Gender effects of trade liberalization: Manufacturing job creation in China

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Extended Abstract

Many developing countries have been integrated into the world economy rapidly since the 1980s following comprehensive trade liberalization reforms. It follows that the economy adjusts accordingly to the increased imported competition and to a better access to the export market. In this process, workers and firms with different characteristics, however, may be affected differently. A large strand of literature has studied the distributional effects of trade liberalization in developing countries (Goldberg and Pavcnik, 2007). While those papers mainly focus on the differential effects on skilled and unskilled workers, relatively little is known about how male and female workers may adjust differently to trade liberalization. This paper aims at contributing to the understanding of the gender-specific effects of trade reforms by exploring China's trade liberalization in the 1990s and early 2000s and examining the employment effects and social outcomes for males and females.

China presents a plausible example to visit this question. In the early 1990s, the average tariff rate on imports was above 40 percent, with the tariff rates for some industries reaching as high as 150 percent. In 1995, China started its application for the WTO membership. To show its sincerity and to gain credibility from the negotiating partners, China reduced tariff rates substantially since then. After joining the WTO in December 2001, China further reduced its tariff rates to meet the commitments to the organization. The average tariff rate was reduced, for example, to 10 percent in 2005. Such a large reduction in tariff rates induced a tremendous increase in imports, which imposes large competition to domestic firms. It follows that employment may decrease if production shrinks due to imported competition, whereas firms may also increase employment if they react to stronger competition by investing more on technology upgrading and therefore expanding production. For the importing firms, lower tariff rates allow them to get an access to a larger variety of imported intermediate inputs at lower prices or with better quality, which helps them to improve productivity and increase employment. Following China's WTO accession, many countries also reduced tariff rates and other trade barriers that are imposed on Chinese products, which enables Chinese firms to expand their access to the export markets. Such an expansion is often associated with a rise in employment. While it is theoretically ambiguous whether net employment rises or falls,

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the trade liberalization induced labor demand shocks trigger worker reallocation across firms and sectors. In this paper, we consider both the reduction in import tariffs and export tariffs and try to disentangle different channels through which trade liberalization affects employment.

In the planned economy before early 1990s, the employment rate in China was quite high, with a relative small difference between male and female workers. For example, according to the 1990 population census, the employment rate for males was 90 percent and for females was 83 percent. Following series of comprehensive reforms towards the market economy, the employment rate decreased for both males and females but even more for female workers (Chi and Li, 2014). In this paper, we try to understand whether trade liberalization can explain such a decline in employment and the enlarging gender gap in employment.

We use the local labor market approach to uncover the differential adjustment of male and female workers following China's trade liberalization within prefectural-level cities. This approach has been widely used in recent years to examine the local labor market effects of import competition or tariff reductions (see e.g. Autor et al., 2013, Dix-Carneiro and Kovak, 2017, Kis-Katos et al., 2018, and Li, 2018 among others). It exploits variations in tariff rates reduction across industries and differences in industry composition across cities, and further relates labor market outcomes to a regional measure of tariff reduction. This approach allows one to investigate worker reallocation across sectors within regions. This is particularly important in the Chinese context due to the high across-region migration barriers with the presence of the household registration system. With a negative labor demand shock in one industry for example, workers may find it too costly to migrate to another region, rather they are more likely to end up by reallocating to a less affected industry within the same region. In this paper, we consider tariff rates reduction during the period between 1990 and 2005 and construct a prefectural-city level tariff rates reduction by using the employment share of each sector within cities in 1990 as weight. We particularly distinguish between input tariff rate, output tariff rates and export tariff rates, aiming to provide a clearer picture of how firms and workers adjust to both positive and negative trade shocks. Our main econometric specification is as follows:

$$\Delta emplsh_c = \alpha + \beta \Delta Tariff_c + \mathbf{X}_{c,0}\gamma_1 + \Delta X_{ct}\gamma_2 + \varepsilon_c \tag{1}$$

where $\Delta emplsh_c$ is the first difference of male/female employment rate for city c; $\Delta Tarif f_c$ is a set of city-level tariff rate changes; $\mathbf{X}_{c,0}$ indicates initial conditions: initial sector structure, initial SOE employment share, initial income level, etc; and ΔX_{ct} indicates changes in city-level characteristics that may affect the outcome variable, including rural population share, literacy rate, etc.

The main data sources of the outcome variable are the 1 percent sample of the 1990 population census and the 2005 mini population census. The rich individual-level information in these national representative datasets enables us to aggregate employment and other social-economic outcomes by gender to the city level and further link with the tariff rate measure. We also

employ the 1995 industrial census and the 2004 economic census to examine the gender-specific effects of trade liberalization from the perspective of manufacturing firms. Our tariff data is from the World Integrated Trade Solution (WITS) at industry level. We then use the Bartik approach and construct city-level measures of tariff rates reduction.

The preliminary results indicate that reductions in output tariffs increased female employment by relatively more than male employment in the local labor market, reducing the overall gender employment gap. In contrast, reductions in input tariffs and export tariffs appeared to have no significant impact on either the overall male or female employment. By distinguishing between manufacturing and non-manufacturing sectors, we find that all types of tariff rate reductions induced labor reallocation towards the manufacturing sector. Specifically, reductions in both output tariff rates and export tariff rates induced skilled workers to reallocate from non-manufacturing to the manufacturing sector, while reductions in input tariffs only induced such reallocation for unskilled workers. Both reductions in input tariffs and export tariffs are associated with higher employment growth for males than females, therefore increased gender employment gap in the manufacturing sector. Surprisingly, output tariff reductions increased manufacturing employment for both sexes, but increased female workers more than males, particularly for skilled workers. The positive employment effects of output tariff rates reduction are consistent with Brandt et al. (2017) and Rodriguez-Lopez and Yu (2017), both of which study tariff rate reductions in China, with the former finding that output tariff reduction has a positive impact on productivity and the latter finding that output tariff rate reduction has a net positive job creation effect.

Our empirical results based on the economic census data confirm our findings based on the population census data. We further distinguish firms by ownership types and find that SOEs responded differently to trade liberalization from private and foreign firms. Specifically, input tariff rate reduction is associated with lower employment while output tariff rate reduction is associated with lower employment while output tariff rate reduction is associated with lower employment while output tariff rate reduction is associated with lower employment while output tariff rate reduction is associated with lower employment while output tariff rate reduction is associate with higher employment for SOEs. In contrast, both private and foreign firms increase employment with a reduction in input tariffs, and private firms reduce employment with import competition. We find a pro-male effect for SOEs whereas gender employment gap appears to be lower with a reduction in import tariffs for both private and foreign firms.

In ongoing work, we investigate gender-specific responses in other socio-economic outcomes (e.g. fertility, marriage) and explore the channels behind such differential responses with the final goal to provide additional empirical evidence to the growing literature on the gender-specific effects of globalization.

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