on female-intensive industries increase that fraction.

was arguably unrelated to increased Peruvian demand for Chinese goods. This provides an exogenous and unanticipated increase in import competition which did not coincide with a technological or other productivity shocks.

The paper proceeds as follows. Section 2 provides a conceptual framework and reviews the existing literature. Section 3 describes the data, and defines local labor markets and the measure of the import competition shock. Section 4 discusses our empirical strategy. Section 5 reports the main results and Section 6 discusses potential mechanisms. We conclude in Section 7.

2 Conceptual Framework

The slow adjustment of displaced workers in response to import competition is consistent with the presence of frictions in the labor market (Goldberg and Pavcnik, 2007; Dix-Carneiro and Kovak, 2017; Acemoglu et al., 2016). Prior literature focused on the roles of two channels for frictions: increased competition (Acemoglu, 2002; Thoenig and Verdier, 2003) and sectoral reallocation (Wacziarg and Wallack, 2004; Goldberg and Pavcnik, 2007; Autor et al., 2013). Both of which could have different implications by worker's gender and level of skill (Galor and Weil, 1996; Juhn et al., 2014; Do et al., 2016; Gaddis and Pieters, 2017; Autor et al., 2018).

The procompetitive effects of trade liberalization can lead firms to adopt new technologies (Acemoglu, 2002; Thoenig and Verdier, 2003; Topalova and Khandelwal, 2011). Importantly, a skill-biased technical change is likely to reduce the demand for lower-skilled workers, and could thus also have gender-specific effects if educational attainment and types of skills differ by gender (Galor and Weil, 1996; Weinberg, 2000; Juhn et al., 2014). For instance, Juhn et al. (2014) shows that in Mexico exporting firms responded to tariff reductions by adopting new technologies that lowered the demand for physically intensive skills. This lead to a reduction in the wage and employment gender gaps of blue-collar workers. Increased competition due

to trade could also improve the labor market outcomes of women by increasing the cost of discrimination (Becker, 1957; Black and Brainerd, 2004) and by increasing the demand for part-time and more flexible workers (Standings, 1989).[6]

The second channel is the sectoral reallocation of labor. Standard trade models predict that openness to trade will shift production factors away from sectors affected by import competition and reallocate them to exporting sectors in which the country has a comparative advantage (Melitz, 2003). With a few exceptions, however, existing empirical studies do not indicate that trade reforms lead to a significant reallocation of labor from importing to comparative advantage sectors (Wacziarg and Wallack, 2004; Goldberg and Pavcnik, 2007; Autor et al., 2013). In developing countries, and contrary to the predictions of neoclassical trade theory, several papers show that displaced workers in import-competing industries moved into the informal sector, the non-tradable sector, or left the labor force (Menezes-Filho and Muendler, 2011; Ferreira et al., 2010; Dix-Carneiro and Kovak, 2017).[7]

Sectoral reallocation has ambiguous effects on women and men and for workers with different skills. For instance, the short-run labor market outcomes of women relative to men are expected to worsen if women are segregated in import-competing sectors or alternatively could improve if exporting sectors are more female-intensive (Do et al., 2016).[8] Even if there was little gender segregation in the labor market, it is possible that trade shocks will have differential effects by gender, especially if men and women are not perfect substitutes (Galor and Weil, 1996; Sauré and Zoabi, 2014; Do et al., 2016). Imperfect substitution between men and women might make it harder for women to move into exporting sectors if they are traditionally more male-intensive. Similarly, the degree to which men and women can adjust

[6]By increasing competition among firms, exposure to trade could push discriminating firms out of business or induce them to adopt non-discriminatory practices (Pieters, 2018). Black and Brainerd (2004) and Ederington et al. (2009) find support for this hypothesis in manufacturing industries in both the U.S. and Colombia.

[7]Ferreira et al. (2010) found that openness to trade in Brazil increased income inequality through employment shifts into the informal sector, and Dix-Carneiro and Kovak (2017) provide evidence that trade reforms led to a decade-long reduction in labor demand.

[8]Many studies have documented that women tend to cluster in particular sectors of the economy (**?**). **?** argues that is partly due to stigmatization of women who work in heavy industries. It could also be due to social norms related to home production and childcare.

by sorting into the traditionally female-intensive non-tradable sector will depend on how fast these sectors grow and on the type of skills they demand. In fact, Gaddis and Pieters (2017) show that, although import-competing sectors in Brazil were male-intensive so that more men were to be displaced, trade liberalization in Brazil did not improve the relative labor market outcomes of women.

Finally, differences in the reservation wages of men and women could also lead to gender differences in sectoral reallocation. Exposure to import competition has been linked to a decline in average local labor market wages (Autor et al., 2013). Thus, even if exposure to trade does not affect the gender wage gap, women may choose to leave the labor force entirely if the prevailing wage in their local labor market falls below their reservation wage. Under such a scenario, we would expect women to leave the labor force at higher rates than men. In the next sections, we add to this literature by showing the patterns of sectoral reallocation and the asymmetric persistence of the adverse effects of an import competition shock for male and female workers.

3 Data and Background

3.1 Data

Our primary data source to measure labor market outcomes is the *Encuesta Nacional de Hogares* (ENAHO), for the years 1998, 2004, and 2008.[9] This is a household survey assembled annually by the Peruvian Statistical Agency (INEI), and it is representative at the national and regional levels. Its purpose is to measure the living conditions of households and the impact of social programs. It surveys both urban and rural areas across the 24 Peruvian departments and the constitutional province, Callao. People over 14 years old have to fill out an employment module. This module includes questions on working status (working,

[9]We end the analysis in 2008 to avoid conflating the impact of Chinese export growth with the effects of the global recession. In Table A1 we show that the adverse effects of Chinese imports on employment continue to persist if we extend the sample analysis to the periods 1998-2012 and 1998-2016.

searching for a job, not working), occupation, basic demographics, and other individual characteristics. Importantly, the information on work status includes formal and informal work. Thus, it gives us a complete portrayal of labor reallocation inside and out of the labor force. Throughout the paper, we limit our sample to include working-age individuals, aged 25-55, to focus on people who would have completed their education and that have not retired yet.

For information on trade-flows at the product level between China and other countries, we use the United Nations Comtrade dataset. This information spans the period from 1998 to 2008 and is available at the annual level. We use the correspondences of the World Integrated Trade Solution (WITS) from the World Bank to convert six-digit Harmonized Tariff System (HTS) product level codes to CIIU Rev.3, the industry classification in Peruvian data.[10]

3.2 Chinese Import Competition

In December 2001, China gained accession to the WTO. This event resulted in a worldwide reduction in tariffs placed on Chinese products and an exponential growth of exports of Chinese goods.[11] China's exports of manufacturing products have grown by more than six times since then.

Initially, China's exports were labor-intensive manufactured goods (Chen, 2009). Textiles, wearing apparel, furniture, and toys were the Chinese most significant initial export sectors. Further along, China moved to export more technologically intensive goods such as intermediate inputs and capital goods. Accordingly, many countries experienced a sizable increase in Chinese import competition over this period. Peru, a country with a manufacturing sector focused on labor-intensive goods, was no exception.

The first column in Panel A of Table 1 shows the value of annual Peruvian imports from China for the years 1998, 2004, and 2008 (with all amounts in millions of 1998 $US). In 2004,

[10] See https://wits.worldbank.org/product_concordance.html

[11] This also decreased tariffs on imports into China given the requirements placed upon China by WTO members.

three years after China entered the WTO, imports from China increased threefold. China's imports continued to grow, and by 2008, their value increased by a factor of 15, representing an increase from 3 percent to 15 percent of total Peruvian imports. In contrast, imports to Peru from other countries (Column 2 of Table 1) did not change significantly between 1998 and 2004 and grew by a modest factor of 2.6 over the 1998-2008 period. China's accession to the WTO also affected other countries in the region and the world. Panel B of Table 1 presents the same statistics for Latin American countries who share a border with Peru.[12] While they also experienced a significant increase in Chinese imports, it was lower compared to the Peruvian experience.

While significant, this shock affected Peruvian industries differently. Figure 1 shows the value of Chinese imports at the two-digit CIIU level. Industries such as agricultural products or food and beverages received a very low influx of Chinese imports. However, textiles, basic metals, machinery, and communication equipment faced massive import flows from China during this period. Our identification strategy exploits both the temporal variation in exposure to Chinese import competition and the differences in industry composition at the local labor market.

3.3 Local Labor Markets

We define local labor markets in Peru following the concept of commuting zones (Autor et al., 2013). To our knowledge, no study has categorized these zones for Peru. To make progress, we use the geopolitical unit of the province as our local labor market measure. A province is the administrative subdivision of a department, the primary geopolitical division in Peru. Provinces are further divided into districts.

Without considering the province that includes the capital city of Lima (Metropolitan Lima), the average province contains approximately 114,000 persons. Metropolitan Lima has a population of about 10 million and contains 51 districts. Using the Survey of Transport,

[12] Countries bordering Peru include: Argentina, Bolivia, Brazil, Chile, Colombia, and Ecuador.

Labor, and Technology Use, assembled by the Peruvian Studies Institute (IEP), Piselli (2013) describes five distinct zones in Metropolitan Lima in which people do most of their activities: Lima Center, Lima North, Lima South, Lima East, and Lima West. Each of these zones contain a subset of districts and we use them to define local labor markets within Lima. This classification results in 143 local labor markets across Peru for which we have data.

Table 2 presents local labor market statistics for men and women in 1998, 2004, and 2008. While most men participated in the labor force throughout 1998-2008, women experienced a six percentage points increase in their labor force participation between 1998 and 2004. Although the speed of this increase stalled after 2004, 76.5 percent of women aged 25-55 participated in the labor force by 2008. The employment rate of women also increased between 1998 and 2008, especially among the low-educated and was more pronounced in the non-tradable sector. The employment rates show clear evidence of sectoral segregation where female workers are more concentrated in the non-tradable sector, while male workers are more equally distributed between both sectors. It is also clear from Table 2 that there is sectoral segregation by education, where the tradable sector employs a higher share of low-educated workers.

4 The Labor Market Effects of Import Competition

4.1 Local Exposure to Chinese Imports

To estimate the effect of Chinese import competition on labor outcomes at the labor market level we follow Autor et al. (2013) and Autor et al. (2018), and define local labor market exposure to Chinese import competition in Peru as the weighted average of industry changes in Chinese imports per worker, as in,

$$\Delta IPW_{it} = \sum_{j} \frac{L_{ij98}}{L_{i98}} \times \frac{\Delta M_{jt}}{L_{j98}} \tag{1}$$

where $\frac{L_{ij98}}{L_{i98}}$ refers to the initial employment share of industry j in local labor market i at base period 1998, ΔM_{jt} is the change in Peru's imports originated in China in industry j between 1998 and 2004 or between 1998 and 2008, measured in 1998 thousand $U.S., and L_{j98} is base period national employment in industry j.

Differences in ΔIPW_{it} depend on the variation of industry composition at the local labor market level in 1998, and our empirical model uses this variation in exposure to Chinese imports across local labor markets to identify its effects on labor market outcomes. Table 3 shows that the average Peruvian labor market experienced an increase of about $20 in Chinese imports per worker between 1998-2004 (0.02*1000) and $170 per worker between 1998 and 2008 (0.17*1000). However, there is significant variation in the extent to which different regions were affected by import competition. For example, by 2008, a labor market at the 75th percentile of exposure experienced a $120 larger increase in Chinese imports compared to the change in imports for a labor market at the 25th percentile of the exposure distribution.

These results are more striking when comparing the top and bottom ten local labor markets ranked by IPW shown in Panel B of Table 3. For instance, by 2008, local labor markets with the most substantial impact experienced an increase of $554-$2800 per worker in Chinese imports. These markets include provinces such as Callao, where economic activity is related to access to ports and airports. Likewise, other provinces high in manufacturing activity (Lima and the coast), and mining provinces (Ancash and Pasco) experienced a substantial increase in Chinese imports. On the contrary, poorer provinces, which rely mostly on non-tradables, are ranked at the bottom of exposure to Chinese imports. This geographical variation in exposure to Chinese imports across regions is depicted in Figure 2. Importantly, as shown in Figure 3, variation in ΔIPW_{it} is not systematically correlated with the share of female employment in 1998.

4.2 Empirical Model

Our primary empirical strategy to estimate the effect of import competition on labor market outcomes uses cross-local labor market variation in industry composition before China's accession to the WTO. This approach allows us to account for the direct impact of trade on the employment of men and women in trade-affected industries, as well as the indirect effect due to sorting across other industries or occupations in the local labor market.

To estimate the effects of interest, we aggregate all individual-level data from 1998, 2004, and 2008 at the labor market-level and estimate the following first-difference regression:

$$\Delta Y_{it} = \gamma_{it} + \beta_1 \Delta IPW_{it} + X'_{i98}\beta_2 + \Delta Z'_{i2001-98}\beta_3 + e_{it} \tag{2}$$

where ΔY_{it} denotes the gender-specific difference in employment or labor force participation shares, calculated as a percentage of the overall working population aged 25-55 years, in local labor market i, where t refers to the period between 1998 and 2004 or between 1998 and 2008.[13] We also control for the vector X'_{i98}, which includes base period (1998) labor force and demographic composition measures such as the employment share in manufacturing, percentage of college-educated, the employment share in the tradable sector, and the women employment share. These controls further ensure that we are comparing local labor markets with similar economic features at baseline. To ensure that local labor markets were not trending diferentially before China's entry into the global markets, we control for the change in the variables included in X'_{i98} between 1998 and 2001 (vector $\Delta Z'_{i2001-98}$). Each observation is weighted by the start of the period region i population, and the sample size is equal to the number of local labor markets. Standard errors are clustered at the local labor market level.

One potential concern with this estimation strategy is that unobserved positive regional

[13] As we discuss in section 5, the results are robust to using employment rates calculated as a percentage of the group-specific relevant working-age population. We choose to consistently use the overall working-age population as the denominator across all outcomes because, as shown by Atkin (2016), exposure to trade can impact human capital investments of exposed populations.

demand shocks drive Chinese imports. If such demand shocks are positively correlated with local labor market outcomes, the above specification will underestimate the real impact of import competition on employment (Autor et al., 2013). We expect this concern to have a limited effect in a small country like Peru. However, to address it, we instrument ΔIPW_{it} with a similar measure using Chinese imports to neighboring Latin American countries, such as Chile, Bolivia, Colombia, and Ecuador.

The intuition is the following. If Chinese exports to Peru are due to some favorable market conditions in the Peruvian economy, these conditions might also be influencing Peruvian local labor market outcomes. In this case, China's exports to Peru are an endogenous outcome of the Peruvian economic conditions rather than an exogenous import competition shock related to increased Chinese productivity. The exclusion restriction required by the instrument is that the growth in Chinese imports to neighboring countries impacts local labor market outcomes only through its correlation with the growth of Chinese imports to Peru. In this sense, this instrumental variable approach ensures that we are identifying the supply-related impacts of import competition.

Figure 4 shows the first-stage of our IV specification for the 1998-2004 and the 1998-2008 period. As shown, there is a strong positive and significant relationship between ΔIPW_{it} constructed with Peruvian and Latin-American data using the same control variables as in equation 2. In the first stage, the F-statistic ranges between 77 and 163, well above the traditional rule of thumb for relevance. Moreover, insofar Peru's labor demand conditions across labor regions are not systematically correlated with demand conditions in neighboring countries; the exclusion restriction is satisfied.[14]

[14]To alleviate the concern that South American countries could share the same demand patterns, we also use as instruments information for other upper-middle-income countries with similar GDP per capita to Peru. Results are included as a robustness exercise in Section 5.4.

4.3 Investigating the Validity of the Research Design

The allocation of national changes in Chinese imports to local labor markets amounts to what is typically referred to as the Bartik instrument following the work of Bartik (1991) and Blanchard and Katz (1992). In a recent paper, Goldsmith-Pinkham et al. (Forthcoming) show that in a Bartik design identification is based on the exogeneity of the industry shares and that the estimator is based on weights assigned to each industry.

We follow the methodology of Goldsmith-Pinkham et al. (Forthcoming) to estimate the weights of the Bartik estimator and to identify the industries whose variation contribute the most to the estimation. As shown in Panel B of Table A2, the sum of the weights of the top five industries receive over 87 percent of the absolute weight in the estimator ($0.913/1.048 = 0.87$). These industries are basic metals, rubber and plastics products, machinery and equipment n.e.c, other transport equipment, and electrical machinery n.e.c.

To test the plausibility of the identification strategy, we also estimate the relationship between the 1998 covariates we use in equation 2 and the shares of the top five industries. The results in Table A3 provide strong evidence that industry shares are not correlated with the share of female employment, the share of college-educated people, the employment share in manufacturing, and the employment share in the tradable sector. This evidence provides further support that our import exposure measure is exogenous and not correlated with other local labor market unobserved characteristics.

5 Results

5.1 Labor Market Effects of Chinese Import Competition

We begin our analysis by showing the results of estimating equation 2 for the change in the overall share of employment in the working-age population between 1998 and 2004 and between 1998 and 2008 in Table 4. Column 1 shows the results without baseline demographic

controls, and moving across columns, we sequentially add controls for demographic and labor market characteristics in 1998 (Column 2) and the change in these characteristics between 1998 and 2001 (Column 3).

The reduced-form results in Panel A show that exposure to Chinese import competition between 1998 and 2004 decreased the employment share in the working-age population. If we focus on our preferred specification (Column 3), the results imply that an increase of $1000 per worker during the 1998-2004 period led to a 17.72 percentage points decrease in the total employment share, significant at the 1 percent level. Given an average increase of $20 per worker during this period, this implies a decline of about 0.35 percentage point in employment share (0.02*17.72). The coefficients from the Two-Stage Least Squares regression in Panel C of Table 4 indicate that an increase of $20 per worker during the 1998-2004 period led to a 0.42 percentage point decline in the total employment-to-population rate, significant at the 5 percent level (0.02*20.78). Given that the difference in exposure between the 75th and 25th percentiles during this period is 0.03 percentage point, this coefficient implies that the share of employees in the working-age population of a local labor market at the 75th percentile of import exposure declined by 0.62 percentage point (0.03*20.78) more than in a local labor market at the 25th percentile. Thus, consistent with prior evidence in the literature, the results suggest that Chinese imports led to a short-term decline in the share of employed people in the population.

In Panels B and D of Table 4, we report the results for the period 1998-2008 to examine whether the short-term response to Chinese import competition persisted over time. The coefficients from the Two-Stage Least Squares regression in Panel D of Table 4 indicate that an increase of $1000 per worker in imports between 1998-2008 results in a 3.6 percentage points decline in the overall share of employment, significant at the 5 percent level. Given an average increase of $170 per worker during this period, this means that exposure to Chinese imports decreased the share of employment in the working-age population by 0.61 percentage point (0.17*3.61). Put differently, the employment share in local labor markets at the 75th

percentile of exposure to imports declined by 0.43 percentage point more than a labor market at the 25th percentile of exposure to Chinese imports (0.12*3.61). In comparison, Autor et al. (2013) found that manufacturing employment in a U.S. commuting zone at the 75th percentile of import exposure was reduced by 0.65 percentage point compared to a commuting zone at the 25th exposure percentile. The results in Table 4 suggest that the increase in import competition due to China's entry into the global market had a persistent and long-lasting effect on employment. It is, however, unclear whether the decrease in the employment share is distributed equally across workers who differ by gender or education.[15]

Overall, the results in Table 4 show that the estimates are robust to the inclusion of demographic controls, pre-trends, and to using the Two-Stage Least Squares specification. In the following sections, we report results from the most conservative specification used in Column 3 of Panels C and D.

5.2 Effects of Import Competition by Gender

In Table 5, we report the effects of Chinese import competition estimated separately by gender and education group.[16] The results show that short-term exposure to Chinese imports lowered the employment share of both female and male workers. In particular, the results in Column 1 suggest that an increase of $20 per worker between 1998-2004 is associated with a 0.26 (0.02*13.04) percentage point decline in the share of employed women in the working-age population, which is about a 0.7 percent decline relative to the mean female employment share in 1998. For men, the results in Column 4 suggest that the same increase in Chinese imports per worker is associated with a 0.15 (0.02*7.745) percentage point decline in the share of employed men in the working-age population, which is about a 0.35 percent decline relative to the average share of male employment in 1998. Thus, in relative terms,

[15] In Appendix Table A1 we report results for the 1998-2012 period and the 1998-2016 period. The results in Column 3 indicate that the negative effect of Chinese imports on total employment shares persisted through 2012, with some evidence that the effect becomes smaller and less precisely estimated by 2016.

[16] The F-test for the instrument is similar to the one reported in Table 4.

the short-run effect of Chinese imports on female employment was twice as large as for men.

The long-run effects of exposure to Chinese imports show that an average increase of $170 per worker reduced the employment share of women by 0.38 (0.17*2.245) percentage point, which is about a 1 percent decline relative to the 1998 average share of female employment in the working-age population. This result suggests that the short-run effects of Chinese import competition for women are persistent over time, indicating a lack of full adjustment to the new labor market conditions. In contrast, the long-run effects on men are smaller and are imprecisely estimated. Taken at face value, the estimates for men imply that the same average exposure to Chinese imports per worker during 1998-2008 led to a 0.5 percent decline in their employment share (0.17*1.369/43.83). To sum, both the short- and long-run effects of increased import competition from China are associated with a widening of the gender gap in the employment share. In comparison, Pieters (2018) found that trade liberalization in Brazil did not impact women's relative position compared to men in the labor market.

Since the measure of employment we use captures workers in both the formal and informal sectors, we would expect that the long-run decline in the employment share of women would lead to a decline in their labor force participation. This is exactly what the results in Table 6 indicate. Specifically, the short-run increase in Chinese imports is associated with a 0.22 (0.02*11.021) percentage point decline in the share of women who participate in the labor force, significant at the 5 percent level. This implies about a 0.6 percent decline relative to the average female labor force participation in 1998. Similarly, between 1998 and 2008, the increase in Chinese imports is associated with a 0.39 (0.17*2.314) percentage point decline in the labor force participation of women, or about a 1 percent decrease relative to the mean in 1998. The results are smaller in magnitude and not precisely estimated for men.

The results in Tables 5 and 6 suggest that there are also important differences by education. Low-educated workers are defined as individuals who have a high school education or below, while high-educated workers are defined as those with above a high school degree. Although we lose precision when we control for pre-trends, the estimates by education show

that the main results are driven by low-educated women, with little evidence that China's entry negatively impacted the employment share of highly-educated women.

5.3 Sectoral Reallocation

The Non-tradable Sector. Thus far, the results indicate that exposure to Chinese import competition led to a persistent decline in the employment share of women, with suggestive evidence that low-educated women were more heavily impacted. This result, in turn, suggests that expanding tradable industries and movement into the non-tradable sector (e.g., non-tradable services) were not able to absorb all displaced women. To further examine the ability of workers to move across sectors, we estimate equation 2 separately for the tradable and non-tradable sectors for low-educated and high-educated workers and report the results in Table 7. Reassuringly, the results indicate that the decline in the share of employed women is concentrated in the tradable sector and among low-educated workers.

The results in Panel A for low-educated workers imply that an average increase of $20 per worker in Chinese imports between 1998 and 2004 is associated with a 0.38 percentage point (0.02*18.936) decline in the employment share of women the tradable sector, significant at the 5 percent level. Relative to the mean share of employed women in the tradable sector in 1998, this implies a decrease of about 2 percent. The effect of increasing Chinese imports is more substantial over the 1998-2008 period and indicates that, on average, it is associated with a 3.7 percent decline (0.17*3.944/18.28), significant at the 1 percent level. However, the results also suggest that some low-educated workers were able to move into the non-tradable sector. In the long-run, an average increase of $170 per worker in Chinese imports is associated with a 2.8 percent increase in the share of low-educated women employed in the non-tradable sector, relative to the average share in 1998. The results in Panel B of Table 7 provide little evidence that high-educated female workers were impacted by Chinese imports.

Although there is suggestive evidence that the share of male employment decreased be-

tween 1998-2004 (Panel A, Columns 2 and 4 of Table 7), there is little evidence that these effects persist when we estimate the long-run effects of Chinese imports between 1998-2008. Importantly, the results do not indicate that men reallocate between the tradable and non-tradable sectors after exposure to trade. Thus, the results for men suggest that those who were initially displaced due to increased Chinese imports were able to move into other expanding industries within the tradable sector.

The Informal Sector. Another margin of adjustment considered by the literature in developing countries is reallocation of workers to the informal sector (Menezes-Filho and Muendler, 2011; Ferreira et al., 2010). We follow the methodology used by the Peruvian Ministry of Labor and define informal work to include dependent employees without health insurance provided by the employer and independent workers in firms with 5 or fewer employees. In Table 8 we report estimates of equation 2 for low-educated workers separately for the formal and informal sectors.[17] The results indicate that exposure to Chinese imports reduced the employment share of both male and female workers in the formal sector (Columns 1-3). There is also some evidence, although not statistically significant, of an increase in the employment share of workers in the informal sector. However, this pattern of reallocation from the formal to the informal sectors does not persist when we analyze the impact of exposure to Chinese imports during the 1998-2008 period (Panel B).

5.4 Robustness Checks

Retirement Decision. The long-term impact of import competition on the employment share of female workers could simply reflect a decision to retire early by older workers. In Appendix Table A6 we estimate the impact of the increase in Chinese imports by age groups where Panel A reports estimates for low-educated workers aged 25-40 and Panel B reports estimates for low-educated workers aged 41-55. The results provide little evidence that the

[17]The effects for high-educated workers are shown in Appendix Table A4. For high-educated workers there is no evidence of reallocation from the formal to the informal sector.

long-term decline in employment shares are concentrated among older workers. In fact, the results indicate that the decline in employment was larger among younger workers in the tradable sector.[18]

Employment Rates. As we discussed in Section 4, and consistent with prior literature, we do not use employment rates (calculated as a percentage of the group-specific population) when measuring the impact of trade exposure (Autor et al., 2013; Gaddis and Pieters, 2017). This is because exposure to trade can impact the educational distribution in the population (which would change the group-specific denominator) as shown by Atkin (2016).[19] Nonetheless, the results are robust to using employment rates as the dependent variable as seen in Appendix Tables A8 and A9.

Specifically, the results in Appendix Table A8 indicate that between 1998-2004, a $20 increase in imports per worker is associated with a 0.38 percentage point decline in the employment rate of women, which is about a 0.5 percent decrease relative to the mean employment rate in 1998. While male workers experienced a similar decline in their employment rate in the short-run, the long-term adjustment differs between men and women. Specifically, an increase of $170 in imports per worker during 1998-2008 is associated with a 0.86 percent decrease in the employment rate of women relative to the mean (0.17*3.473/68.54). In contrast, the same increase in imports per worker is associated with a 0.49 percent decrease in the employment rate for men. Importantly, while the increase in imports is associated with a 0.9 percent decrease in the labor force participation of women (0.17*3.737/70.64), it has a significantly smaller effect on the labor force participation of men. The divergent paths by gender are even starker when we focus on low-educated workers in the tradable and non-tradable sectors. The results in Appendix Table A9 provide strong evidence that while the employment rate for women in the tradable sector decreased by about 3.8 percent

[18] The results are very similar if we expand the sample to inlude workers aged 25-65.

[19] In Table A7, we report results from estimating the impact of exposure to Chinese imports on the share of low- and high-educated people in the population. Although the results are not precisely estimated, there is some evidence that exposure to trade is associated with a decline in the share of low-educated women and an increase in the share of high-educated women.

(0.17*8.246/36.81) between 1998-2008, there is little evidence of a lasting effect on male workers.

Alternative Set of Instruments. One potential concern is that our IV strategy is invalid if border countries in South America have similar demand patterns compared to Peruvian demand. To overcome this issue, we construct alternative sets of instruments that use information on Chinese imports to other upper-middle income countries that are not in Latin America, but that have similar GDP per capita as Peru.[20] The results are shown in Appendix Table A10 decomposed by sector and gender. Similar to the baseline estimates, the effects are persistent only for low-educated female workers.

6 Mechanisms

6.1 Industrial and Occupational Composition

The ability of workers to move into the non-tradable sector due to increased Chinese competition seems to be vital in understanding the differentiated persistence of the import competition shock by gender. Importantly, the possibility of reallocation likely depends on the industrial composition of the local labor market and the characteristics of the displaced workers, including their willingness to migrate in search of employment.

To examine the role of local labor market characteristics, we interact ΔIPW_{it} with an indicator equal to 1 if the 1998 share of the non-tradable sector in market i is above the median share across all local labor markets and zero otherwise. The results in Column 1 of Table 9 suggest that the long-term decline in the employment share of women is significantly smaller in markets with a larger non-tradable sector. In contrast, a larger share of non-tradable sector does not seem to impact the employment share of men. This result is another indication that while men can mitigate trade-induced displacements by moving to other expanding sectors within the tradable sectors, the lack of job-market opportunities in the

[20] We use information on Chinese imports to Malaysia and Turkey.

non-tradable sector is an important mechanism that prevents women from adjusting to increased import competition.

In Column 2 of Table 9 we interact ΔIPW_{it} with an indicator equal to 1 if the 1998 share of the manufacturing sector in market i is above the median share across all local labor markets and zero otherwise. Interestingly, the results in Columns 2 and 5 suggest that working in a labor market with a higher share of employment in the manufacturing sector is beneficial to both men and women. Thus, differences in the share of manufacturing employment across labor markets cannot explain the differential adjustments of men and women. The results do not significantly change if we include both interaction terms in the regression (Columns 3 and 6). The interpretation is that even when we condition on having a labor market with a high share of manufacturing employment, an increase in the share of the non-tradable sector allows women, but not men, to mitigate the effects of trade-induced displacements.

Differences in the ability to move sectors between women and men could simply reflect differences in other characteristics that are correlated with gender. In fact, low-educated women in the tradable sector in 1998 work, on average, in lower skilled occupations compared to men and are more likely to be informally employed.[21]

To examine the role of occupational composition, we interact ΔIPW_{it} with an indicator equal to 1 if the 1998 share of low-skilled employment in market i is above the median share across all local labor markets and zero otherwise. We report the results in Appendix Table 10. Although the estimate on the interaction term in Column 1 of Panel A is not significant, it is positive and suggests that larger share of low-skilled occupations could help women to mitigate the effects of trade. Similarly, the results indicate that women in markets with initially above median share of informal employment do not experience long-term declines

[21] We define low-skilled occupations as elementary occupations (ISCO-08 classification code 9). While over 50 percent of low-educated women are employed in low-skilled occupations, only 21 percent of low-educated men work in these occupations. Similarly, while 69 percent of low-educated women in the tradable sector report to be informally employed, only 31 percent of low-educated men in the tradable sector are informally employed. On average, low-educated men and women in the tradable sector are of the same age and are equally likely to be married and have children.

in their employment. Interestingly, the share of informal employment in the market has the opposite effects on men. Although there is little evidence that, on average, the number of women in informal jobs go up, the evidence in Table 10 suggests that women in markets with a higher share of informal jobs might be able to mitigate the effects of the import shock. Thus, the results support the hypothesis that the availability of low-skilled jobs and informal jobs might explain differences in the adjustments of men and women.

6.2 Migration

Exposure to Chinese imports can induce workers to move from high impacted areas to labor markets with expanding employment opportunities. It is thus important to examine whether differences in the effects of trade on the employment shares of men and women simply reflect differences in migration patterns by gender. For example, our estimates on the effects of Chinese imports on the share of employed men in the working-age population would be biased towards zero if it is easier for displaced men to migrate. Conversely, our estimates on the effects of Chinese imports on the share of employed women would be upwardly biased if the cost of migration was lower for high-productive female workers. Thus, the implications of internal migration for our estimates are empirically ambiguous and depends on the migration patterns that exposure to trade induces.

To examine the effects of Chinese imports on migration, we use information from the 2007 Peruvian Census on the district of residence in 2002 (i.e., five years before the Census date). Given districts are contained within a province, we are able to create migration rates consistent with our local labor market definition. Specifically, migration rates between 2002 and 2007 are calculated as the share of people who changed their local labor market of residence divided by the local labor market's working-age population (ages 25-55). In order to measure the potential short- and long-run responses to trade during this period, we re-calculate the short-run exposure to Chinese imports to cover the period 1998-2002 instead of 1998-2004. The results in Table 13 show little evidence that the increase in Chinese

import competition, either in the short- or long-run, is associated with an increase in overall migration rates. Importantly, the results by gender or education are not economically nor statistically significant. These results indicate that gendered-selective migration is unlikely to explain differences in the effects of Chinese imports on employment outcomes and is consistent with previous literature which found that mobility responses to labor market shocks tend to be slow, especially among lower-skilled workers (Blanchard and Katz, 1992; Glaeser and Gyourko, 2005; Notowidigdo, 2011; Autor et al., 2013).[22]

7 Conclusion

Previous research on the relationship between trade liberalization and gender inequality in the labor market has produced conflicting results. For instance, Autor et al. (2018) shows that low-skilled men in the U.S. faced more significant displacements rates compared to women; and Juhn et al. (2014) provide evidence that tariff reductions in Mexico due to NAFTA reduced demand for physically demanding skills and increased the labor demand for women. In contrast, Gaddis and Pieters (2017) found that trade liberalization in Brazil did not improve the relative standing of women compared to men. These conflicting findings are perhaps not surprising considering that the relationship between trade liberalization and employment depends on the type of industries that contracted due to increased import competition, the type of industries that expanded because of increased exports, and the adjustment possibilities in the labor market.

In this paper, we examine the impact of China's entry into the WTO on the short- and long-run labor market outcomes of men and women in Peru. Our empirical approach follows that of Autor et al. (2013) where we use variation in exposure to Chinese imports across Peruvian local labor markets based on their initial industrial composition before China

[22] According to Yamada (2010), migration within departments was about 4.5 percent during 2002 to 2007, and is related to households moving to take advantage of booming departments, to which commuting will be cumbersome.

entered the global market. The analysis at the local labor market level enables us to estimate the overall impact of trade, including sorting into expanding industries, and exit from the labor force.

Our results indicate that exposure to Chinese imports led to a short-run decline in the employment rates of both women and men. We find, however, that while there is no long-run impact on the employment rate of men, the decline in the employment rate of low-educated women is persistent. Although some women can move into the non-tradable sector, this adjustment cannot offset the adverse effects of trade on the share of women's employment. As a result, exposure to trade leads to a decline in their labor force participation. We also find that the decline in the share of women's employment in labor markets exposed to import competition is stronger in areas with an initial lower share of employment in the non-tradable sector. This indicates that the lasting employment effects of women are related to a lack of labor market opportunities and the ability to move to the non-tradable sector.

Our findings highlight the importance of considering not only the short-run labor market impact of trade policies, but also examine labor market frictions that could differentially affect workers, especially those in a vulnerable position. In particular, countries that are actively working to close the gender gap should consider the long-lasting effect of trade shocks carefully, as these might hinder the efficacy of their own policies.

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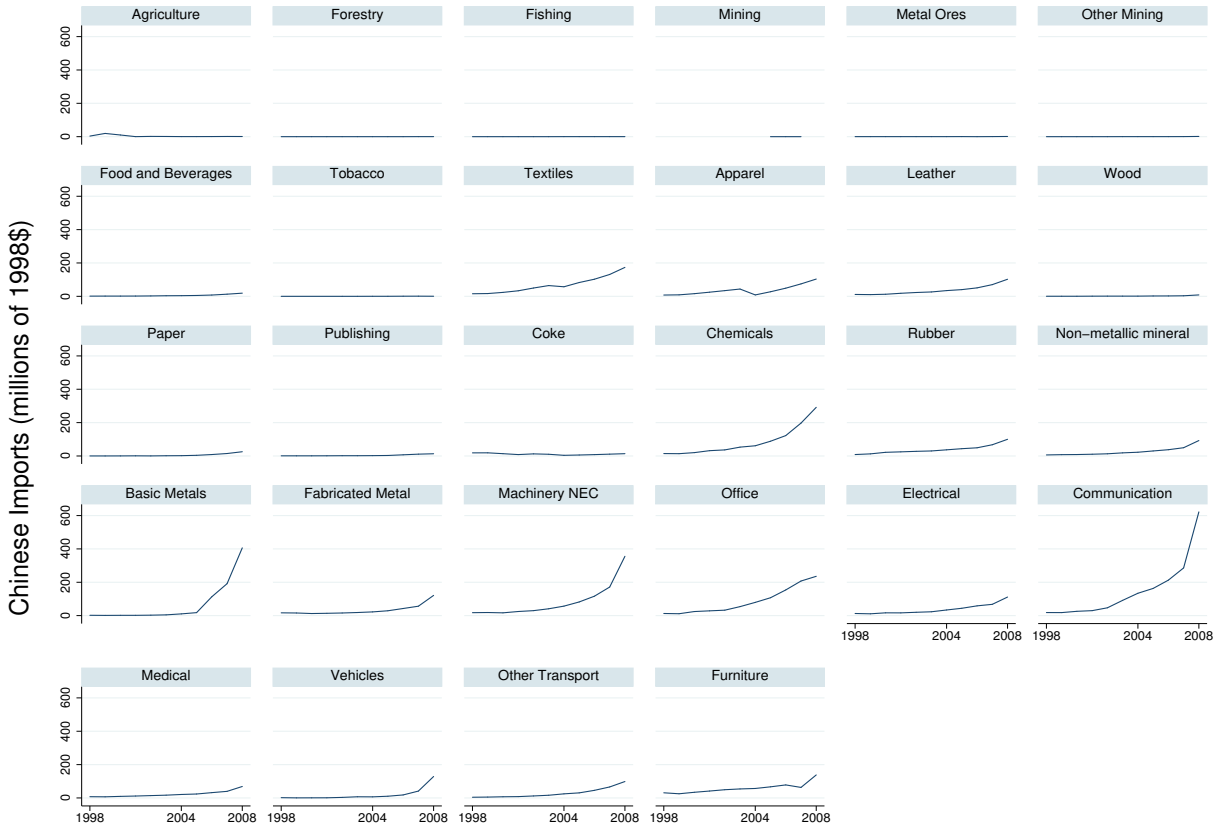
Figure 1: Chinese Imports by Industry



Source: UN Comtrade.
Notes: Industries are defined at the two-digit CIIU Rev 3.1. level

Figure 2: ΔIPW by Local Labor Market

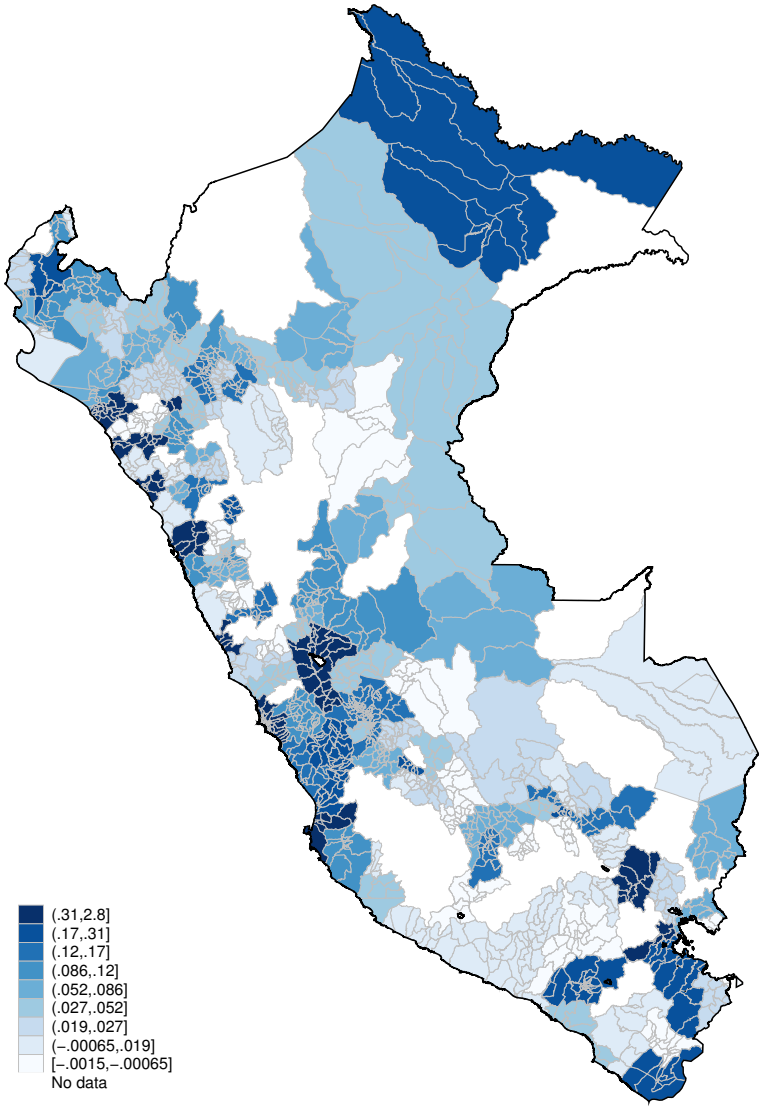
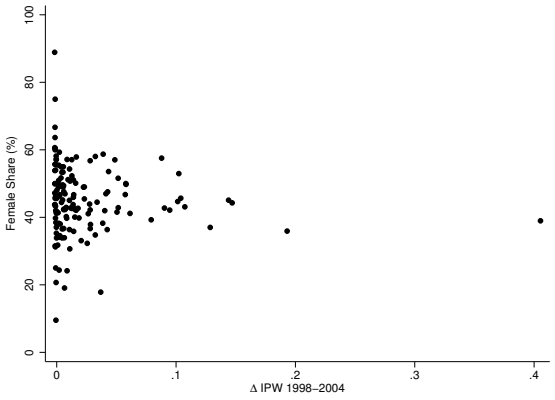


Figure 3: Female Share and ΔIPW

(a) $IPW98-04$



(b) $IPW98-08$

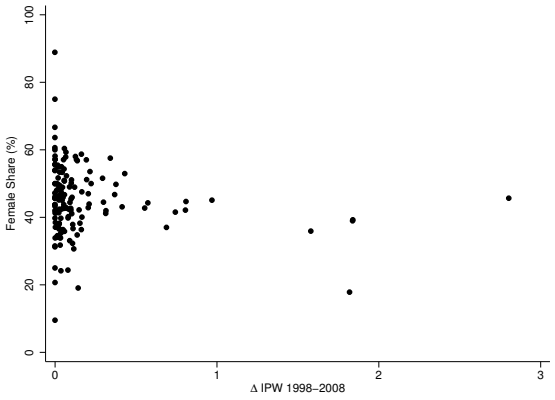
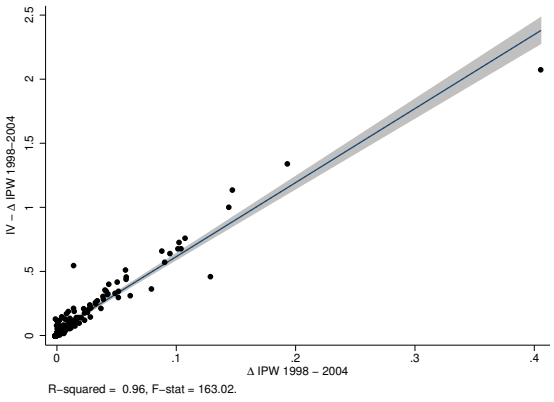
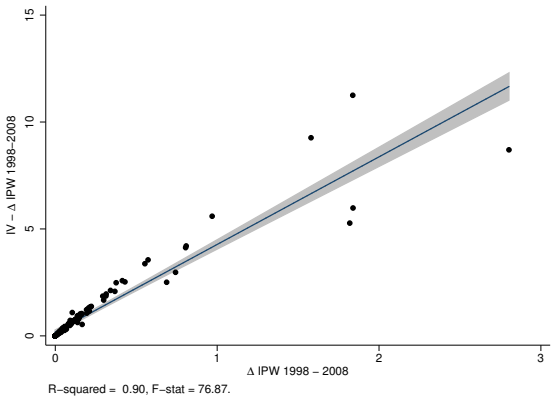


Figure 4: IV Strategy

(a) $IPW98-04$



(b) $IPW98-08$



Notes: R-squared and F-stat come from a regression that includes all controls as in Equation 2.

Table 1: Chinese Import Competition

	Bilateral Trade (Millions of 1998 US$)	
	Imports China	Imports ROW
A: Peru		
1998	213.3	8,007.0
2004	679.7	8,258.3
2008	3,233.2	20,552.9
Growth 1998-2008	1,416%	156.7%
B: LATAM countries		
1998	3,355.8	127,337.5
2004	8,477.8	112,285.6
2008	33,237.6	249,712.0
Growth 1998-2008	890%	96.1%

Notes: Data source is UN Comtrade. Values are in Millions of 1998 US dollars. Panel A shows the values of annual Peruvian imports from China (Column 1) and from the Rest Of the World (Column 2). Panel B shows these values for Latin American countries sharing a border with Peru: Argentina, Bolivia, Brazil, Chile, Colombia and Ecuador.

Table 2: Descriptive Statistics on Labor Market Outcomes, By Gender

	Female			Male		
	1998	2004	2008	1998	2004	2008
Labor Force Participation	68.2	74.2	76.5	94.4	95.1	95.8
Total Employment Rate	65.7	71.3	73.9	91.9	92.4	93.8
Share in Tradables	25.9	27.9	27.8	46.6	48.0	45.9
Share in Non-tradables	39.7	43.4	46.0	45.3	44.4	47.9
Low-Educated Employment Rate	65.0	70.9	73.3	93.7	93.8	94.8
Share in Tradables	29.5	33.3	33.8	54.24	56.5	55.0
Share in Non-tradables	35.5	37.6	39.5	39.4	37.3	39.8
High-Educated Employment Rate	70.5	72.8	74.9	90.9	89.5	91.5
Share in Tradables	10.5	10.3	12.4	25.2	26.4	25.9
Share in Non-tradables	59.9	62.5	62.5	65.6	63.1	65.6

Notes: Data source is ENAHO. Employment rate is defined as the ratio between the number of working-age (25-55) individuals employed in a demographic group divided by the population in the given demographic group, multiplied by 100

Table 3: Import Penetration per Worker (in thousands of dollars)

Panel A: Δ IPW

	Mean	Median	S.Dev.	p75-p25	N
Δ IPW 98-04	0.02	0.01	0.05	0.03	146
Δ IPW 98-08	0.17	0.05	0.39	0.12	146

Panel B: Δ IPW 98-08 by Local Labor Market

Top 10		Bottom 10	
LLM	Δ IPW 98-08	LLM	Δ IPW 98-08
1. Pisco, Ica	2.803	1. Moho, Puno	-0.001
2. Santa, Ancash	1.839	2. Recuay, Ancash	-0.001
3. Callao, Callao	1.838	3. Candarave, Tacna	-0.001
4. Yauli, Junín	1.819	4. Asunción, Ancash	-0.001
5. Barranca, Lima	1.580	5. Grau, Apurímac	-0.001
6. Pasco, Pasco	0.969	6. Vilcas Huamán, Ayacucho	-0.001
7. Trujillo, La Libertad	0.805	7. Chincheros, Apurímac	-0.001
8. Pacasmayo, La Libertad	0.688	8. Chepén, La Libertad	-0.001
9. Contumaza, Cajamarca	0.573	9. Oyón, Lima	-0.001
10. Lambayeque, Chiclayo	0.554	10. Paruro, Cusco	-0.001

Notes: Data sources are COMTRADE and ENAHO. Where ΔIPW is defined following equation (1).

Table 4: Effect of China Trade Shock on Total Employment
Dependent Variable: Total Employment / Total LLM Pop * 100

	(1)	(2)	(3)
A: Reduced Form (1998-2004)			
Δ IPW	-24.563**	-16.290***	-17.721***
	(11.309)	(5.574)	(6.230)
B: Reduced Form (1998-2008)			
Δ IPW	-1.352	-3.266*	-3.275*
	(1.321)	(1.655)	(1.681)
C: IV Regressions (1998-2004)			
Δ IPW	-32.432**	-20.375**	-20.780***
	(15.573)	(8.296)	(7.927)
D: IV Regressions (1998-2008)			
Δ IPW	-1.732	-3.637**	-3.614**
	(1.247)	(1.427)	(1.510)
Mean Y in 98	80.81	80.81	80.81
Baseline Controls		X	X
Δ(2001-1998) Controls			X
F-test	218.21	106.53	96.34
Sample Size	146	146	143

Notes: Data are from the 1998-2008 ENAHO. The dependent variable is the difference in the total employment share between 2008 and 1998 at the local labor market level, where employment share is defined as the ratio between the number of working-age (25-55) individuals employed in a local labor market divided by the population in the given labor market, multiplied by 100. A marginal increase Δ IPW should be interpreted as an increase in one thousand dollars per worker. The mean Δ IPW between 1998 and 2004 is 0.02, and the interquartile change form the 25th to the 75th percentile is 0.03. The mean Δ IPW between 1998 and 2008 is 0.17, and the interquartile change form the 25th to the 75th percentile is 0.12. Baseline controls and pre-trends include: share of females, share of college graduates, share of workers in the tradable sector, and share of workers in the manufacture sector. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses.* p<0.10, ** p<0.05, *** p<0.01

Table 5: Effect of China Trade Shock on Employment by Gender and Education
Dependent Variable: Total Group Employment / Total LLM Pop * 100

	Female			Male		
	(1) All	(2) Low-Edu	(3) High-Edu	(4) All	(5) Low-Edu	(6) High-Edu
IV Regressions (1998-2004)						
Δ IPW	-13.035**	-15.225	1.565	-7.745*	-4.937	-2.163
	(5.174)	(9.888)	(7.712)	(4.701)	(8.547)	(8.058)
IV Regressions (1998-2008)						
Δ IPW	-2.245*	-1.720	-0.283	-1.369	-0.490	-0.586
	(1.166)	(1.168)	(0.934)	(0.966)	(1.183)	(1.271)
Mean Y in 98	36.98	31.80	5.18	43.83	35.44	8.40
Baseline Controls	X	X	X	X	X	X
Δ(2001-1998) Controls	X	X	X	X	X	X
F-test	96.34	96.34	96.34	96.34	96.34	96.34
Sample Size	143	143	143	143	143	143

Notes: Data are from the 1998-2008 ENAHO. The dependent variable is the difference in the total group employment share between 2008 and 1998 at the local labor market level, where employment share is defined as the ratio between the number of working-age (25-55) individuals employed in a local labor market divided by the population in the given labor market, multiplied by 100. A marginal increase Δ IPW should be interpreted as an increase in one thousand dollars per worker. The mean Δ IPW between 1998 and 2004 is 0.02, and the interquartile change form the 25th to the 75th percentile is 0.03. The mean Δ IPW between 1998 and 2008 is 0.17, and the interquartile change form the 25th to the 75th percentile is 0.12. Baseline controls and pre-trends include: share of females, share of college graduates, share of workers in the tradable sector, and share of workers in the manufacture sector. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses.* p<0.10, ** p<0.05, *** p<0.01

Table 6: Effect of China Trade Shock on Labor Force by Gender and Education
Dependent Variable: Total Group in Labor Force / Total LLM Pop * 100

	Female			Male		
	(1) All	(2) Low-Edu	(3) High-Edu	(4) All	(5) Low-Edu	(6) High-Edu
A: IV Regressions (1998-2004)						
Δ IPW	-11.021*	-13.146	1.414	-5.766	-2.075	-3.005
	(5.742)	(10.620)	(7.585)	(4.459)	(9.458)	(8.955)
B: IV Regressions (1998-2008)						
Δ IPW	-2.314**	-1.352	-0.722	-0.725	0.171	-0.600
	(1.124)	(1.317)	(0.922)	(0.866)	(1.257)	(1.293)
Mean Y in 98	38.08	32.62	5.45	44.73	36.15	8.58
Baseline Controls	X	X	X	X	X	X
Δ(2001-1998) Controls	X	X	X	X	X	X
F-test	96.34	96.34	96.34	96.34	96.34	96.34
Sample Size	143	143	143	143	143	143

Notes: Data are from the 1998-2008 ENAHO. The dependent variable is the difference in the total group labor force share between 2008 and 1998 at the local labor market level, where labor force share is defined as the ratio between the number of working-age (25-55) individuals in the labor force in a local labor market divided by the population in the given labor market, multiplied by 100. A marginal increase Δ IPW should be interpreted as an increase in one thousand dollars per worker. The mean Δ IPW between 1998 and 2004 is 0.02, and the interquartile change form the 25th to the 75th percentile is 0.03. The mean Δ IPW between 1998 and 2008 is 0.17, and the interquartile change form the 25th to the 75th percentile is 0.12. Baseline controls and pre-trends include: share of females, share of college graduates, share of workers in the tradable sector, and share of workers in the manufacture sector. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses.* p<0.10, ** p<0.05, *** p<0.01

Table 7: Effect of China Trade Shock on Employment by Education and Sector
Dependent Variable: Total Group Employment / Total LLM Pop * 100

	Tradable		Non-Tradable	
	(1) Female	(2) Male	(3) Female	(4) Male
	Panel A: Low-Educated			
IV Regressions (1998-2004)				
Δ IPW	-18.936**	-1.456	3.711	-3.481
	(8.596)	(8.787)	(4.547)	(5.132)
IV Regressions (1998-2008)				
Δ IPW	-3.944***	0.470	2.224*	-0.960
	(0.965)	(1.415)	(1.137)	(1.070)
Mean Y in 98	18.28	23.62	13.52	11.82
F-test	96.34	96.34	96.34	96.34
	Panel B: High-Educated			
IV Regressions (1998-2004)				
Δ IPW	-0.265	-2.314	1.830	0.151
	(1.292)	(4.241)	(7.267)	(5.128)
IV Regressions (1998-2008)				
Δ IPW	-0.094	0.360	-0.189	-0.947
	(0.281)	(0.634)	(0.904)	(0.964)
Mean Y in 98	0.66	2.46	4.51	5.93
Baseline Controls	X	X	X	X
Δ(2001-1998) Controls	X	X	X	X
F-test	96.34	96.34	96.34	96.34
Sample Size	143	143	143	143

Notes: Data are from the 1998-2008 ENAHO. The dependent variable is the difference in the total group employment share between 2008 and 1998 at the local labor market level, where employment share is defined as the ratio between the number of working-age (25-55) individuals employed in a local labor market divided by the population in the given labor market, multiplied by 100. A marginal increase Δ IPW should be interpreted as an increase in one thousand dollars per worker. The mean Δ IPW between 1998 and 2004 is 0.02, and the interquartile change form the 25th to the 75th percentile is 0.03. The mean Δ IPW between 1998 and 2008 is 0.17, and the interquartile change form the 25th to the 75th percentile is 0.12. Baseline controls and pre-trends include: share of females, share of college graduates, share of workers in the tradable sector, and share of workers in the manufacture sector. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses.* p<0.10, ** p<0.05, *** p<0.01

Table 8: Effect of China Trade Shock on Employment of
Low-Educated Workers by Informality
Dependent Variable: Total Group Employment / Total LLM Pop * 100

	Formal			Informal		
	(1) All	(2) Female	(3) Male	(4) All	(5) Female	(6) Male
A: IV Regressions (1998-2004)						
Δ IPW	-29.842**	-20.326	-9.515	8.287	2.043	6.244
	(15.157)	(15.789)	(7.361)	(14.041)	(9.236)	(7.046)
B: IV Regressions (1998-2008)						
Δ IPW	-1.302	-1.821	0.518	-1.122	-0.285	-0.836
	(1.552)	(1.146)	(1.548)	(2.237)	(1.203)	(2.046)
Mean Y in 98	41.09	17.72	23.37	29.85	17.49	12.36
Baseline Controls	X	X	X	X	X	X
Δ(2001-1998) Controls	X	X	X	X	X	X
F-test	96.34	96.34	96.34	96.34	96.34	96.34
Sample Size	143	143	143	143	143	143

Notes: Data are from the 1998-2008 ENAHO. The dependent variable is the difference in the total group employment share between 2008 and 1998 at the local labor market level, where employment share is defined as the ratio between the number of working-age (25-55) individuals employed in a local labor market divided by the population in the given labor market, multiplied by 100. A marginal increase Δ IPW should be interpreted as an increase in one thousand dollars per worker. The mean Δ IPW between 1998 and 2004 is 0.02, and the interquartile change form the 25th to the 75th percentile is 0.03. The mean Δ IPW between 1998 and 2004 is 0.17, and the interquartile change form the 25th to the 75th percentile is 0.12. Baseline controls and pre-trends include: share of females, share of college graduates, share of workers in the tradable sector, and share of workers in the manufacture sector. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses.* p<0.10, ** p<0.05, *** p<0.01

Table 9: Long-Term Impacts for Low-Educated Workers by Local Labor Market Characteristics
Dependent Variable: Total Employment / Total LLM Pop * 100

	Low-Educated Women			Low-Educated Men		
	(1)	(2)	(3)	(4)	(5)	(6)
IV Regressions (1998-2008)						
Δ IPW	-17.909**	-7.170***	-22.110***	3.405	-7.578**	-0.976
	(8.658)	(2.052)	(8.564)	(9.785)	(3.099)	(10.029)
Δ IPW * $> p(50)$ Sh NoTrade	16.087*		15.419*	-3.624		-5.391
	(8.249)		(8.218)	(9.792)		(9.967)
Δ IPW * $> p(50)$ Sh Manuf		5.814***	5.137**		8.066***	7.050**
		(2.237)	(2.327)		(3.111)	(3.111)
Mean Y in 98	31.80	31.80	31.80	35.44	35.44	35.44
Baseline Controls	X	X	X	X	X	X
Δ(2001-1998) Controls	X	X	X	X	X	X
Sample Size	143	143	143	143	143	143

Notes: Data are from the 1998-2004 ENAHO. The dependent variable is the difference in the total group employment share between 2008 and 1998 at the local labor market level, where employment share is defined as the ratio between the number of working-age (25-55) individuals employed in a local labor market divided by the population in the given labor market, multiplied by 100. A marginal increase Δ IPW should be interpreted as an increase in one thousand dollars per worker. The mean Δ IPW between 1998 and 2004 is 0.02, and the interquartile change form the 25th to the 75th percentile is 0.03. The mean Δ IPW between 1998 and 2008 is 0.17, and the interquartile change form the 25th to the 75th percentile is 0.12. Baseline controls and pre-trends include: share of females, share of college graduates, share of workers in the tradable sector, and share of workers in the manufacture sector. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses.* p<0.10, ** p<0.05, *** p<0.01 * p<0.10, ** p<0.05, *** p<0.01

Table 10: Effect of Trade Shock on Migration Rates 02-07

	All	Female	Male	Low Educated Female	Low Educated Male
A: IV Regressions (1998-2002)					
Δ IPW	-1.777	-0.743	-1.034	-0.344	-0.394
	(1.455)	(0.621)	(0.834)	(0.350)	(0.444)
B: IV Regressions (1998-2008)					
Δ IPW	0.099	0.043	0.056	0.024	0.032
	(0.232)	(0.099)	(0.133)	(0.052)	(0.064)
Baseline Controls	X	X	X	X	X
Δ(2001-1998) Controls	X	X	X	X	X
F-test	96.19	96.19	96.19	96.19	96.19
Sample Size	142	142	142	142	142

Notes: Migrations rates between 2002 and 2007 are constructed using the 2007 Population Census and the question of place of residence in 2002. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses.* p<0.10, ** p<0.05, *** p<0.01

Appendix For Online Publication

Table A1: Effect of China Trade Shock on Total Employment
Dependent Variable: Total Employment / Total LLM Pop * 100

	(1)	(2)	(3)
A:Reduced Form (1998-2012)			
Δ IPW	0.277	-1.820***	-1.756***
	(0.644)	(0.546)	(0.602)
B:Reduced Form (1998-2016)			
Δ IPW	0.419	-1.402**	-0.814
	(0.628)	(0.591)	(0.549)
C:IV Regressions (1998-2012)			
Δ IPW	0.175	-1.963***	-1.924***
	(0.641)	(0.535)	(0.568)
D: IV Regressions (1998-2016)			
Δ IPW	0.307	-1.488**	-0.811
	(0.593)	(0.592)	(0.495)
Mean Y in 98	80.81	80.81	80.81
Baseline Controls		X	X
Δ(2001-1998) Controls			X
F-test	1917.35	1453.24	1499.77
Sample Size	147	147	144

Notes: Data are from the 1998-2016 ENAHO. The dependent variable is the difference in the total employment rate between 2008 and 1998 at the local labor market level, where employment rate is defined as the ratio between the number of working-age (25-55) individuals employed in a local labor market divided by the population in the given labor market, multiplied by 100. A marginal increase Δ IPW should be interpreted as an increase in one thousand dollars per worker. The mean Δ IPW between 1998 and 2012 is 0.33, and the interquartile change form the 25th to the 75th percentile is 0.28. The mean Δ IPW between 1998 and 2016 is 0.31, and the interquartile change form the 25th to the 75th percentile is 0.28. Baseline controls and pre-trends include: share of females, share of college graduates, share of workers in the tradable sector, and share of workers in the manufacture sector. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses.* p<0.10, ** p<0.05, *** p<0.01

Table A2: Summary of Rotemberg Weights

Panel A: Total, Negative and positive weights				
	Sum	Mean	Share	
Total	1.000	0.018		
Negative	-0.048	-0.001	0.044	
Positive	1.048	0.065	0.956	
Panel B: Top 5 Rotemberg weight industries				
	$\hat{\alpha}_k$	g_k	$\hat{\beta}_k$	
Basic Metals	0.385	197.440	-1.499	0.063
Rubber and Plastics Products	0.230	279.465	-5.619	0.020
Machinery and equipment n.e.c.	0.132	88.591	-5.110	0.157
Other Transport Equipment	0.086	43.515	-4.007	0.062
Electrical Machinery n.e.c.	0.080	83.181	-5.308	0.086

Table A3: Relationship between Industry Share and Labor Market Characteristics

	Basic Metals	Rubber and Plastics Products	Machinery and equipment n.e.c.	Other Transport Equipment	Electrical machinery n.e.c.
Female Share	-0.003	-0.000	-0.002	-0.001	-0.000
	(0.003)	(0.000)	(0.003)	(0.001)	(0.000)
Share College Educated	0.004	0.001	0.009	0.002	0.002*
	(0.002)	(0.001)	(0.007)	(0.001)	(0.001)
Share Employment in Tradables	-0.000	-0.000	-0.001*	-0.001	-0.000
	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)
Share of Employment in Manufacturing	0.002	0.000	0.003	0.002	0.001
	(0.002)	(0.000)	(0.002)	(0.001)	(0.001)
N. Obs	147	147	147	147	147

Table A4: Effect of China Trade Shock on Employment of
High-Educated Workers by Informality
Dependent Variable: Total Group Employment / Total LLM Pop * 100

	Formal			Informal		
	(1) All	(2) Female	(3) Male	(4) All	(5) Female	(6) Male
A: IV Regressions (1998-2004)						
Δ IPW	1.759	0.285	1.474	-0.970	2.938	-3.908
	(6.066)	(2.512)	(5.696)	(7.335)	(8.040)	(4.347)
B: IV Regressions (1998-2008)						
Δ IPW	0.515	0.344	0.171	-1.149	-0.414	-0.735
	(0.980)	(0.553)	(0.773)	(1.524)	(0.946)	(0.914)
Mean Y in 98	4.42	1.48	2.94	9.58	4.03	5.55
Baseline Controls	X	X	X	X	X	X
Δ(2001-1998) Controls	X	X	X	X	X	X
F-test	96.34	96.34	96.34	96.34	96.34	96.34
Sample Size	143	143	143	143	143	143

Notes: Data are from the 1998-2008 ENAHO. The dependent variable is the difference in the total group employment share between 2008 and 1998 at the local labor market level, where employment share is defined as the ratio between the number of working-age (25-55) individuals employed in a local labor market divided by the population in the given labor market, multiplied by 100. A marginal increase Δ IPW should be interpreted as an increase in one thousand dollars per worker. The mean Δ IPW between 1998 and 2004 is 0.02, and the interquartile change form the 25th to the 75th percentile is 0.03. The mean Δ IPW between 1998 and 2004 is 0.17, and the interquartile change form the 25th to the 75th percentile is 0.12. Baseline controls and pre-trends include: share of females, share of college graduates, share of workers in the tradable sector, and share of workers in the manufacture sector. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses.* p<0.10, ** p<0.05, *** p<0.01

Table A5: Effect of China Trade Shock on Employment of Low-Educated Workers by Age Group and Sector
Dependent Variable: Total Group Employment / Total LLM Pop * 100

	Tradable		Non-Tradable	
	(1) Female	(2) Male	(3) Female	(4) Male
	Panel A: Age: 25-40			
IV Regressions (1998-2004)				
Δ IPW	-55.283***	6.663	7.874	13.281
	(21.355)	(13.653)	(17.761)	(13.898)
IV Regressions (1998-2008)				
Δ IPW	-2.745**	-1.519	1.541	1.541
	(1.162)	(1.340)	(1.498)	(0.996)
Mean Y in 98	17.04	22.76	13.17	11.44
F-test	179.13	179.13	179.13	179.13
	Panel B: Age: 41-55			
IV Regressions (1998-2004)				
Δ IPW	-1.649	-2.639	-5.811	-5.656
	(4.032)	(4.351)	(3.997)	(3.755)
IV Regressions (1998-2008)				
Δ IPW	-0.611***	0.748***	0.302	-1.004***
	(0.170)	(0.189)	(0.420)	(0.187)
Mean Y in 98	19.47	25.49	14.59	11.72
Baseline Controls	X	X	X	X
Δ(2001-1998) Controls	X	X	X	X
F-test	99.21	99.21	99.21	99.21
Sample Size	142	142	142	142

Notes: Data are from the 1998-2008 ENAHO. The dependent variable is the difference in the total group employment share between 2008 and 1998 at the local labor market level, where employment share is defined as the ratio between the number of working-age (25-55) individuals employed in a local labor market divided by the population in the given labor market, multiplied by 100. A marginal increase Δ IPW should be interpreted as an increase in one thousand dollars per worker. The mean Δ IPW between 1998 and 2004 is 0.02, and the interquartile change form the 25th to the 75th percentile is 0.03. The mean Δ IPW between 1998 and 2008 is 0.17, and the interquartile change form the 25th to the 75th percentile is 0.12. Baseline controls and pre-trends include: share of females, share of college graduates, share of workers in the tradable sector, and share of workers in the manufacture sector. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses.* p<0.10, ** p<0.05, *** p<0.01

Table A6: Effect of China Trade Shock on Educational Shares
Dependent Variable: Population by Education Level / Total LLM Pop * 100

	Low-Educated		High-Educated	
	(1) Female	(2) Male	(3) Female	(4) Male
A: IV Regressions (1998-2004)				
Δ IPW	-14.658	8.632	10.669	-1.731
	(9.093)	(13.746)	(7.640)	(10.665)
B: IV Regressions (1998-2008)				
Δ IPW	-1.120	0.775	1.205*	-0.393
	(1.119)	(1.253)	(0.671)	(1.120)
Mean Y in 98	46.09	37.29	7.45	9.17
Baseline Controls	X	X	X	X
Δ(2001-1998) Controls	X	X	X	X
F-test	106.53	106.53	106.53	106.53
Sample Size	146	146	146	146

Notes: Data are from the 1998-2004 ENAHO. The dependent variable is the difference in the total population share by education level between 2008 and 1998 at the local labor market level, where this share is defined as the ratio between the number of working-age (25-55) individuals low or high-educated in a local labor market divided by the population in the given labor market, multiplied by 100. A marginal increase Δ IPW should be interpreted as an increase in one thousand dollars per worker. The mean Δ IPW between 1998 and 2004 is 0.02, and the interquartile change form the 25th to the 75th percentile is 0.03. The mean Δ IPW between 1998 and 2004 is 0.17, and the interquartile change form the 25th to the 75th percentile is 0.12. Baseline controls and pre-trends include: share of females, share of college graduates, share of workers in the tradable sector, and share of workers in the manufacture sector. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses.* p<0.10, ** p<0.05, *** p<0.01 * p<0.10, ** p<0.05, *** p<0.01

Table A7: Effect of China Trade Shock on Employment Rate and LFP
Dependent Variable: Total Group Employment or LFP / Total Group Pop * 100

	Female		Male	
	(1) Emp Rate	(2) LFP Rate	(3) Emp Rate	(4) LFP Rate
A: IV Regressions (1998-2004)				
Δ IPW	-19.203*	-15.249	-22.922***	-18.674**
	(10.642)	(11.040)	(8.284)	(7.662)
B: IV Regressions (1998-2008)				
Δ IPW	-3.473	-3.737*	-2.772**	-1.373
	(2.426)	(2.224)	(1.096)	(1.042)
Mean Y in 98	68.54	70.64	94.33	96.21
Baseline Controls	X	X	X	X
Δ(2001-1998) Controls	X	X	X	X
F-test	96.34	96.34	96.34	96.34
Sample Size	143	143	143	143

Notes: Data are from the 1998-2008 ENAHO. The dependent variable is the difference in the total employment rate between 2008 and 1998 at the local labor market level, where employment rate is defined as the ratio between the number of working-age (25-55) individuals employed in a local labor market divided by the population in the given labor market, multiplied by 100. A marginal increase Δ IPW should be interpreted as an increase in one thousand dollars per worker. The mean Δ IPW between 1998 and 2012 is 0.33, and the interquartile change form the 25th to the 75th percentile is 0.28. The mean Δ IPW between 1998 and 2016 is 0.31, and the interquartile change form the 25th to the 75th percentile is 0.28. Baseline controls and pre-trends include: share of females, share of college graduates, share of workers in the tradable sector, and share of workers in the manufacture sector. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses.* p<0.10, ** p<0.05, *** p<0.01

Table A8: Effect of China Trade Shock on Employment of Low-Educated Workers by Sector
Dependent Variable: Total Group Employment / Total Group Pop * 100

	Tradable		Non-Tradable	
	(1) Female	(2) Male	(3) Female	(4) Male
A: IV Regressions (1998-2004)				
Δ IPW	-27.846*	-18.664	21.118**	-11.642
	(14.926)	(13.172)	(9.955)	(23.882)
B: IV Regressions (1998-2008)				
Δ IPW	-8.246***	0.873	5.877***	-4.348
	(1.996)	(3.433)	(2.276)	(3.320)
Mean Y in 98	36.81	60.87	31.02	34.02
Baseline Controls	X	X	X	X
Δ(2001-1998) Controls	X	X	X	X
F-test	96.34	96.34	96.34	96.34
Sample Size	143	143	143	143

Notes: Data are from the 1998-2008 ENAHO. The dependent variable is the difference in the total employment rate between 2008 and 1998 at the local labor market level, where employment rate is defined as the ratio between the number of working-age (25-55) individuals employed in a local labor market divided by the population in the given labor market, multiplied by 100. A marginal increase Δ IPW should be interpreted as an increase in one thousand dollars per worker. The mean Δ IPW between 1998 and 2012 is 0.33, and the interquartile change form the 25th to the 75th percentile is 0.28. The mean Δ IPW between 1998 and 2016 is 0.31, and the interquartile change form the 25th to the 75th percentile is 0.28. Baseline controls and pre-trends include: share of females, share of college graduates, share of workers in the tradable sector, and share of workers in the manufacture sector. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses. * p<0.10, ** p<0.05, *** p<0.01

Table A9: Effect of China Trade Shock on Employment by Education and Sector with Alternative Set of Instruments
Dependent Variable: Total Group Employment / Total LLM Pop * 100

	Tradable		Non-Tradable	
	(1) Female	(2) Male	(3) Female	(4) Male
	Panel A: Low-Educated			
IV Regressions (1998-2004)				
Δ IPW	-22.434**	-6.178	1.277	0.729
	(10.049)	(5.978)	(7.014)	(6.852)
IV Regressions (1998-2008)				
Δ IPW	-3.589***	-0.048	2.405**	-0.595
	(1.012)	(1.473)	(1.221)	(1.069)
Mean Y in 98	18.28	23.62	13.52	11.82
F-test	124.03	124.03	124.03	124.03
	Panel B: High-Educated			
IV Regressions (1998-2004)				
Δ IPW	0.076	-0.343	0.618	0.574
	(1.762)	(3.815)	(6.769)	(5.758)
IV Regressions (1998-2008)				
Δ IPW	-0.392	0.302	-0.254	-0.546
	(0.376)	(0.605)	(0.931)	(1.013)
Mean Y in 98	0.66	2.46	4.51	5.93
Baseline Controls	X	X	X	X
Δ(2001-1998) Controls	X	X	X	X
F-test	124.03	124.03	124.03	124.03
Sample Size	143	143	143	143

Notes: Data are from the 1998-2008 ENAHO. The dependent variable is the difference in the total group employment share between 2008 and 1998 at the local labor market level, where employment share is defined as the ratio between the number of working-age (25-55) individuals employed in a local labor market divided by the population in the given labor market, multiplied by 100. A marginal increase Δ IPW should be interpreted as an increase in one thousand dollars per worker. The mean Δ IPW between 1998 and 2004 is 0.02, and the interquartile change form the 25th to the 75th percentile is 0.03. The mean Δ IPW between 1998 and 2008 is 0.17, and the interquartile change form the 25th to the 75th percentile is 0.12. Baseline controls and pre-trends include: share of females, share of college graduates, share of workers in the tradable sector, and share of workers in the manufacture sector. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses.* p<0.10, ** p<0.05, *** p<0.01

Table A10: Long-Term Impacts for Low-Educated Workers by Local Labor Market Characteristics
Dependent Variable: Total Employment / Total LLM Pop * 100

	(1)	(2)	(3)
A: IV Regressions for Low-Educated Women (1998-2008)			
Δ IPW	-2.270**	-3.497	-2.777
	(1.057)	(3.579)	(3.325)
Δ IPW * $> p(50)$ Sh LowSkill	2.145		2.336
	(1.924)		(1.908)
Δ IPW * $> p(50)$ Sh Informal		2.040	0.688
		(3.518)	(3.225)
Mean Y in 98	31.48	31.48	31.48
B: IV Regressions for Low-Educated Men (1998-2008)			
Δ IPW	0.069	7.462**	-9.886
	(1.297)	(3.602)	(17.380)
Δ IPW * $> p(50)$ Sh LowSkill	0.958		1.420
	(1.806)		(1.853)
Δ IPW * $> p(50)$ Sh Informal		-7.831**	-6.710*
		(3.498)	(3.488)
Mean Y in 98	35.44	35.44	35.44
Baseline Controls	X	X	X
Δ(2001-1998) Controls	X	X	X
Sample Size	143	143	141

Notes: Data are from the 1998-2004 ENAHO. The dependent variable is the difference in the total group employment share between 2008 and 1998 at the local labor market level, where employment share is defined as the ratio between the number of working-age (25-55) individuals employed in a local labor market divided by the population in the given labor market, multiplied by 100. A marginal increase Δ IPW should be interpreted as an increase in one thousand dollars per worker. The mean Δ IPW between 1998 and 2004 is 0.02, and the interquartile change form the 25th to the 75th percentile is 0.03. The mean Δ IPW between 1998 and 2008 is 0.17, and the interquartile change form the 25th to the 75th percentile is 0.12. Baseline controls and pre-trends include: share of females, share of college graduates, share of workers in the tradable sector, and share of workers in the manufacture sector. Each observation is weighted by 1998 local labor market population. Standard errors clustered at the local labor market level in parentheses.* p<0.10, ** p<0.05, *** p<0.01 * p<0.10, ** p<0.05, *** p<0.01