

# Labor Market Implications of Taiwan's Accession to the WTO: A Dynamic Quantitative Analysis

## Online Appendix

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### A Calibration: Alternative Specifications

In estimating the labor transition elasticity in the main text, we have assumed the transition costs to follow the specification in equation (33). We also consider alternative specifications where the transition costs across sectors differ conditional on the origin-skill type. In particular, the transition cost function is assumed to be:

$$\begin{aligned}\rho^{js,ki} &= 0 \text{ if } k = j, i = s; \\ &= \rho_1^{s,i} \text{ if } k = j, i \neq s; \\ &= \rho_{2,s}^{j,k} \text{ if } k \neq j, i = s; \\ &= \rho_1^{s,i} + \rho_{2,s}^{j,k} + \rho_{3,s} \text{ if } k \neq j, i \neq s.\end{aligned}\tag{A.1}$$

The alternative estimation results are reported in Table A.1. In Stage 1, based on estimations of equation (32) and the switching-cost specification in equation (A.1), we find that as in the benchmark result, the skill-upgrading cost is higher from low to middle skill than

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from middle to high skill, but the difference is not statistically significant. Figures A.1–A.3 summarize the sector-to-sector switching costs (origin-sectors on the rows and destination-sectors on the columns) conditional on the origin-skill type, where the magnitudes reported reflect the average sector-switching costs with or without skill upgrading. By conditioning on the origin-skill type, there are more missing entries when there are no observations for the corresponding sectors and skill type. Overall, the switching costs across sectors tend to be higher for low-skilled workers and lower for middle- and high-skilled workers. It is relatively less costly for high-skilled workers to switch within service, while it is relatively costly for all skill types to switch from service to manufacturing sectors (as in the benchmark).

Column (2) of Table A.1 then reports the Stage-2 estimation results. The estimate of the labor market transition elasticity (corresponding to  $\beta\delta/\nu$ ) is 1.284 and significant at 1%. This is larger than the benchmark estimate (0.738) and implies a correspondingly smaller estimate of  $\nu \simeq 0.751$  (relative to 1.306 in the benchmark). This set of estimates of transition elasticity and  $\nu$  is closer to that of Artuç and McLaren (2015), where  $\nu = 0.62$ . Given smaller  $\nu$ , the labor market will tend to be more responsive to economic shocks and hence we can expect greater quantitative effects for given simulated shocks with the alternative value of  $\nu$ .

## B Counterfactual Simulation Results: Alternative Scenarios of Tariff Concessions

In this appendix, we provide the figures for the three alternative scenarios of tariff concessions, in parallel to those in the main text (on Taiwan’s WTO accession). In the first alternative scenario, we assess the effects of China’s WTO accession on Taiwan’s labor market dynamics: in the counterfactual, China’s import tariffs and foreign tariffs on China’s exports are rolled back to their levels in 1995. The results are summarized in Figures B.1–B.13.

In the second alternative scenario, we study the combined effects of WTO accessions by both Taiwan and China: in the counterfactual, both Taiwan’s and China’s import tariffs and foreign tariffs on Taiwan’s and China’s exports are set to their levels in 1995. The outcomes are summarized in Figures B.14–B.26.

In the third alternative scenario, we evaluate the effects of the tariff concessions between Taiwan and China during this period. In particular, in the counterfactual, only the bilateral tariff concessions between the two economies are rescinded and set to their levels in 1995. The findings are summarized in Figures B.27–B.39.

## C Alternative Framework with Time-varying Sector-Skill Transition Costs

We have assumed the sector-skill transition costs to be time-invariant in the benchmark. This appendix shows that the dynamic hat algebra can be generalized to allow for time-varying sector-skill transition costs. This alternative framework can be used to accommodate changes to the sector-skill transition costs in a counterfactual such as that analyzed in Section 6.2 of the paper. In general, it can also be used to study the effects of supply-side shocks such as education reforms that change the costs of skill upgrading.

Let an individual's objective function be given by:

$$v_t^{njs} = \ln C_t^{njs} + \max_{\{k,i\}_{k=0,i=1}^{J,3}} \left\{ \beta \delta V_{t+1}^{nki} - \rho_t^{njs,nki} + \nu \epsilon_t^{ki} \right\}.$$

The objective function is similar to (1) in the benchmark except that the transition cost  $\rho_t^{njs,nki}$  is now time-varying. The assumption that  $\epsilon$  is drawn *i.i.d.* from the Type-I extreme value distribution implies that the value function and transition probability are respectively given by:

$$V_t^{njs} = \ln C_t^{njs} + \nu \ln \sum_{K=0}^J \sum_{I \geq s}^3 e^{\frac{\beta \delta V_{t+1}^{nKI} - \rho_t^{njs,nKI}}{\nu}},$$

$$\mu_t^{njs,nki} = \frac{e^{\frac{\beta \delta V_{t+1}^{nki} - \rho_t^{njs,nki}}{\nu}}}{\sum_{K=0}^J \sum_{I \geq s}^3 e^{\frac{\beta \delta V_{t+1}^{nKI} - \rho_t^{njs,nKI}}{\nu}}}.$$

The laws of motion for the labor pool in each sector-skill combination are unaffected. As the conditions on the production side remain the same, Proposition 1 is also unaffected.

Both  $\dot{\mu}_{t+1}^{njs,nki}$  and  $\dot{u}_{t+1}^{njs}$  are derived using exactly the same technique as for (18) and (19) in the benchmark. Let  $\varrho_t^{njs,nki} \equiv e^{\rho_t^{njs,nki}}$ . It can be readily checked that both the changes in utility and in transition probability are otherwise identical to the benchmark model up to the inclusion of the change in  $\varrho_t^{njs,nki}$ :

$$\dot{u}_{t+1}^{njs} = \dot{w}_{t+1}^{njs} \left[ \sum_{K=0}^J \sum_{I \geq s}^3 \mu_t^{njs,nKI} \left( \dot{u}_{t+2}^{nKI} \right)^{\frac{\beta \delta}{\nu}} \left( \dot{\varrho}_{t+1}^{njs,nKI} \right)^{-\frac{1}{\nu}} \right]^\nu,$$

$$\dot{\mu}_{t+1}^{njs,nki} = \frac{\left( \dot{u}_{t+2}^{nki} \right)^{\frac{\beta \delta}{\nu}} \left( \dot{\varrho}_{t+1}^{njs,nki} \right)^{-\frac{1}{\nu}}}{\sum_{K=0}^J \sum_{I \geq s}^3 \mu_t^{njs,nKI} \left( \dot{u}_{t+2}^{nKI} \right)^{\frac{\beta \delta}{\nu}} \left( \dot{\varrho}_{t+1}^{njs,nKI} \right)^{-\frac{1}{\nu}}}.$$

The dynamic hat algebra can also be derived with the same technique as for (22) and (23). For  $t > 1$ , we have:

$$\begin{aligned}\widehat{\mu}_{t+1}^{njs,nki} &\equiv \frac{\dot{\mu}_{t+1}^{njs,nki}}{\dot{\mu}_{t+1}^{njs,nki}} \\ &= \frac{\left(\widehat{u}_{t+2}^{nki}\right)^{\frac{\beta\delta}{\nu}} \left(\widehat{\varrho}_{t+1}^{njs,nki}\right)^{-\frac{1}{\nu}}}{\sum_{K=0}^J \sum_{I \geq s}^3 \mu_t^{mjs,nKI} \dot{\mu}_{t+1}^{njs,nKI} \left(\widehat{u}_{t+2}^{nKI}\right)^{\frac{\beta\delta}{\nu}} \left(\widehat{\varrho}_{t+1}^{njs,nKI}\right)^{-\frac{1}{\nu}}},\end{aligned}$$

and

$$\begin{aligned}\widehat{u}_{t+1}^{njs} &\equiv \frac{\dot{u}_{t+1}^{njs}}{\dot{u}_{t+1}^{njs}}, \\ &= \widehat{\omega}_{t+1}^{njs} \left[ \sum_{K=0}^J \sum_{I \geq s}^3 \mu_t^{mjs,nKI} \dot{\mu}_{t+1}^{njs,nKI} \left(\widehat{u}_{t+2}^{nKI}\right)^{\frac{\beta\delta}{\nu}} \left(\widehat{\varrho}_{t+1}^{njs,nKI}\right)^{-\frac{1}{\nu}} \right]^\nu.\end{aligned}$$

Since the path of counterfactual fundamentals is observed only at  $t = 1$  while the decisions are made in  $t = 0$ , we need to derive  $\mu_1^{mjs,nki}$  and  $\widehat{u}_1^{njs}$  differently from the general case of  $t > 1$ . Recall that the allocations at  $t = 0$  are such that  $\widehat{u}_0^{njs} = 1$ ,  $\mu_0^{mjs,nki} = \mu_0^{njs,nki}$  and  $L_1^{mjs} = L_1^{njs}$ . Also note that  $\varrho_0^{mjs,nki} = \varrho_0^{njs,nki}$  since we assume that the shocks to the fundamentals occur unexpectedly at  $t = 1$ . Following the approach for Proposition 3 as detailed in Appendix A of the paper yields:

$$\begin{aligned}\widehat{u}_1^{njs} &= \widehat{\omega}_1^{njs} \left[ \sum_{K=0}^J \sum_{I \geq s}^3 v_0^{njs,nKI} \left(\widehat{u}_2^{nKI}\right)^{\frac{\beta\delta}{\nu}} \left(\widehat{\varrho}_1^{njs,nKI}\right)^{-\frac{1}{\nu}} \right]^\nu, \\ \mu_1^{mjs,nki} &= \frac{v_0^{njs,nki} \left(\widehat{u}_2^{nki}\right)^{\frac{\beta\delta}{\nu}} \left(\widehat{\varrho}_1^{njs,nki}\right)^{-\frac{1}{\nu}}}{\sum_{K=0}^J \sum_{I \geq s}^3 v_0^{njs,nKI} \left(\widehat{u}_2^{nKI}\right)^{\frac{\beta\delta}{\nu}} \left(\widehat{\varrho}_1^{njs,nKI}\right)^{-\frac{1}{\nu}}},\end{aligned}$$

where  $v_0^{njs,nKI} \equiv \mu_1^{njs,nKI} \left(\widehat{u}_1^{nKI}\right)^{\frac{\beta\delta}{\nu}}$ .

## References

**Artuç, Erhan and John McLaren**, “Trade Policy and Wage Inequality: A Structural Analysis with Occupational and Sectoral Mobility,” *Journal of International Economics*, 2015, *97*, 278–294.

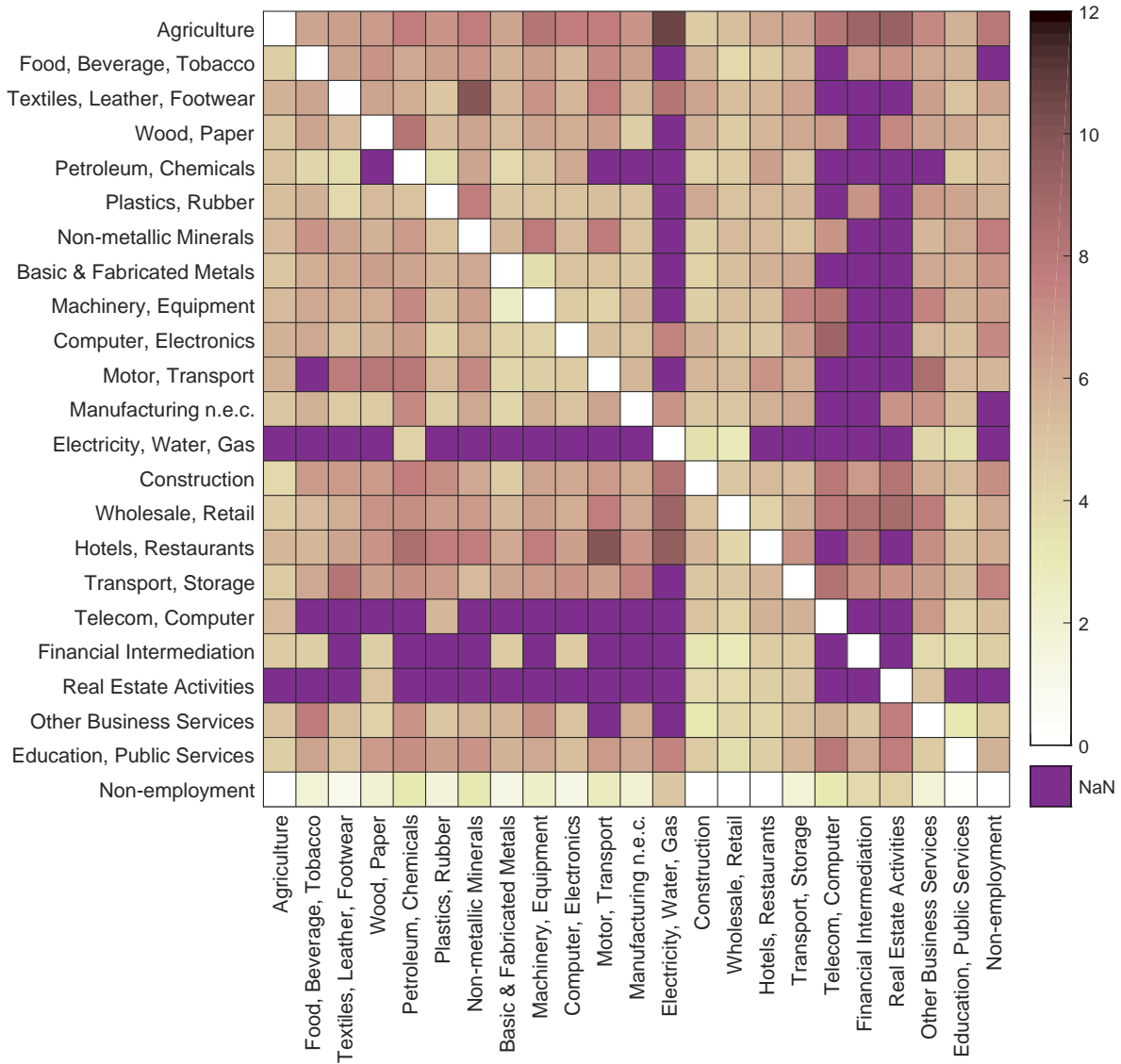
**Karabarbounis, Loukas and Brent Neiman**, “The Global Decline of the Labor Share,” *Quarterly Journal of Economics*, 2014, *129* (1), 61–103.

Table A.1: Estimation of labor market transition elasticity  $\beta\delta/\nu$ —Alternative setups

	(1) Stage 1 Estimation $L_t^{j^s,ki}$		(2) Stage 2 Estimation $\phi_t^{j^s}$
$\rho_1^{low,mid}$	4.901*** (0.147)	$\ln w_{t+1}^{j^s}$	<b>1.284***</b> (0.0357)
$\rho_1^{mid,high}$	4.742*** (0.140)	$\eta_2^{middle} \times t$	-0.0147*** (0.00349)
constant	11.68*** (0.0229)	$\eta_2^{high} \times t$	-0.00679* (0.00354)
Origin-Sector-Skill-Year FE ( $\alpha_t^{j^s}$ )	Yes	Year FE ( $\zeta_t$ )	Yes
Destination-Sector-Skill-Year FE ( $\lambda_t^{ki}$ )	Yes	Origin-Skill FE ( $\eta_1^s$ )	Yes
Sector-to-Sector FE	Yes		
No. of Observations	47112	No. of Observations	37220
$R^2$	0.826	$R^2$	0.334

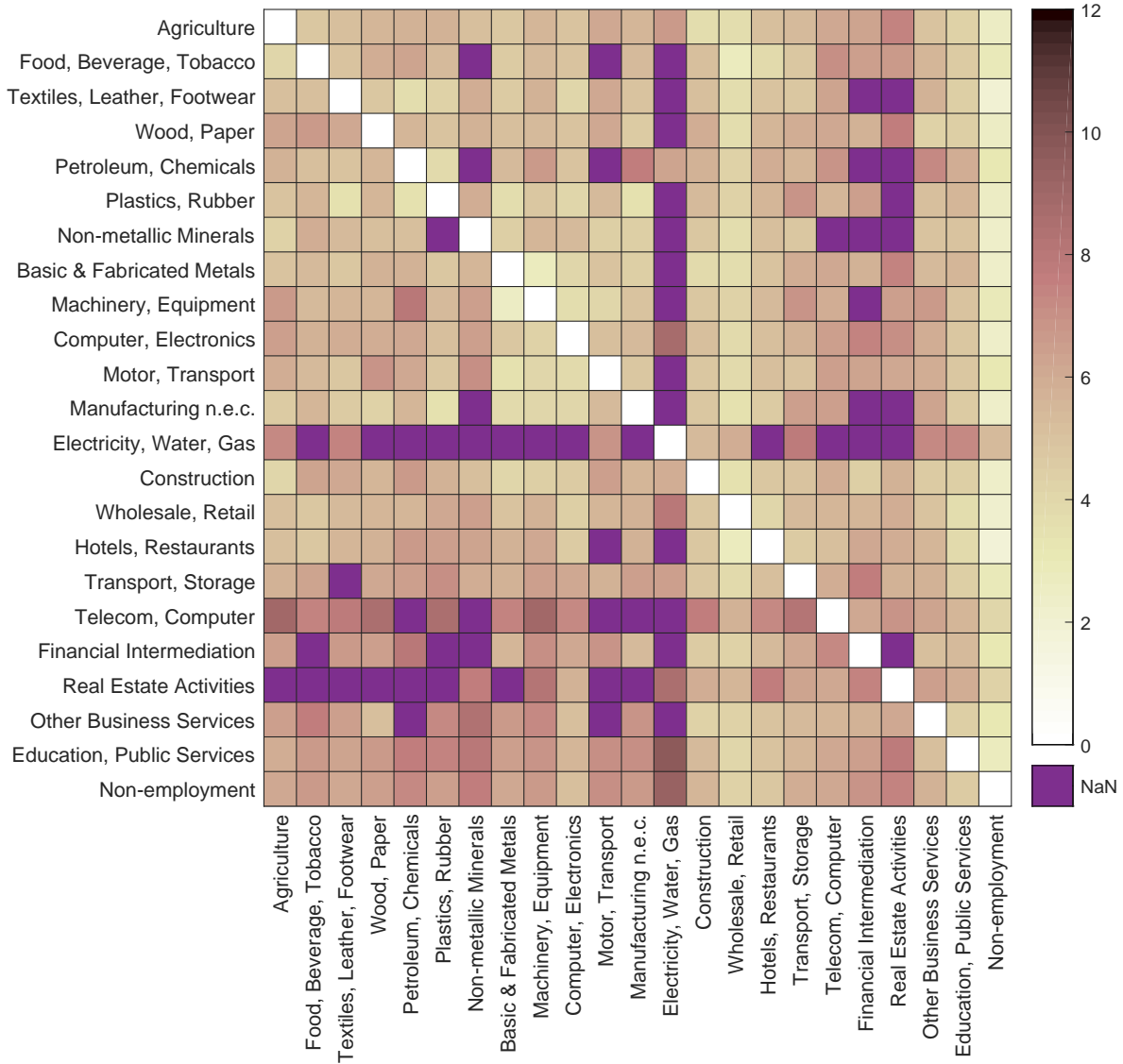
*Notes:* Estimation results of equations (32) and (34), based on the switching-cost specification in equation (A.1). In Stage 1, the base category omitted is the non-employed-low-skill group, such that  $\lambda_t^{ki} = 0$  for this category. In Stage 2, the time trend for the origin-low-skill group is omitted, as it is absorbed by the year FEs ( $\zeta_t$ ).

Figure A.1: Sector-to-Sector Switching Cost for Low-Skilled Workers



*Notes:* The figure shows the sector-to-sector switching costs for low-skilled workers based on estimations of Stage-1 equation (32) and the switching-cost specification in equation (A.1). The origin-sectors are in the rows and the destination-sectors in the columns. The magnitudes reported above reflect the average sector-switching costs with or without skill upgrading.

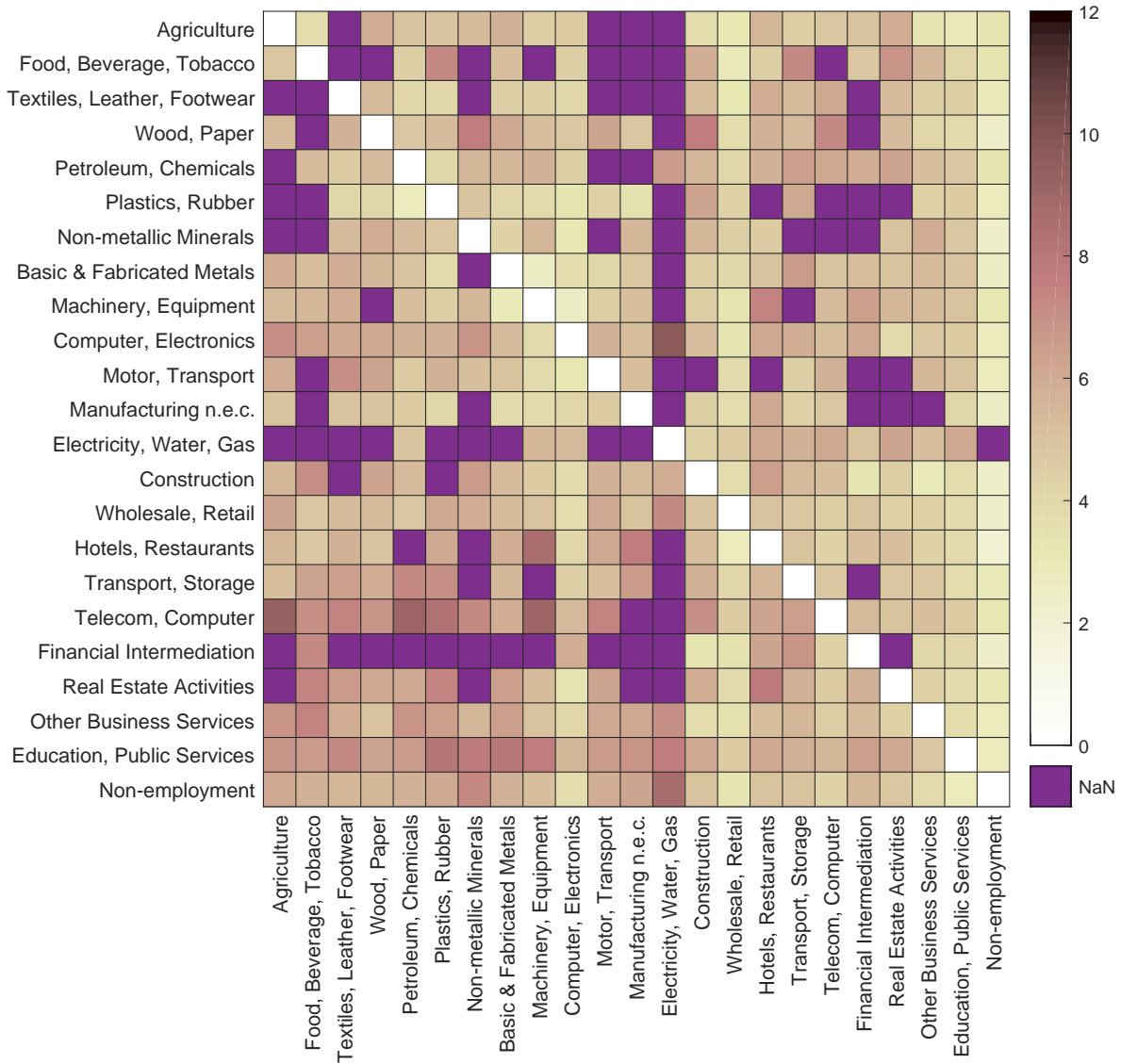
Figure A.2: Sector-to-Sector Switching Cost for Middle-Skilled Workers



Notes: The figure shows the sector-to-sector switching costs for middle-skilled workers based on estimations of Stage-1 equation (32) and the switching-cost specification in equation (A.1). The origin-sectors are in the rows and the destination-sectors in the columns. The magnitudes reported above reflect the average sector-switching costs with or without skill upgrading.

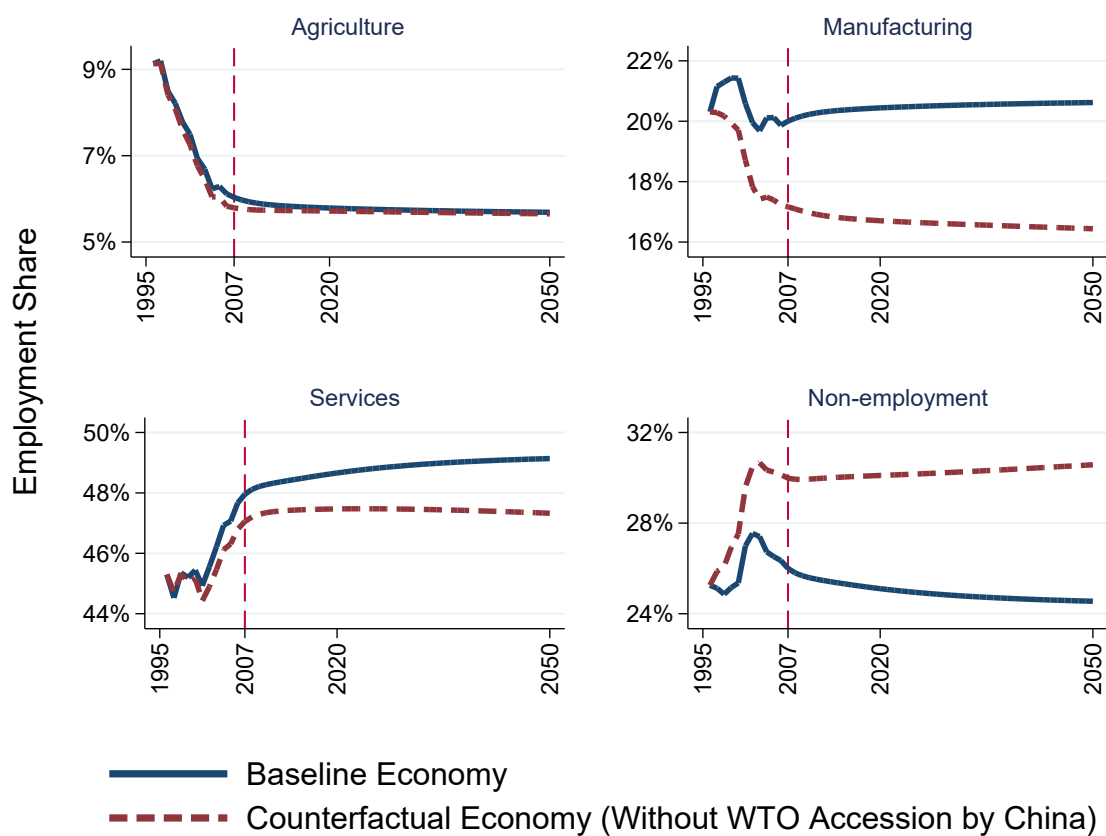


Figure A.3: Sector-to-Sector Switching Cost for High-Skilled Workers



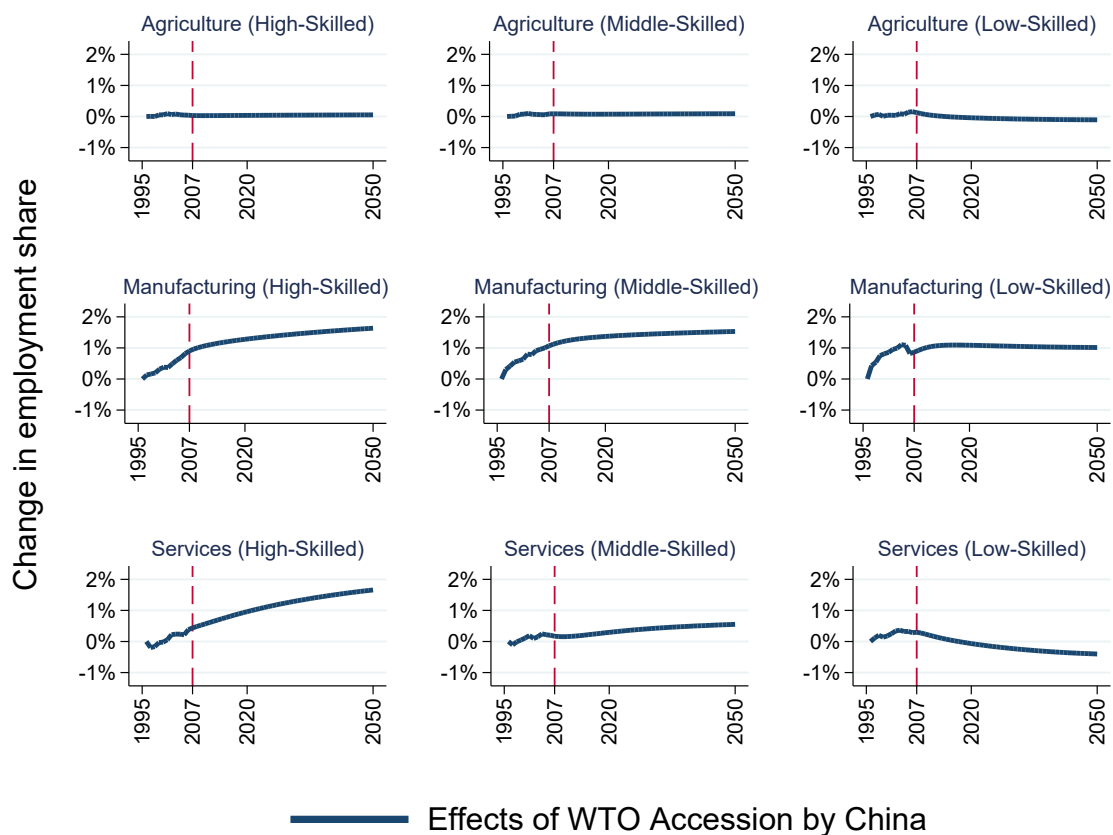
*Notes:* The figure shows the sector-to-sector switching costs for high-skilled workers based on estimations of Stage-1 equation (32) and the switching-cost specification in equation (A.1). The origin-sectors are in the rows and the destination-sectors in the columns. The magnitudes reported above reflect the average sector-switching costs with or without skill upgrading.

Figure B.1: Transition dynamics of employment shares in Taiwan — effects of China’s WTO entry



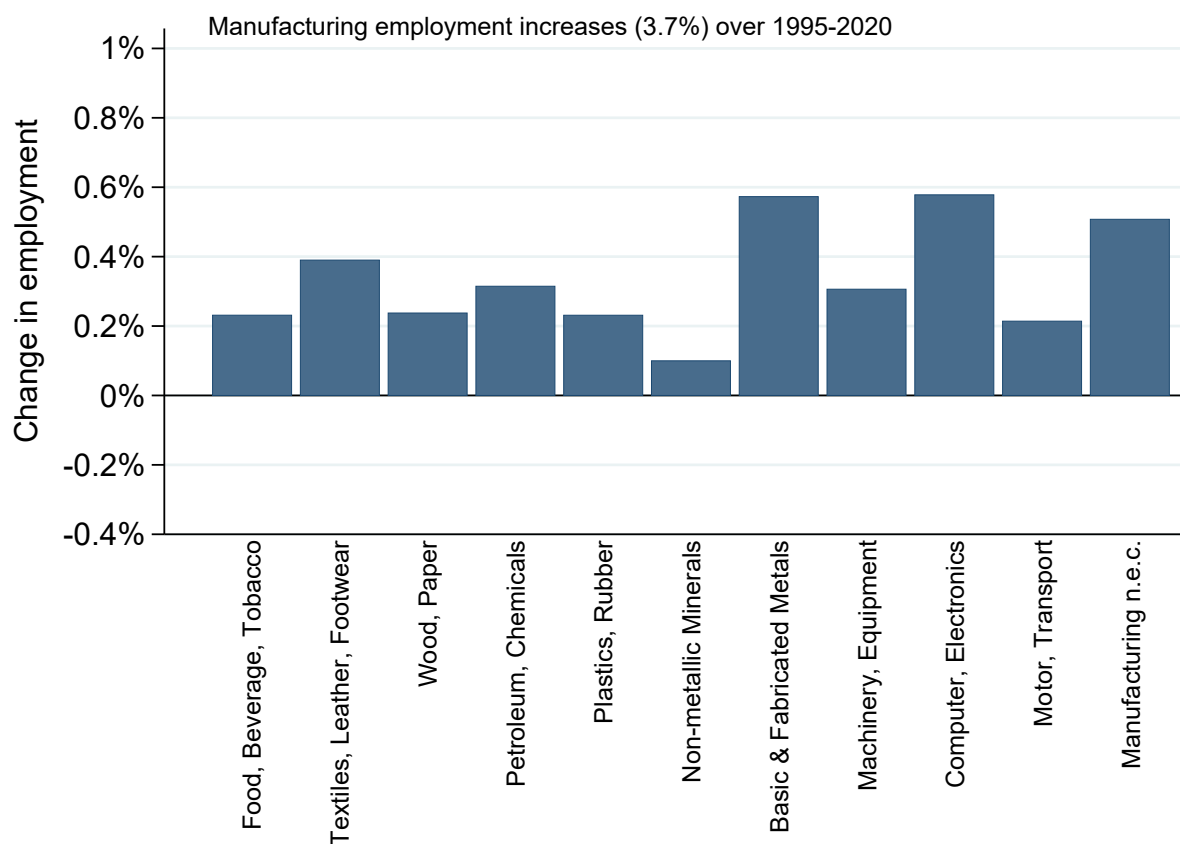
*Notes:* The figure shows the effect of China’s WTO entry on employment shares in Taiwan by aggregate sectors. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The baseline economy shows the path of employment shares with all time-varying fundamentals evolving as in the data from 1995 to 2007 and constant fundamentals after 2007. The counterfactual economy is the same except that China’s tariffs on imports and foreign tariffs on China’s exports are set to their levels in 1995. We simulate the model until 3000.

Figure B.2: Transition dynamics of employment shares in Taiwan by skill groups — effects of China’s WTO entry



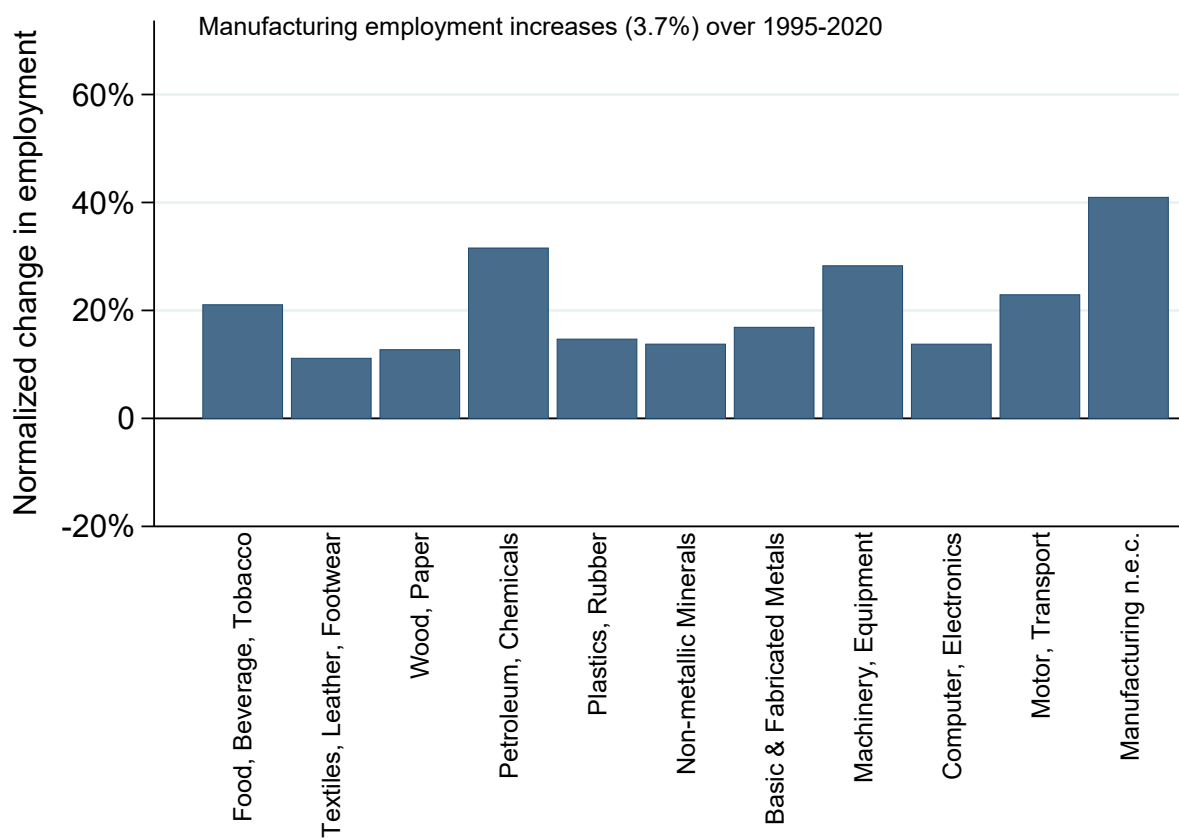
*Notes:* The figure shows the effect of China’s WTO entry on employment shares in Taiwan by aggregate sectors and skill groups. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. The baseline economy shows the path of employment shares with all time-varying fundamentals evolving as in the data from 1995 to 2007 and constant fundamentals after 2007. The counterfactual economy is the same except that China’s tariffs on imports and foreign tariffs on China’s exports are set to their levels in 1995. We simulate the model until 3000.

Figure B.3: Effects of China's WTO entry on the employment shares of manufacturing sectors in Taiwan



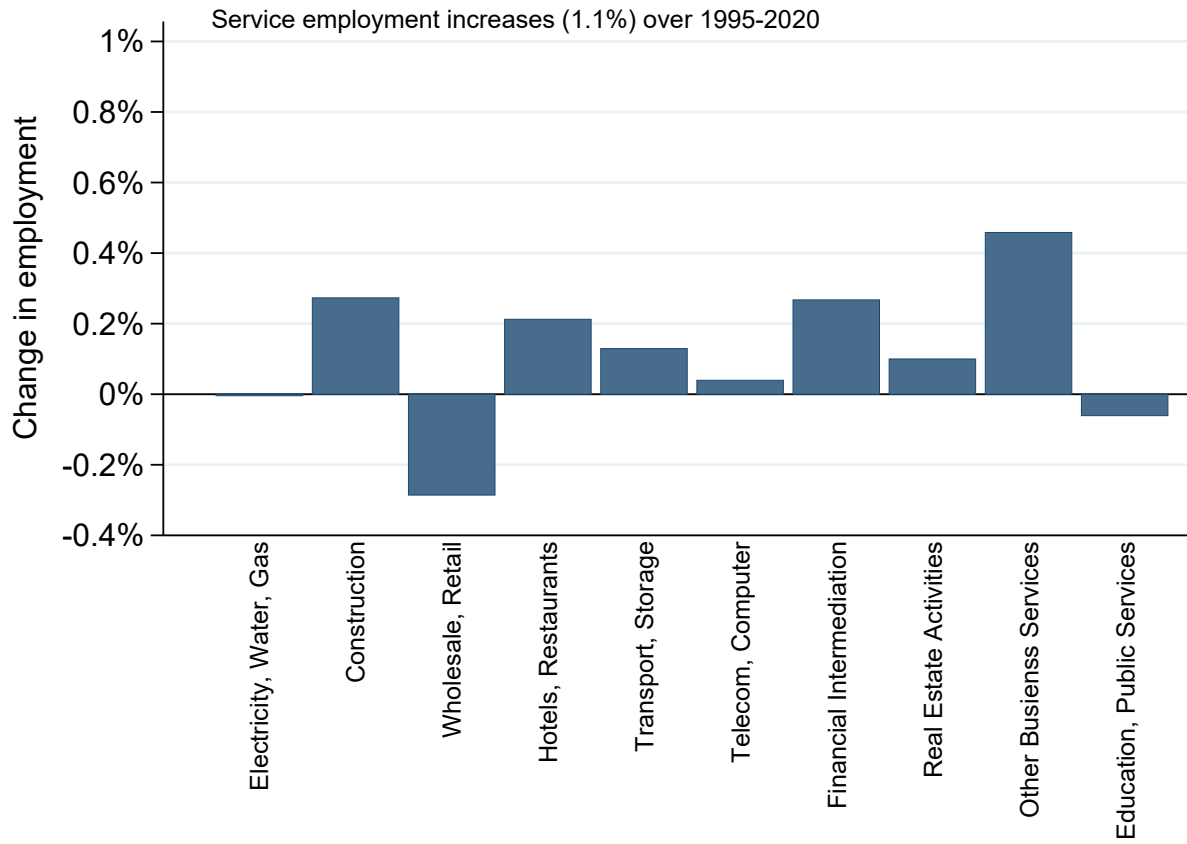
*Notes:* The figure shows the change in employment share for each manufacturing sector in Taiwan over the period of 1995–2020, due to China's WTO entry. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.1 footnote for the definitions of the baseline and the counterfactual economy.

Figure B.4: Effects of China’s WTO entry on the employment shares of manufacturing sectors in Taiwan — normalized by sector size



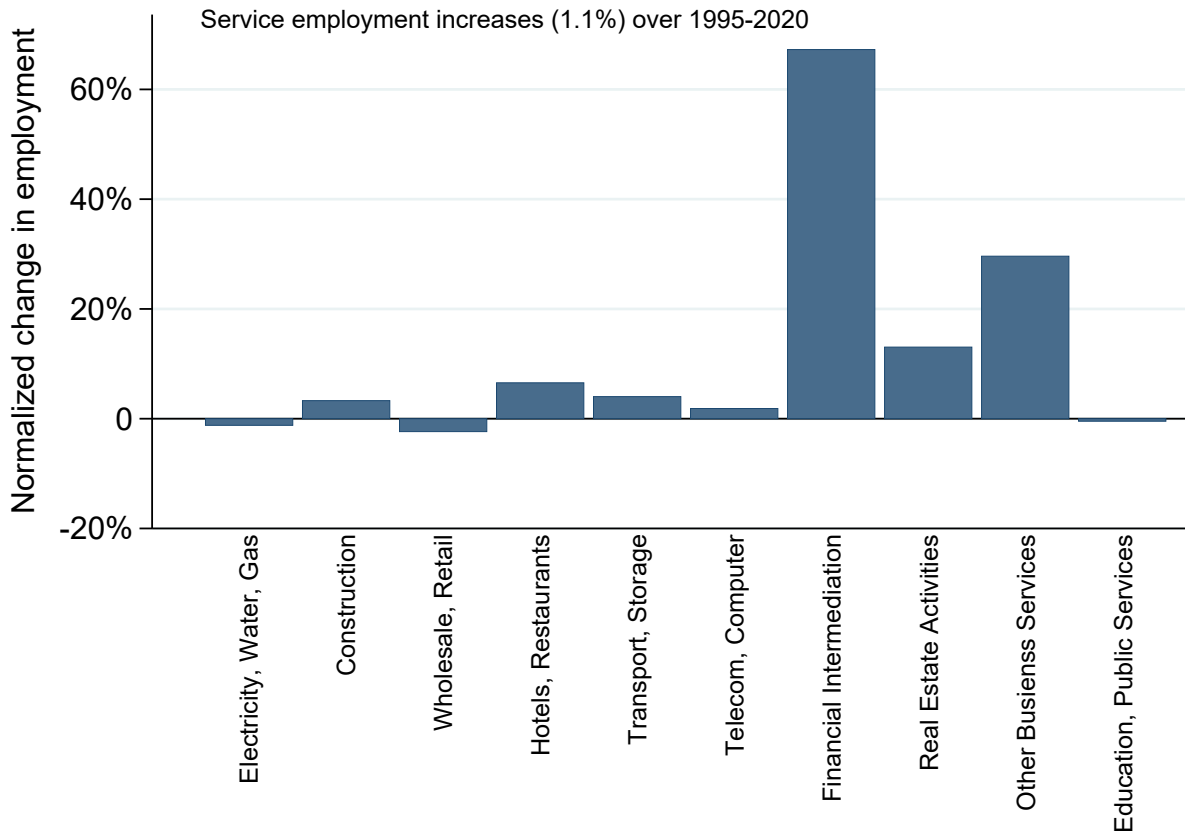
*Notes:* The figure shows the normalized change in employment share for each manufacturing sector in Taiwan over the period of 1995–2020, due to China’s WTO entry. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force) and normalized by the sectoral employment share in year 1995. The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.1 footnote for the definitions of the baseline and the counterfactual economy.

Figure B.5: Effects of China's WTO entry on the employment shares of service sectors in Taiwan



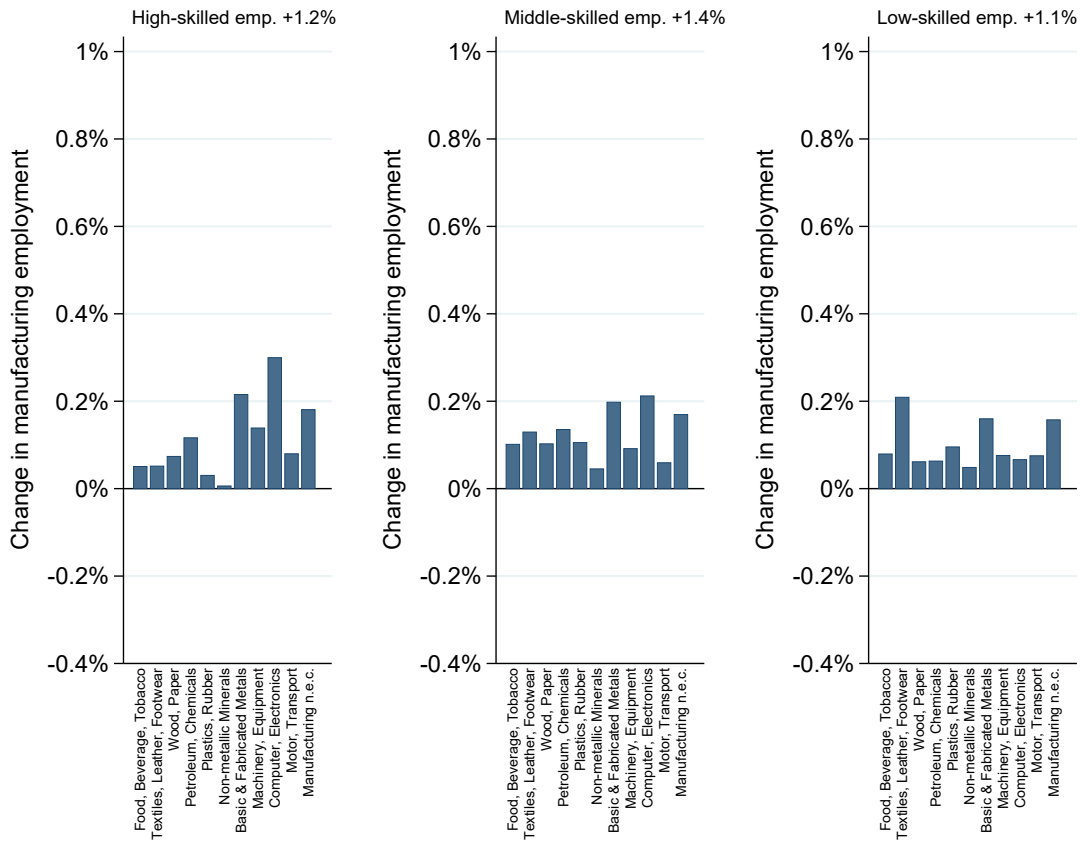
*Notes:* The figure shows the change in employment share for each service sector in Taiwan over the period of 1995–2020, due to China's WTO entry. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.1 footnote for the definitions of the baseline and the counterfactual economy.

Figure B.6: Effects of China's WTO entry on the employment shares of service sectors in Taiwan — normalized by sector size



*Notes:* The figure shows the normalized change in employment share for each service sector in Taiwan over the period of 1995–2020, due to China's WTO entry. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force) and normalized by the sectoral employment share in year 1995. The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.1 footnote for the definitions of the baseline and the counterfactual economy.

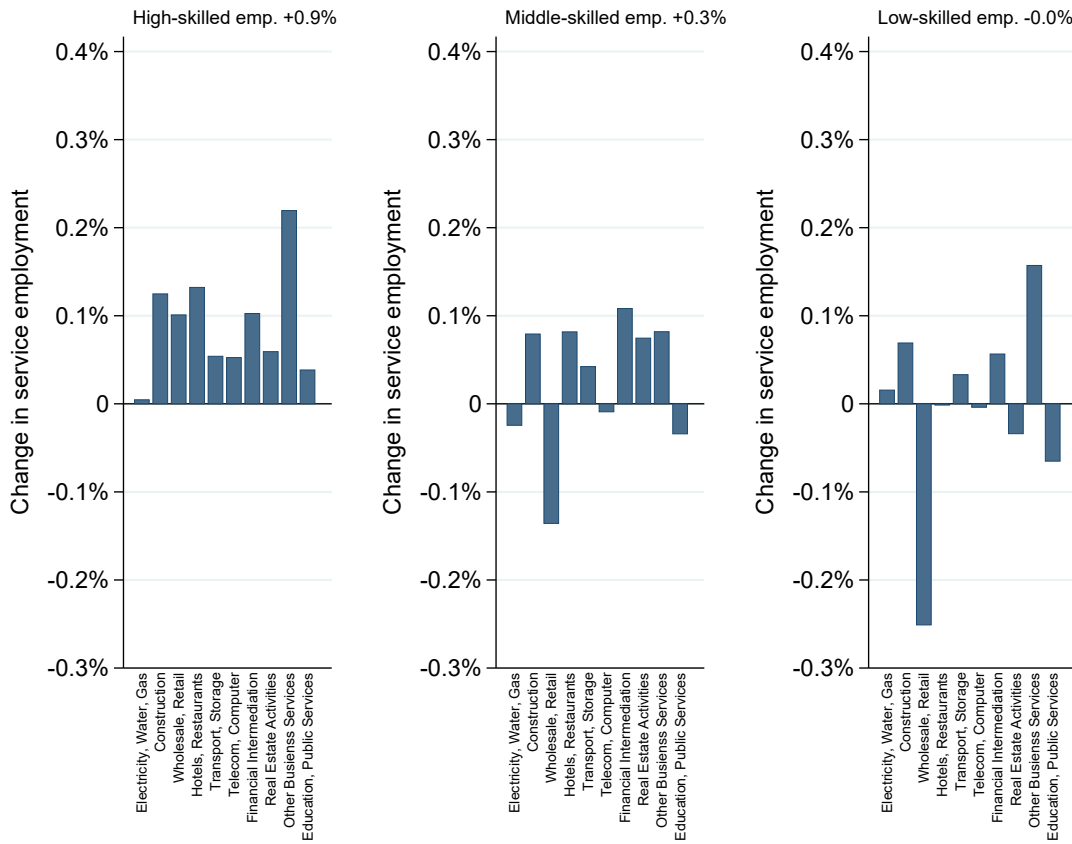
Figure B.7: Effects of China's WTO entry on the employment shares of manufacturing sectors in Taiwan by skill groups



Notes: The figure shows the change in employment share by skill groups for each manufacturing sector in Taiwan over the period of 1995–2020, due to China's WTO entry. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.1 footnote for the definitions of the baseline and the counterfactual economy.

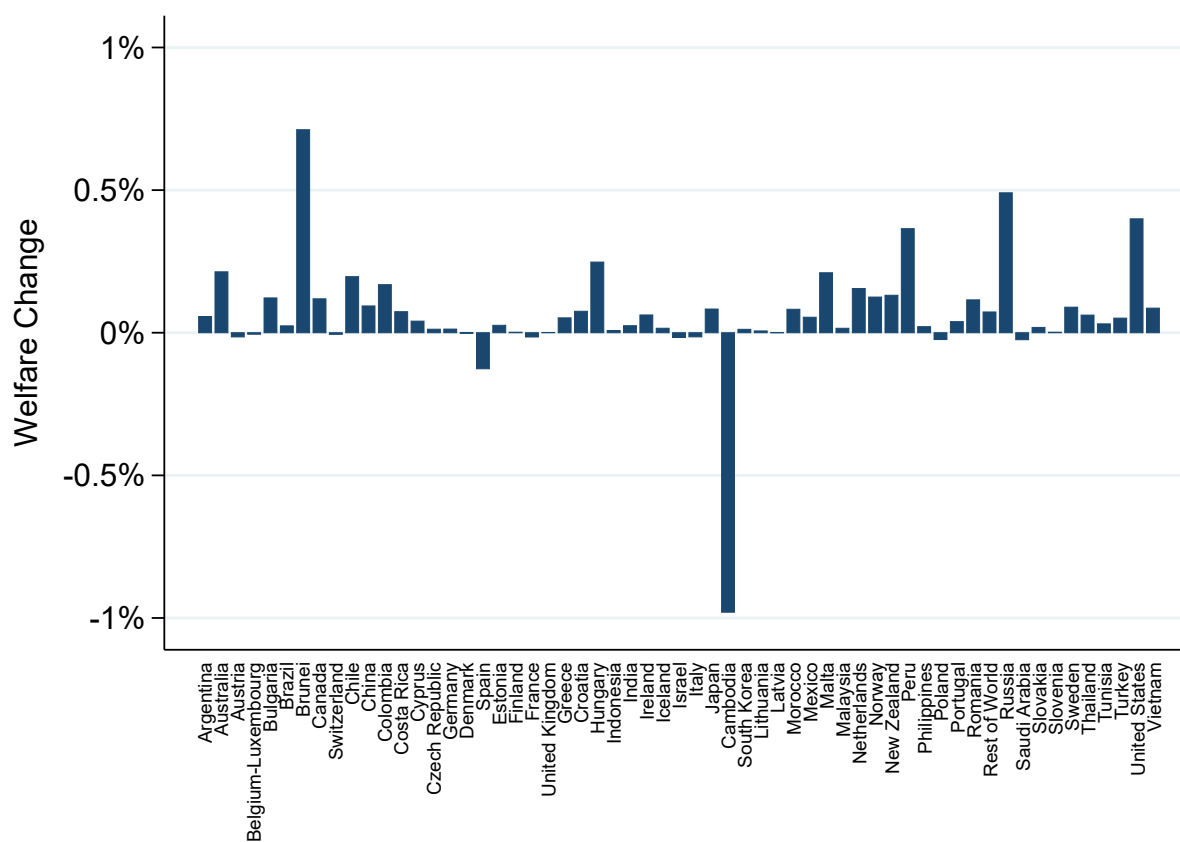


Figure B.8: Effects of China's WTO entry on the employment shares of service sectors in Taiwan by skill groups



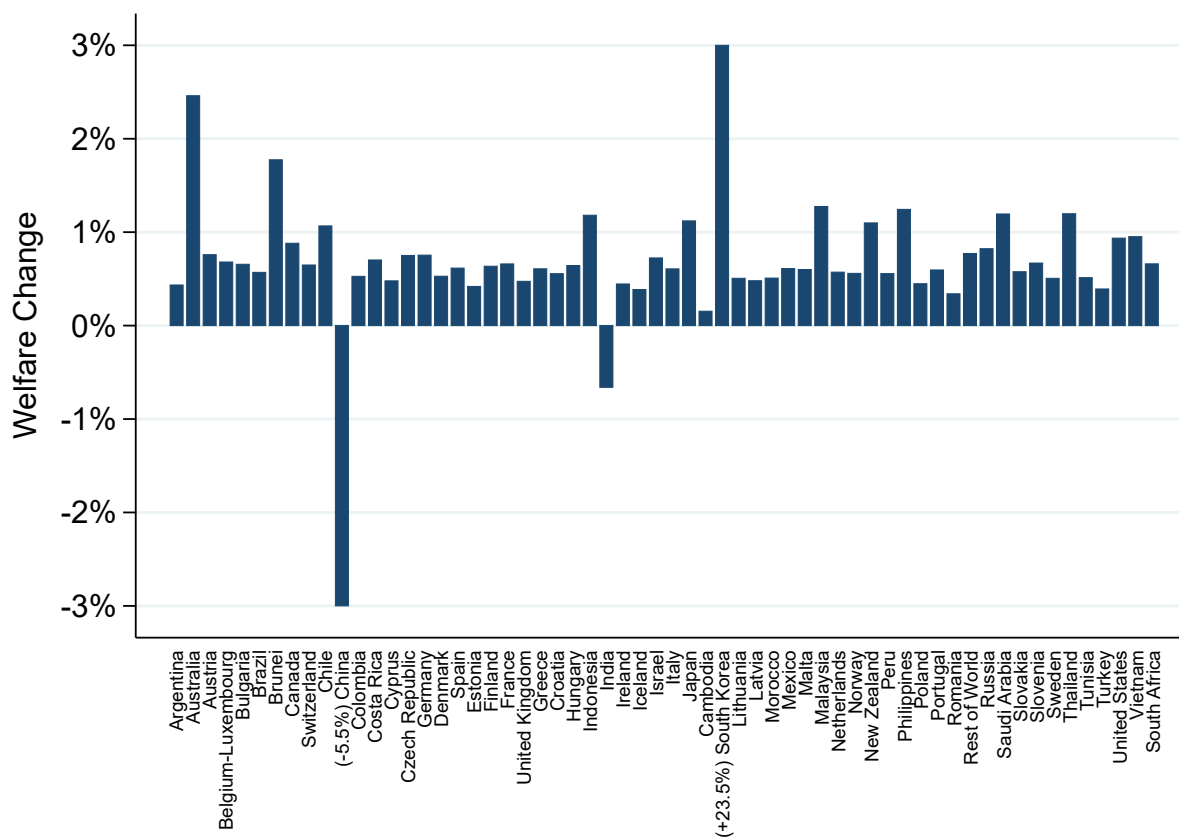
*Notes:* The figure shows the change in employment share by skill groups for each service sector in Taiwan over the period of 1995–2020, due to China's WTO entry. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.1 footnote for the definitions of the baseline and the counterfactual economy.

Figure B.9: Welfare effects of China's WTO entry across economies — aggregate



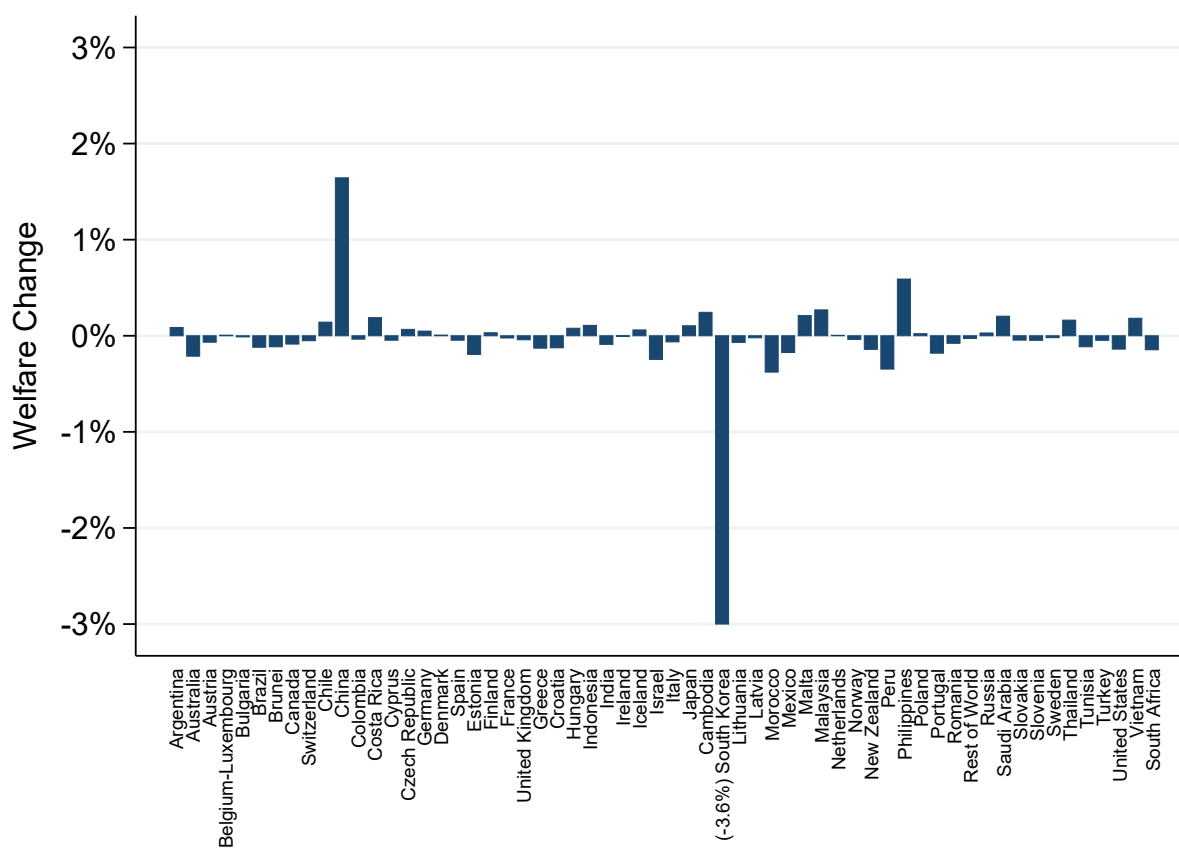
Notes: The figure shows the aggregate welfare effect of China's WTO entry on workers in economies other than Taiwan over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific. We aggregate the welfare effect across different sectors for each economy by using sectoral labor value added as weights. Data on value added are based on TiVA 2016, and data on labor share of value added are from Karabarbounis and Neiman (2014).

Figure B.10: Welfare effects of China's WTO entry across economies — agriculture



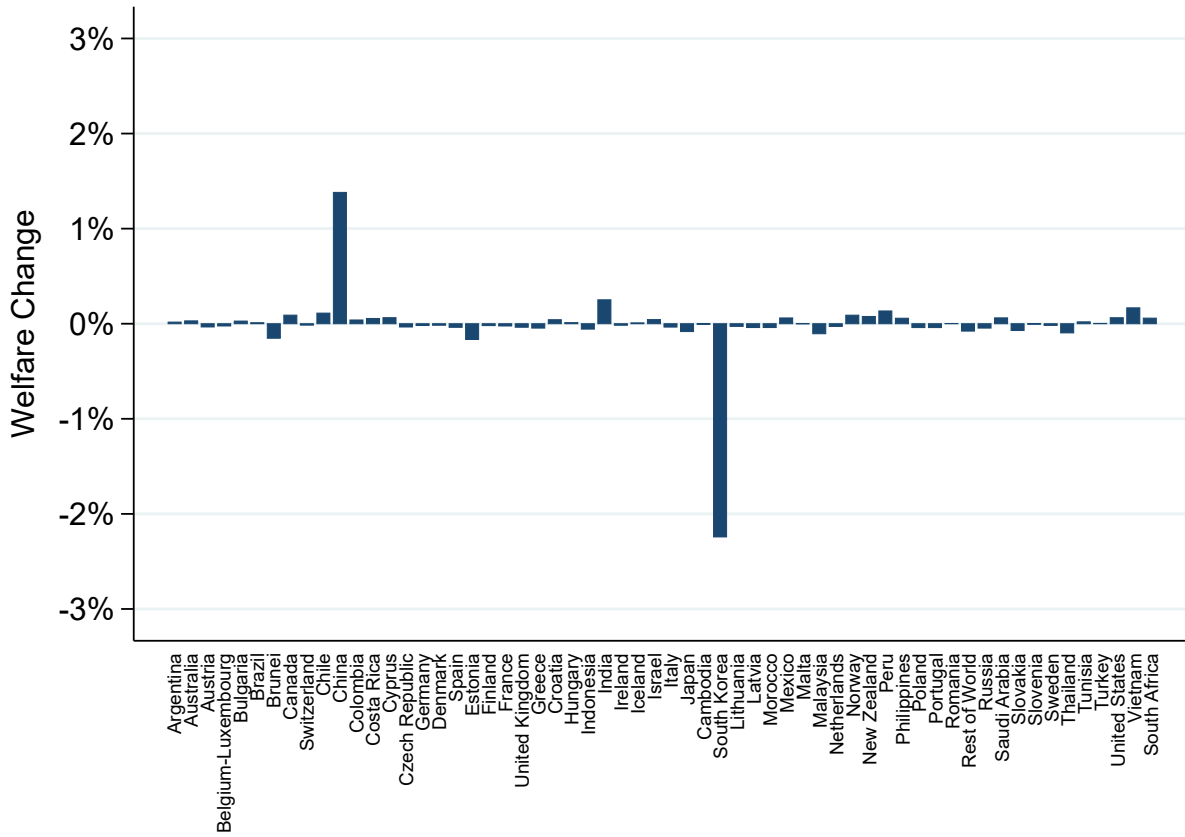
Notes: The figure shows the welfare effect of China's WTO entry on workers in the agriculture sector in economies other than Taiwan over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific.

Figure B.11: Welfare effects of China's WTO entry across economies — manufacturing



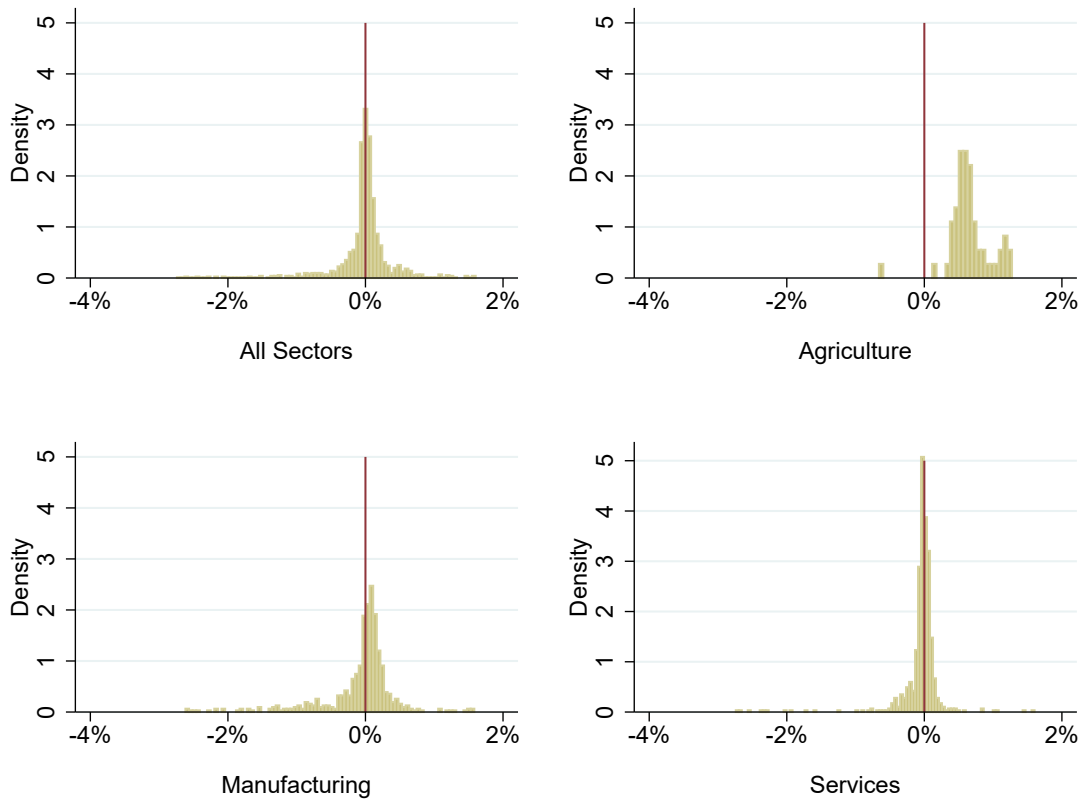
Notes: The figure shows the aggregate welfare effect of China's WTO entry on workers in the manufacturing sectors in economies other than Taiwan over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific. We aggregate the welfare effect across different sectors for each economy by using sectoral labor value added as weights. Data on value added are based on TiVA 2016, and data on labor share of value added are from Karabarbounis and Neiman (2014).

Figure B.12: Welfare effects of China's WTO entry across economies — services



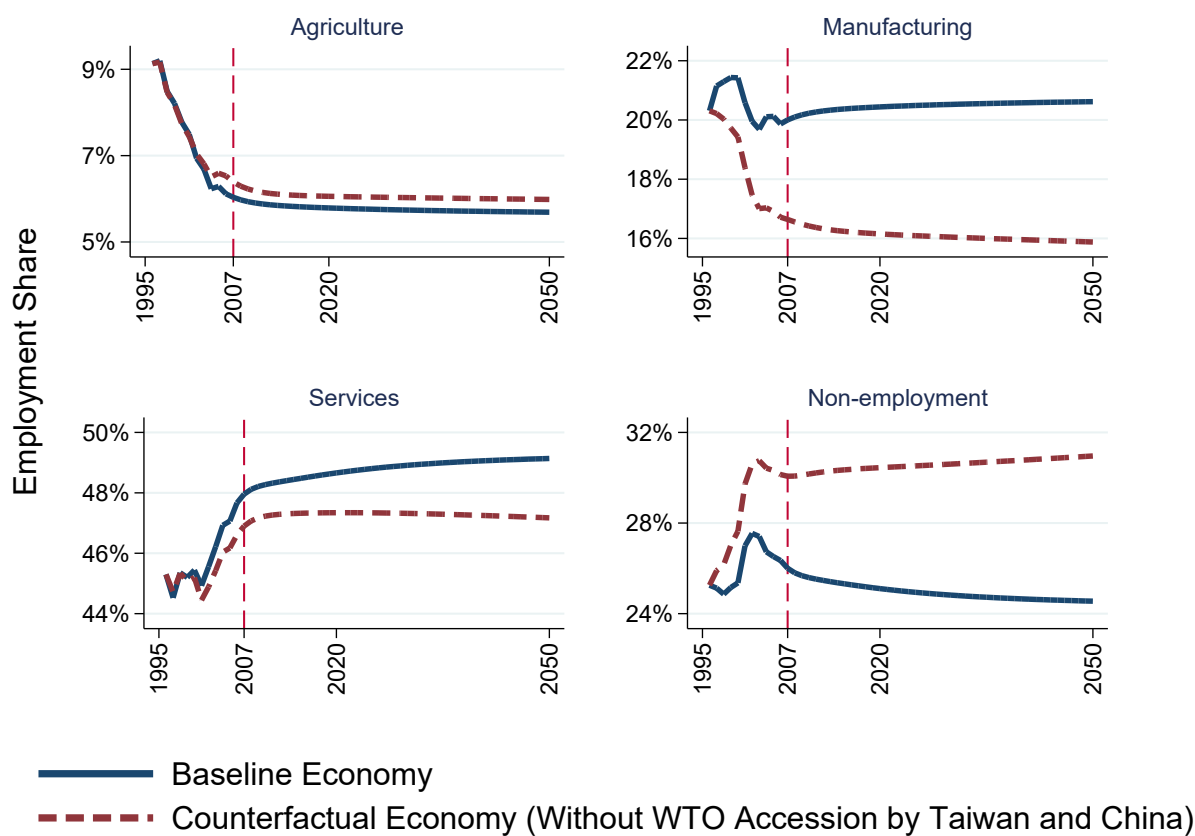
Notes: The figure shows the aggregate welfare effect of China's WTO entry on workers in the service sectors in economies other than Taiwan over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific. We aggregate the welfare effect across different sectors for each economy by using sectoral labor value added as weights. Data on value added are based on TiVA 2016, and data on labor share of value added are from Karabarbounis and Neiman (2014).

Figure B.13: Distribution of the welfare effects of China's WTO entry across economies and sectors



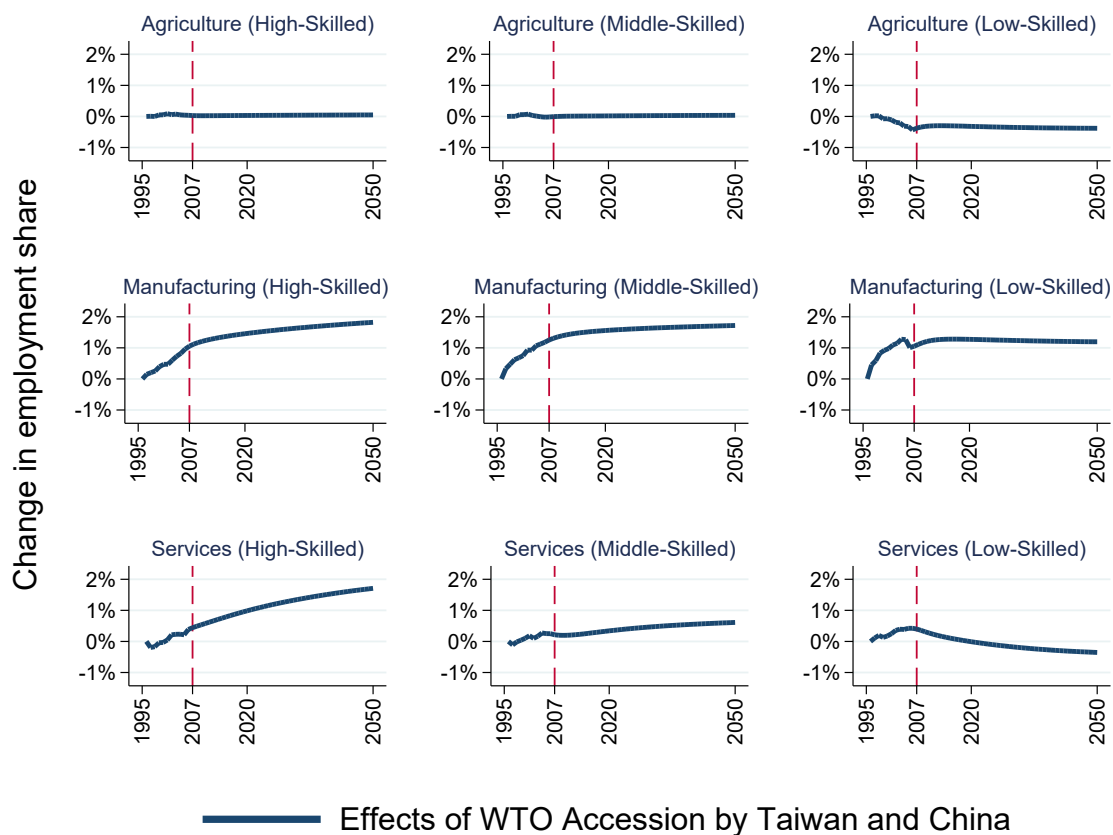
*Notes:* The figure shows the distribution of the welfare effects of China's WTO entry on workers across sectors and economies (other than Taiwan) over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific. In total, there are 1,320 such labor markets across economies (other than Taiwan). Labor markets with the largest and smallest changes in welfare due to China's WTO entry (above the 99th percentile and below the 1st percentile cutoffs) are dropped in each sub-figure.

Figure B.14: Transition dynamics of employment shares in Taiwan — combined effects of Taiwan’s and China’s WTO entry



*Notes:* The figure shows the combined effects of Taiwan’s and China’s WTO entry on employment shares in Taiwan by aggregate sectors. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The baseline economy shows the path of employment shares with all time-varying fundamentals evolving as in the data from 1995 to 2007 and constant fundamentals after 2007. The counterfactual economy is the same except that Taiwan’s and China’s tariffs on imports and foreign tariffs on Taiwan’s and China’s exports are set to their levels in 1995. We simulate the model until 3000.

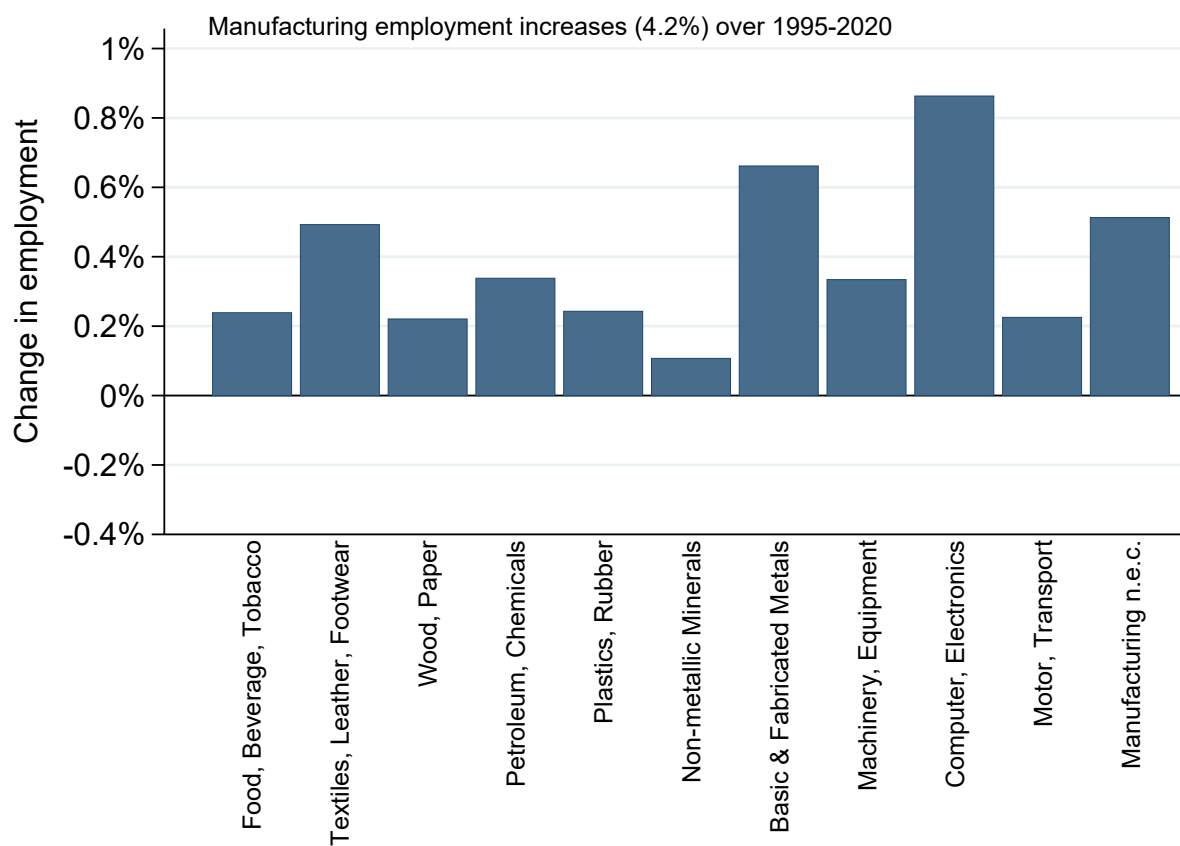
Figure B.15: Transition dynamics of employment shares in Taiwan by skill groups — combined effects of Taiwan’s and China’s WTO entry



*Notes:* The figure shows the combined effects of Taiwan’s and China’s WTO entry on employment shares in Taiwan by aggregate sectors and skill groups. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. The baseline economy shows the path of employment shares with all time-varying fundamentals evolving as in the data from 1995 to 2007 and constant fundamentals after 2007. The counterfactual economy is the same except that Taiwan’s and China’s tariffs on imports and foreign tariffs on Taiwan’s and China’s exports are set to their levels in 1995. We simulate the model until 3000.

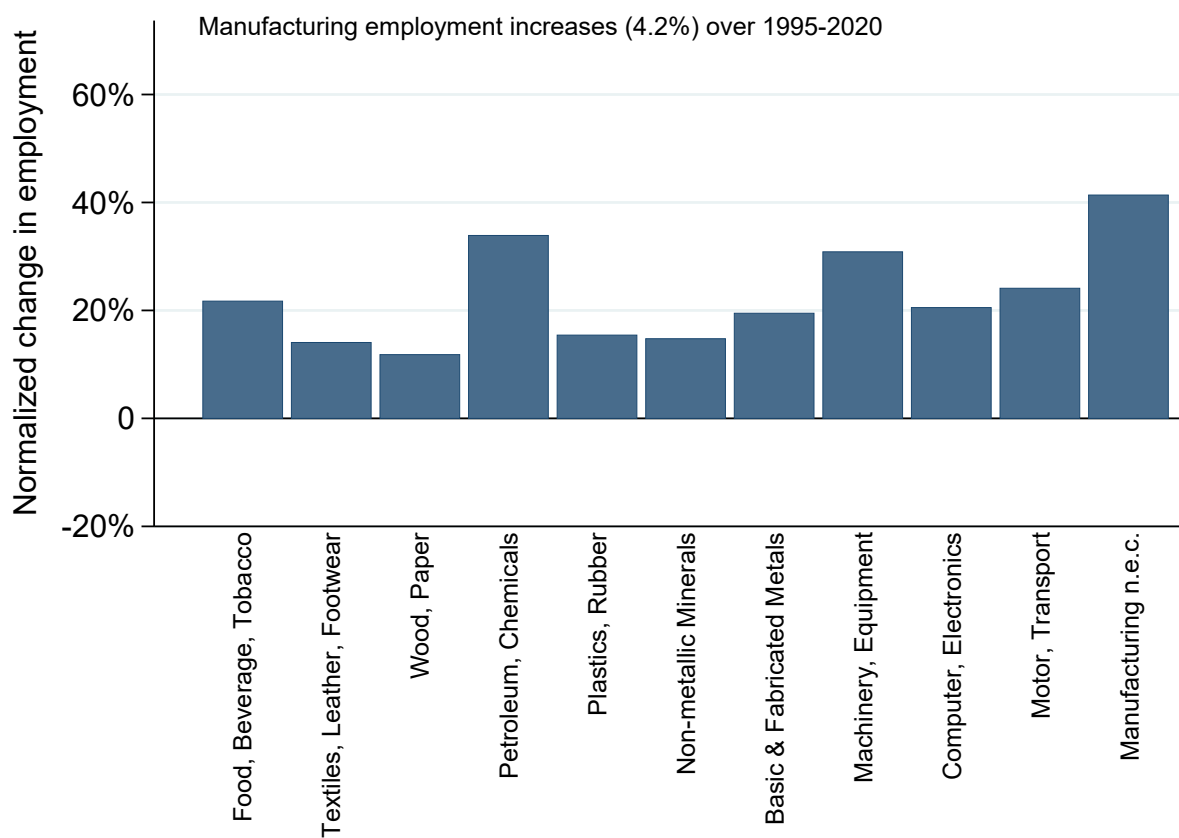


Figure B.16: Effects of Taiwan’s and China’s WTO entry on the employment shares of manufacturing sectors in Taiwan



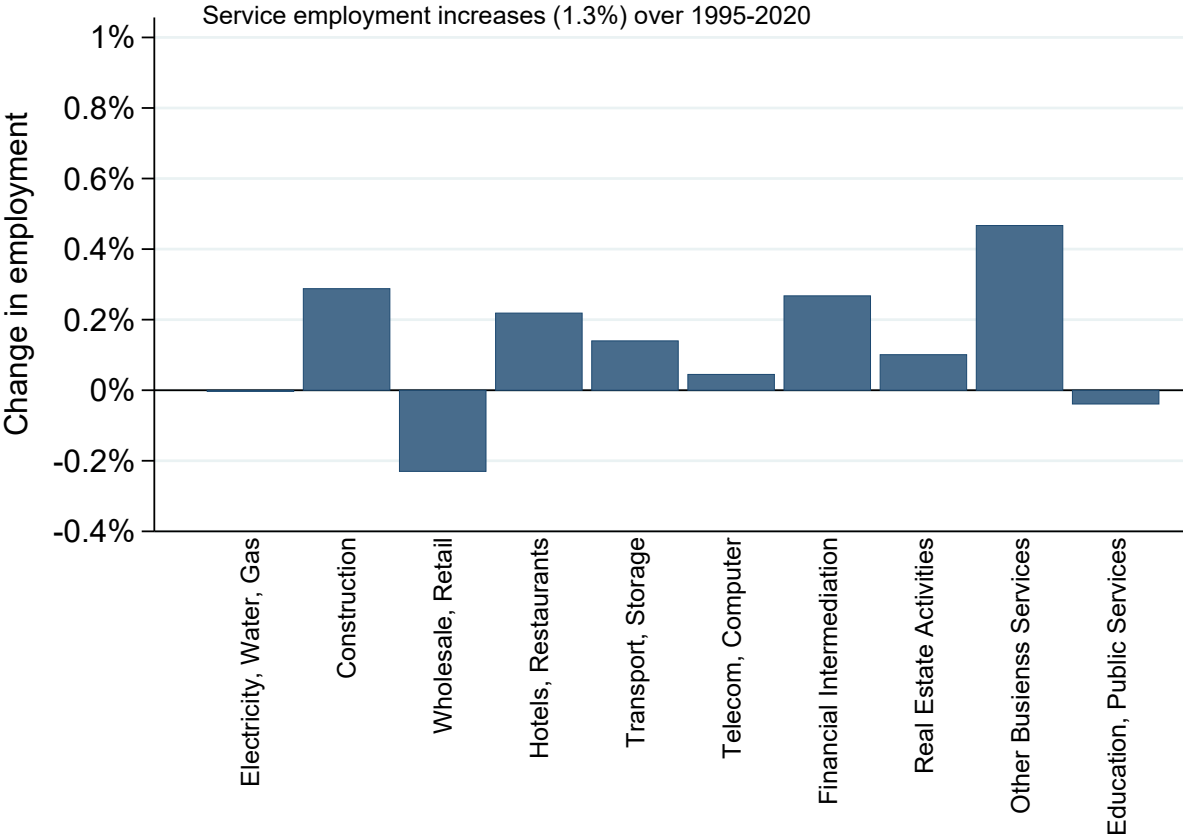
*Notes:* The figure shows the change in employment share for each manufacturing sector in Taiwan over the period of 1995–2020, due to both Taiwan’s and China’s WTO entry. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.14 footnote for the definitions of the baseline and the counterfactual economy.

Figure B.17: Effects of Taiwan’s and China’s WTO entry on the employment shares of manufacturing sectors in Taiwan — normalized by sector size



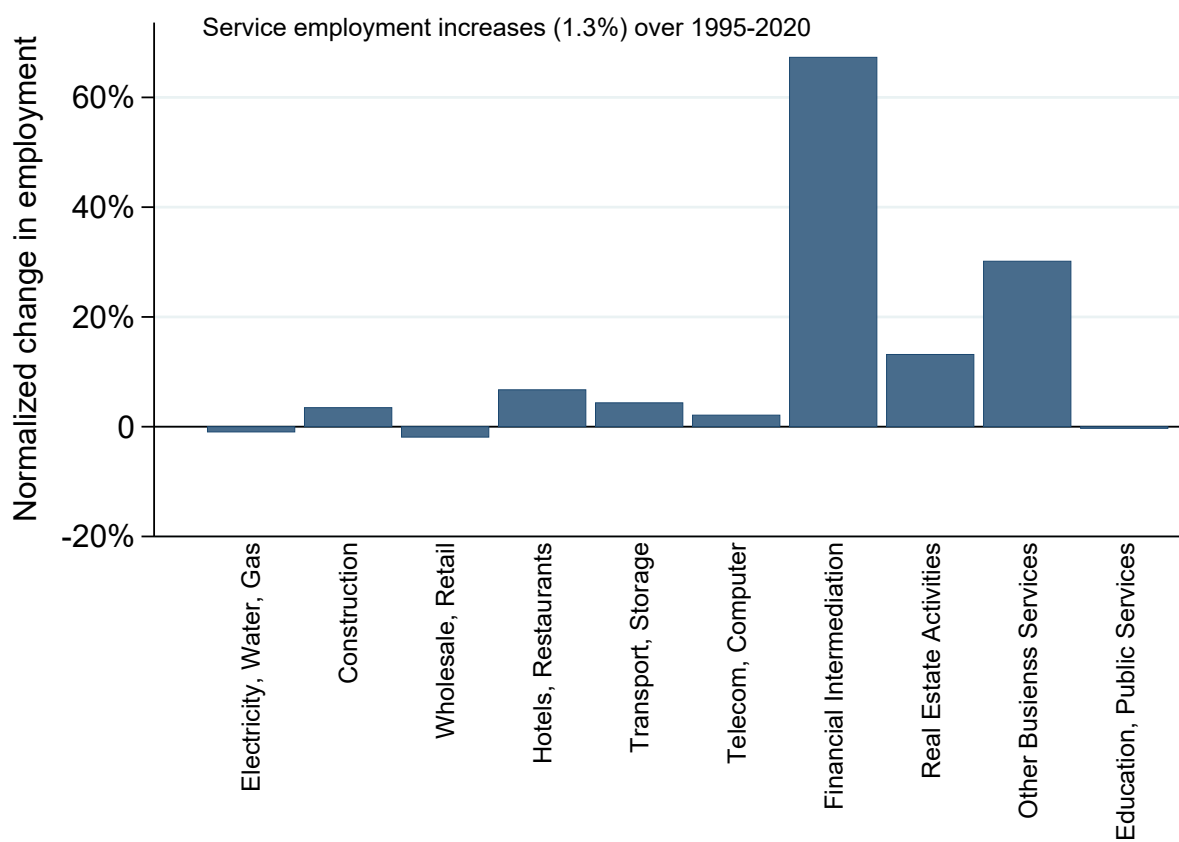
*Notes:* The figure shows the normalized change in employment share for each manufacturing sector in Taiwan over the period of 1995–2020, due to Taiwan’s and China’s WTO entry. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force) and normalized by the sectoral employment share in year 1995. The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.14 footnote for the definitions of the baseline and the counterfactual economy.

Figure B.18: Effects of Taiwan’s and China’s WTO entry on the employment shares of service sectors in Taiwan



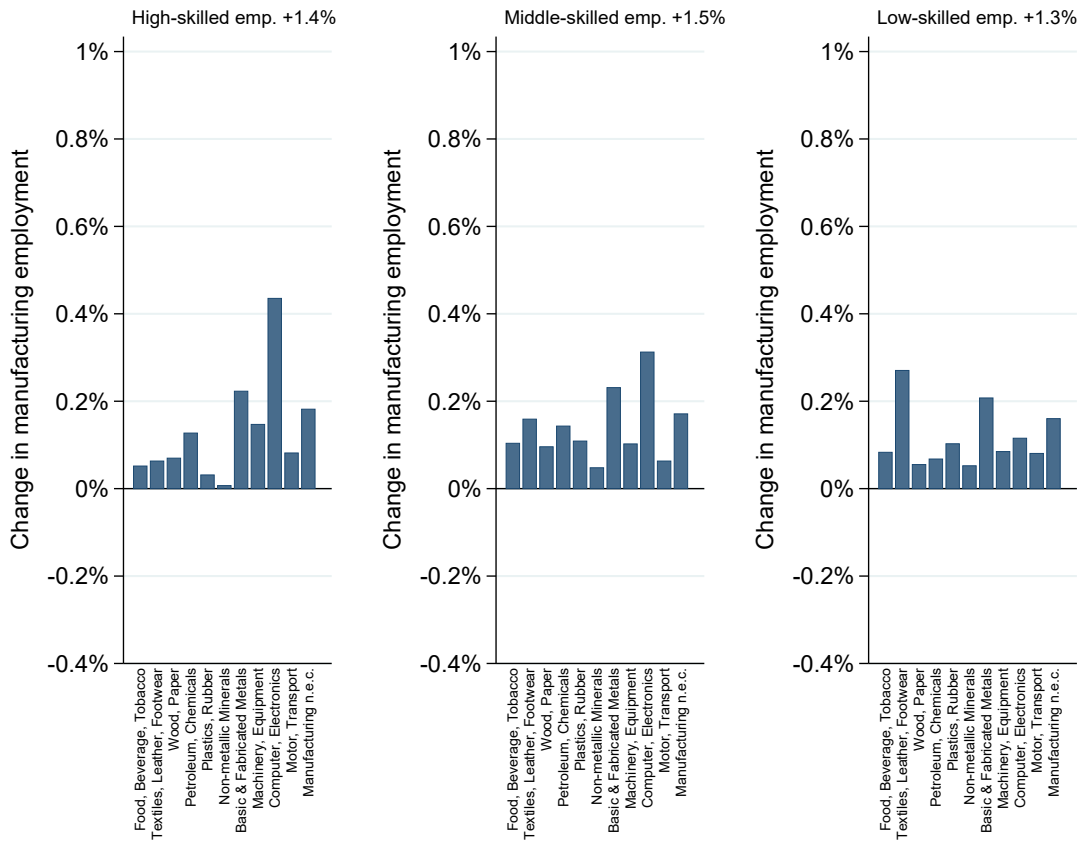
*Notes:* The figure shows the change in employment share for each service sector in Taiwan over the period of 1995–2020, due to both Taiwan’s and China’s WTO entry. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.14 footnote for the definitions of the baseline and the counterfactual economy.

Figure B.19: Effects of Taiwan’s and China’s WTO entry on the employment shares of service sectors in Taiwan — normalized by sector size



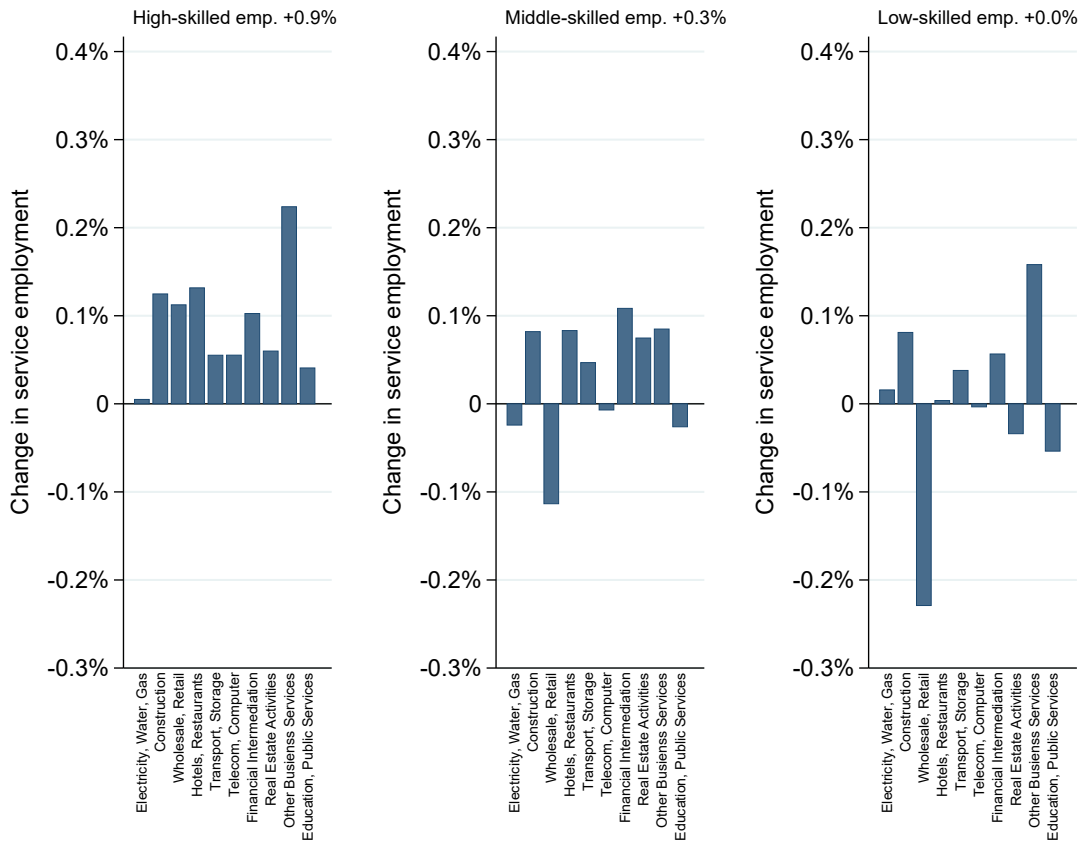
*Notes:* The figure shows the normalized change in employment share for each service sector in Taiwan over the period of 1995–2020, due to both Taiwan’s and China’s WTO entry. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force) and normalized by the sectoral employment share in year 1995. The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.14 footnote for the definitions of the baseline and the counterfactual economy.

Figure B.20: Effects of Taiwan's and China's WTO entry on the employment shares of manufacturing sectors in Taiwan by skill groups



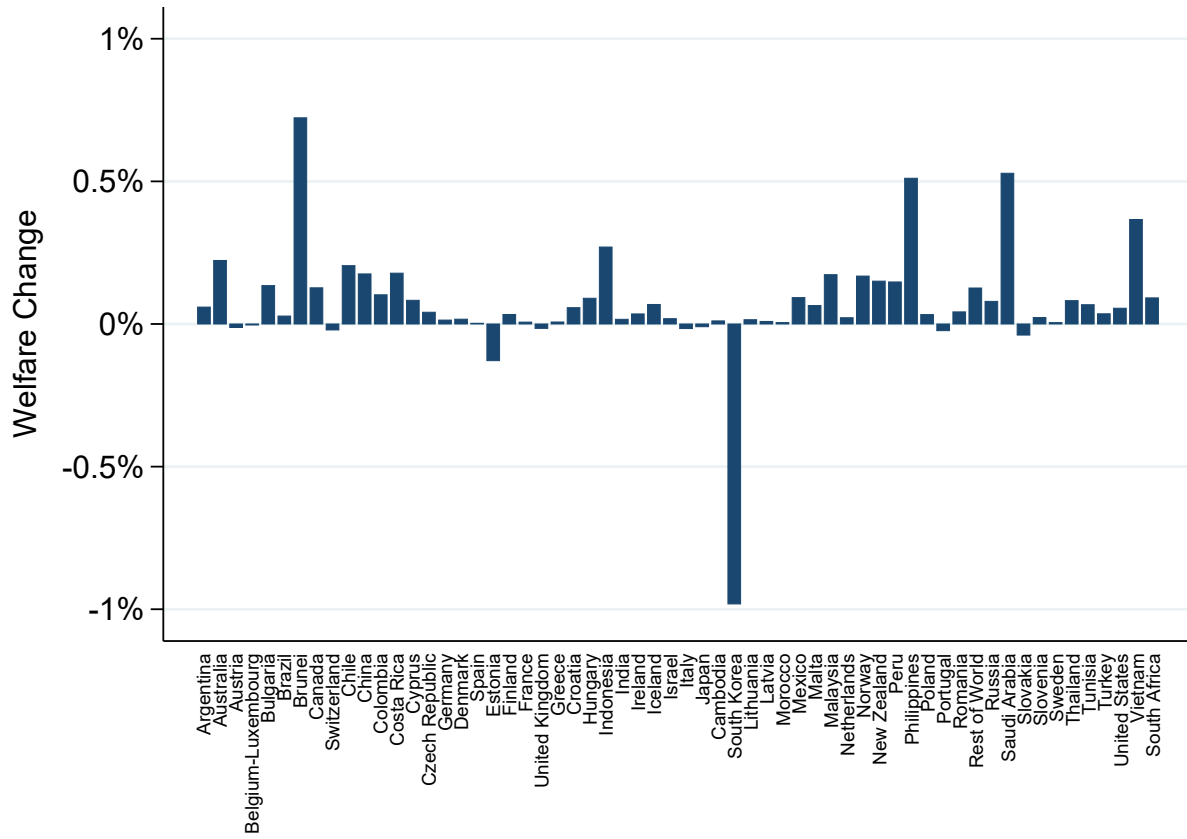
Notes: The figure shows the change in employment share by skill groups for each manufacturing sector in Taiwan over the period of 1995–2020, due to both Taiwan's and China's WTO entry. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.14 footnote for the definitions of the baseline and the counterfactual economy.

Figure B.21: Effects of Taiwan's and China's WTO entry on the employment shares of service sectors in Taiwan by skill groups



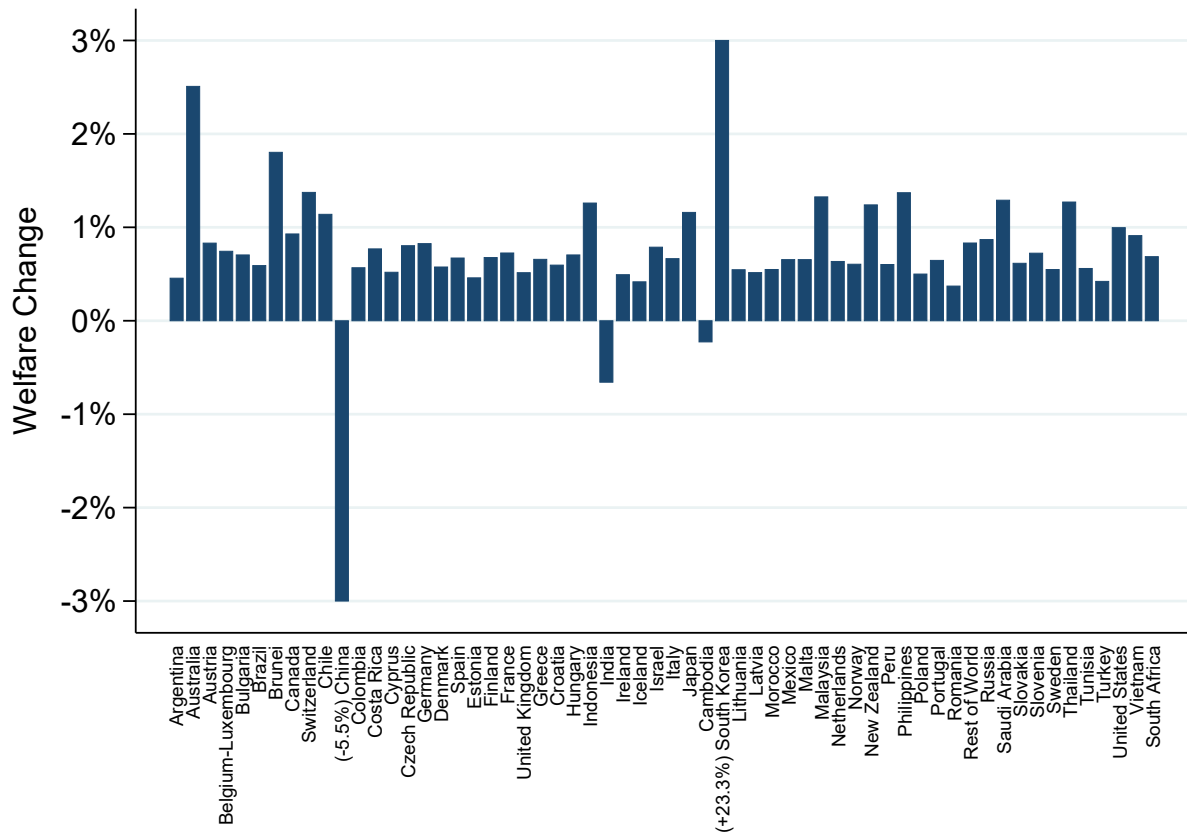
*Notes:* The figure shows the change in employment share by skill groups for each service sector in Taiwan over the period of 1995–2020, due to both Taiwan's and China's WTO entry. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.14 footnote for the definitions of the baseline and the counterfactual economy.

Figure B.22: Welfare effects of Taiwan’s and China’s WTO entry across economies — aggregate



*Notes:* The figure shows the aggregate welfare effect of Taiwan’s and China’s WTO entry on workers in economies other than Taiwan over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific. We aggregate the welfare effect across different sectors for each economy by using sectoral labor value added as weights. Data on value added are based on TiVA 2016, and data on labor share of value added are from Karabarbounis and Neiman (2014).

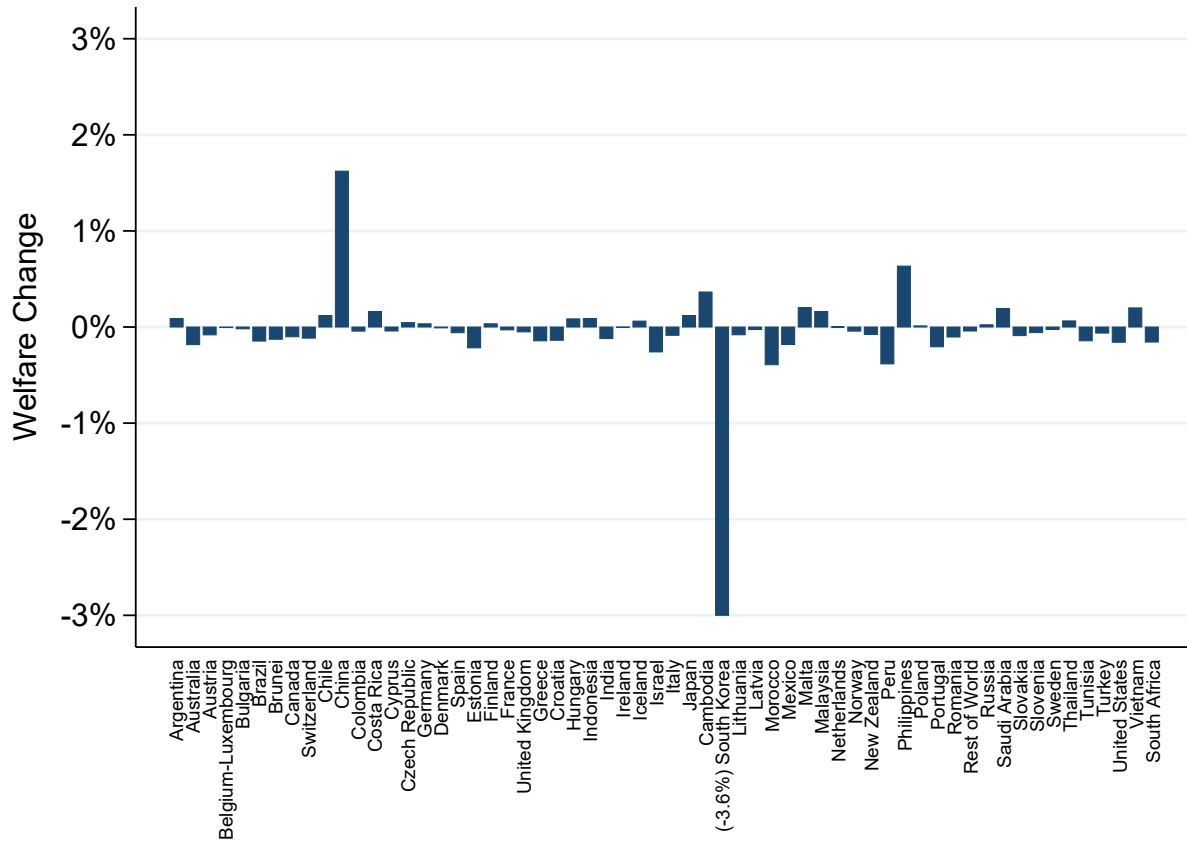
Figure B.23: Welfare effects of Taiwan’s and China’s WTO entry across economies — agriculture



Notes: The figure shows the welfare effect of Taiwan’s and China’s WTO entry on workers in the agriculture sector in economies other than Taiwan over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific.

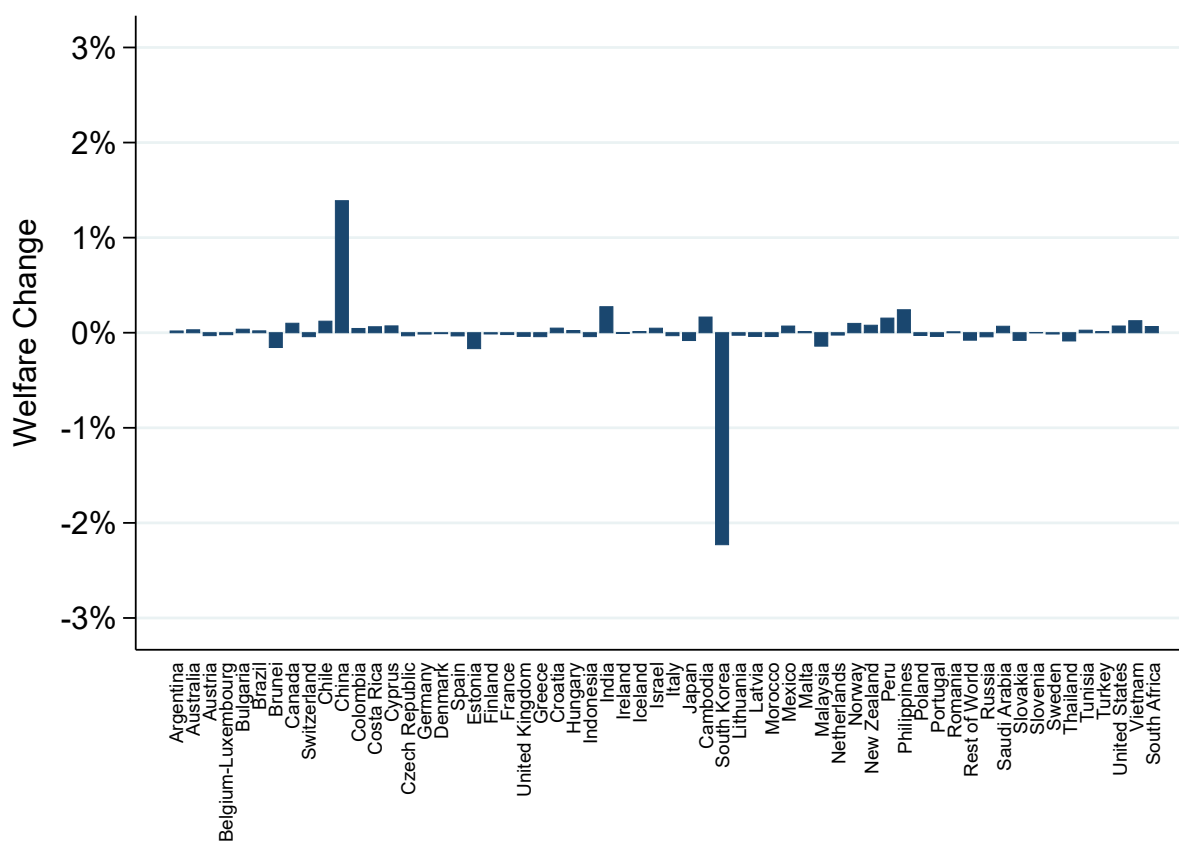


Figure B.24: Welfare effects of Taiwan’s and China’s WTO entry across economies — manufacturing



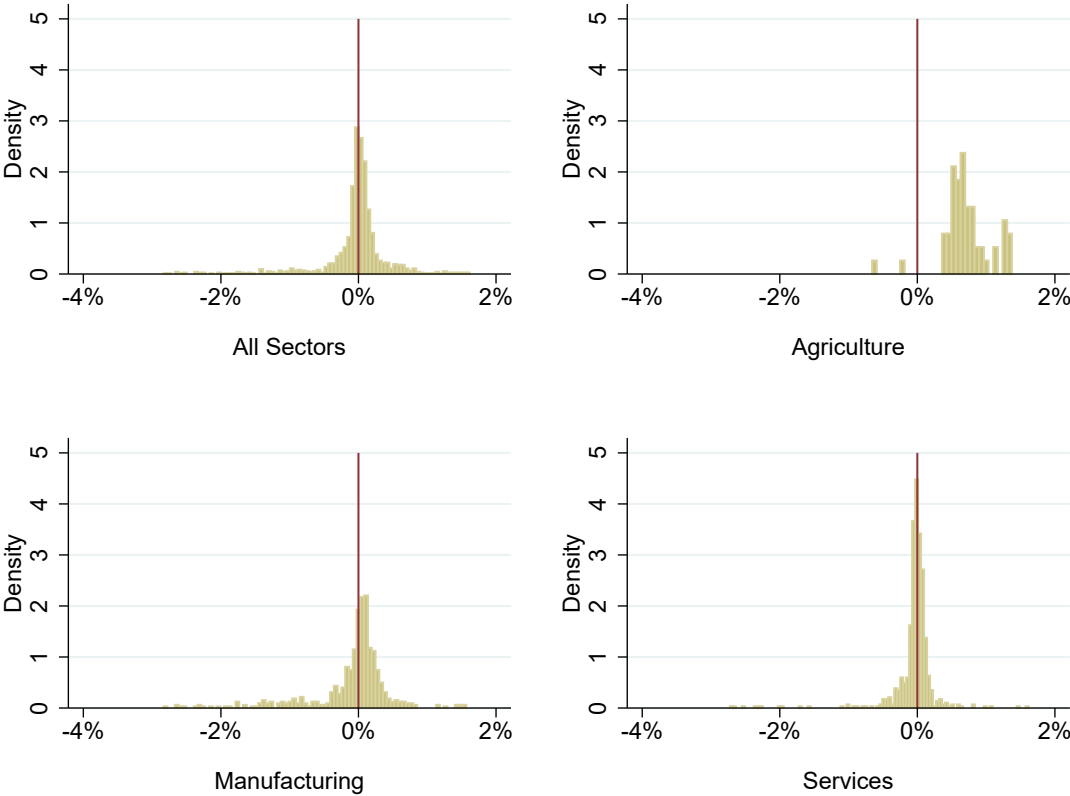
Notes: The figure shows the aggregate welfare effect of Taiwan’s and China’s WTO entry on workers in the manufacturing sectors in economies other than Taiwan over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific. We aggregate the welfare effect across different sectors for each economy by using sectoral labor value added as weights. Data on value added are based on TiVA 2016, and data on labor share of value added are from Karabarbounis and Neiman (2014).

Figure B.25: Welfare effects of Taiwan’s and China’s WTO entry across economies — services



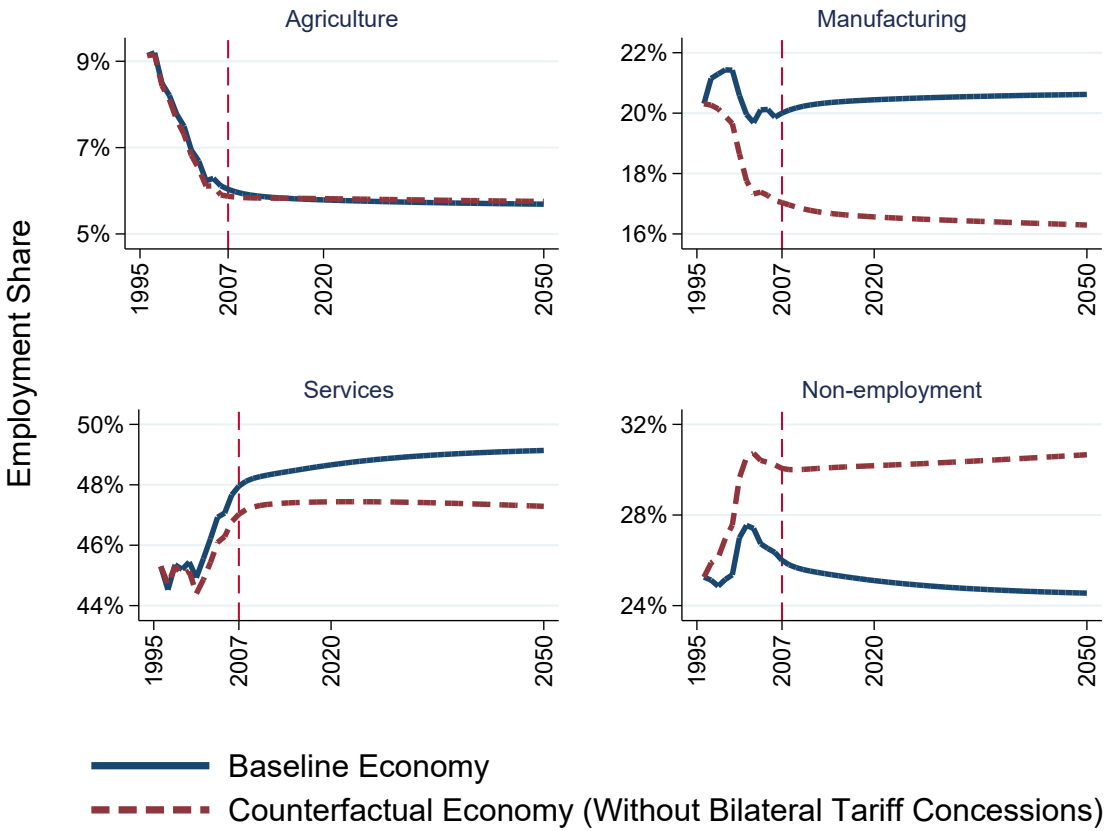
Notes: The figure shows the aggregate welfare effect of both Taiwan’s and China’s WTO entry on workers in the service sectors in economies other than Taiwan over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific. We aggregate the welfare effect across different sectors for each economy by using sectoral labor value added as weights. Data on value added are based on TiVA 2016, and data on labor share of value added are from Karabarbounis and Neiman (2014).

Figure B.26: Distribution of the welfare effects of Taiwan’s and China’s WTO entry across economies and sectors



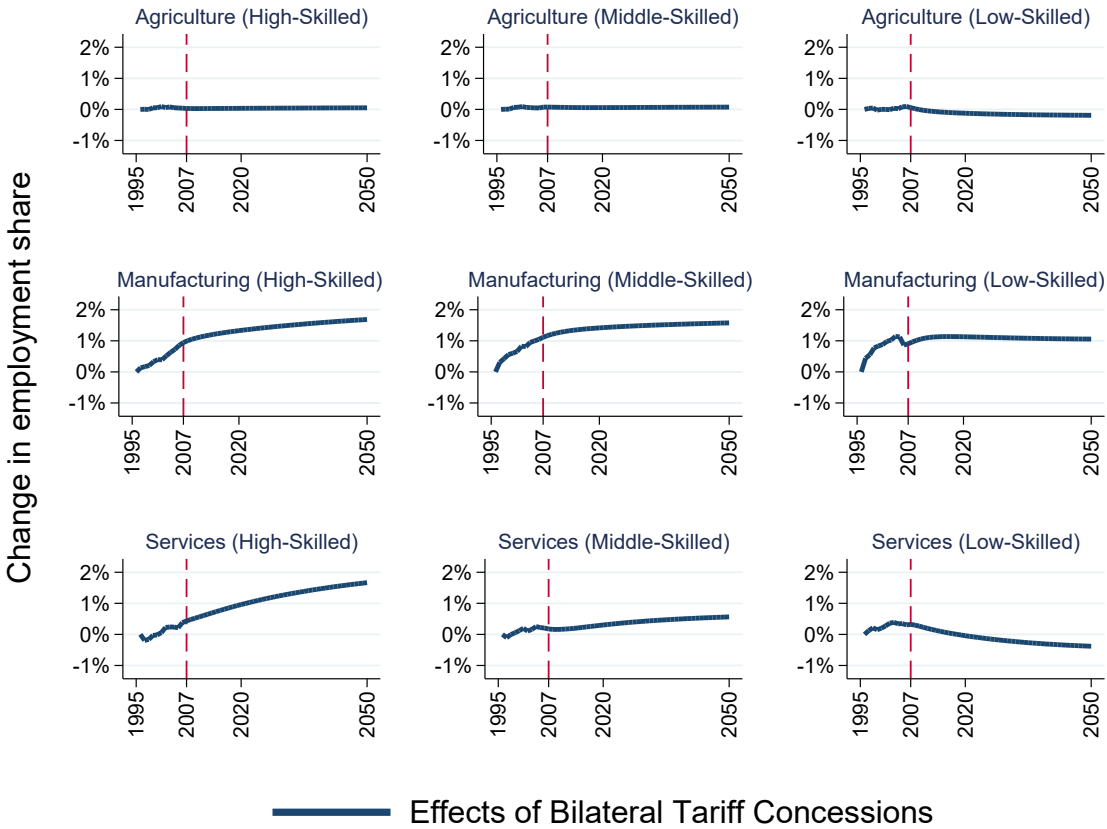
*Notes:* The figure shows the distribution of the welfare effects of Taiwan’s and China’s WTO entry on workers across sectors and economies (other than Taiwan) over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific. In total, there are 1,320 such labor markets across economies (other than Taiwan). Labor markets with the largest and smallest changes in welfare due to Taiwan’s and China’s WTO entry (above the 99th percentile and below the 1st percentile cutoffs) are dropped in each sub-figure.

Figure B.27: Transition dynamics of employment shares in Taiwan — effects of bilateral tariff concessions



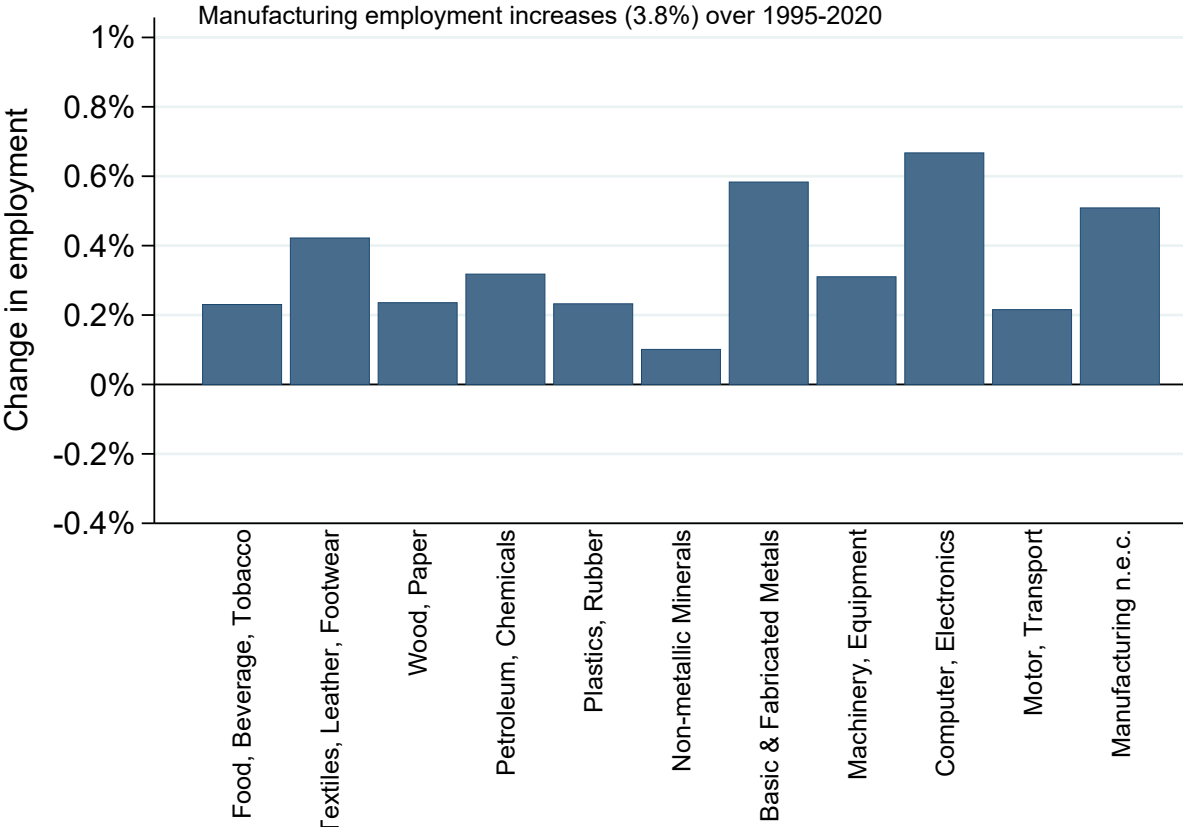
*Notes:* The figure shows the effect of bilateral tariff concessions between Taiwan and China on employment shares in Taiwan by aggregate sectors. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The baseline economy shows the path of employment shares with all time-varying fundamentals evolving as in the data from 1995 to 2007 and constant fundamentals after 2007. The counterfactual economy is the same except that China's tariffs on imports from Taiwan and Taiwan's tariffs on imports from China are set to their levels in 1995. We simulate the model until 3000.

Figure B.28: Transition dynamics of employment shares in Taiwan by skill groups — effects of bilateral tariff concessions



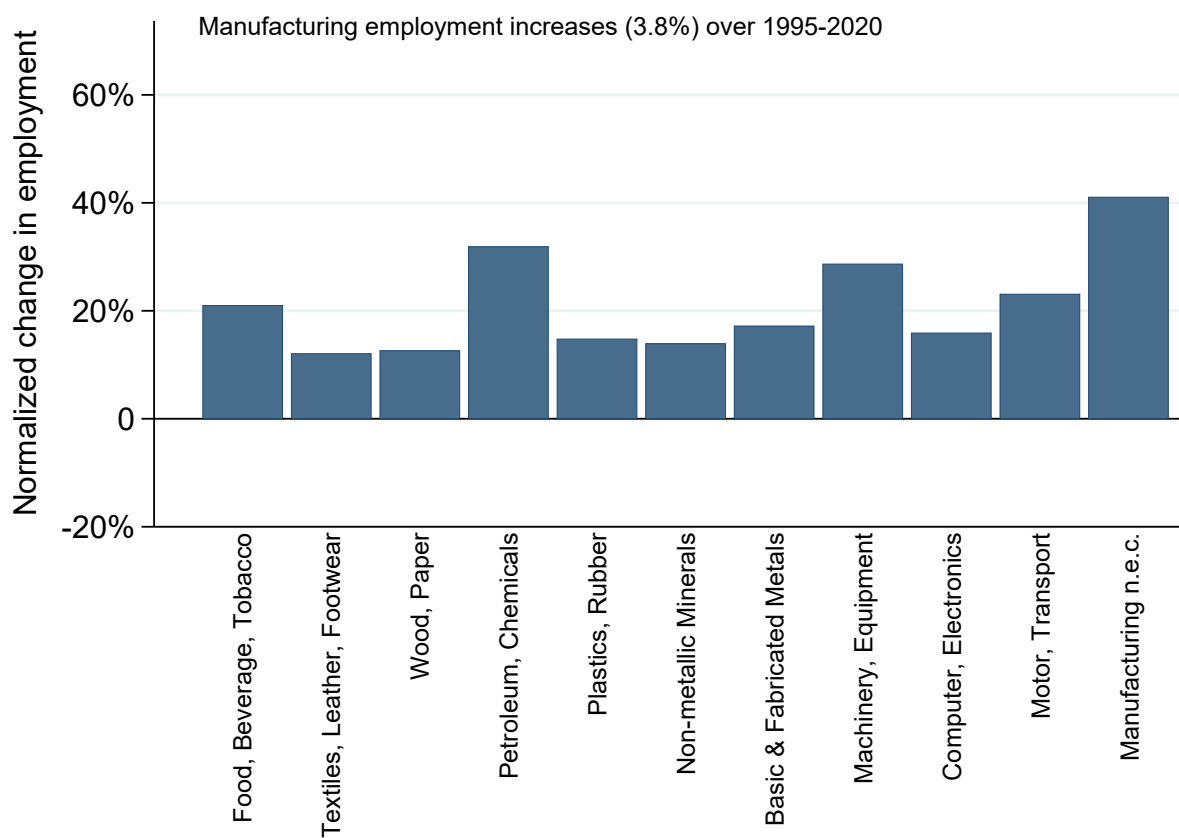
*Notes:* The figure shows the effect of bilateral tariff concessions between Taiwan and China on employment shares in Taiwan by aggregate sectors and skill groups. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. The baseline economy shows the path of employment shares with all time-varying fundamentals evolving as in the data from 1995 to 2007 and constant fundamentals after 2007. The counterfactual economy is the same except that China's tariffs on imports from Taiwan and Taiwan's tariffs on imports from China are set to their levels in 1995. We simulate the model until 3000.

Figure B.29: Effects of bilateral tariff concessions on the employment shares of manufacturing sectors in Taiwan



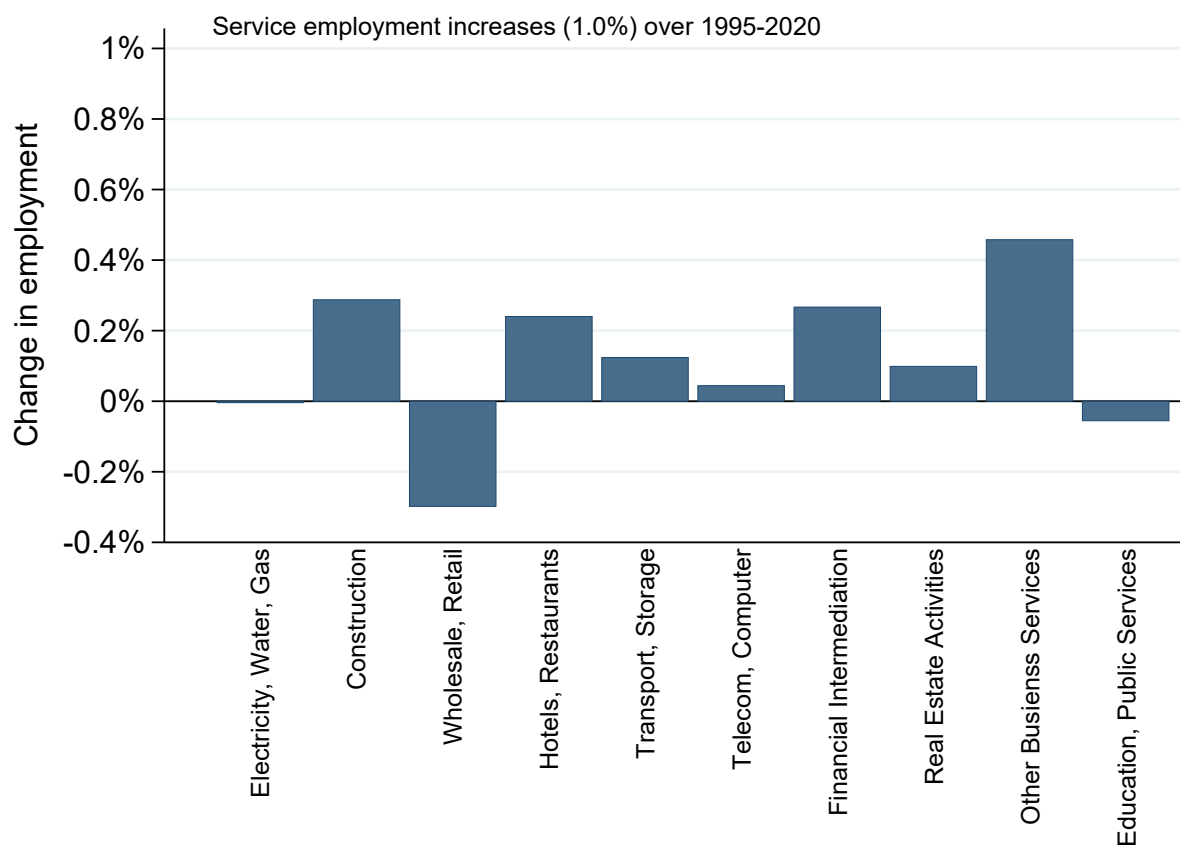
*Notes:* The figure shows the change in employment share for each manufacturing sector in Taiwan over the period of 1995–2020, due to bilateral tariff concessions between Taiwan and China. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.27 footnote for the definitions of the baseline and the counterfactual economy.

Figure B.30: Effects of bilateral tariff concessions on the employment shares of manufacturing sectors in Taiwan — normalized by sector size



*Notes:* The figure shows the normalized change in employment share for each manufacturing sector in Taiwan over the period of 1995–2020, due to bilateral tariff concessions between Taiwan and China. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force) and normalized by the sectoral employment share in year 1995. The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.27 footnote for the definitions of the baseline and the counterfactual economy.

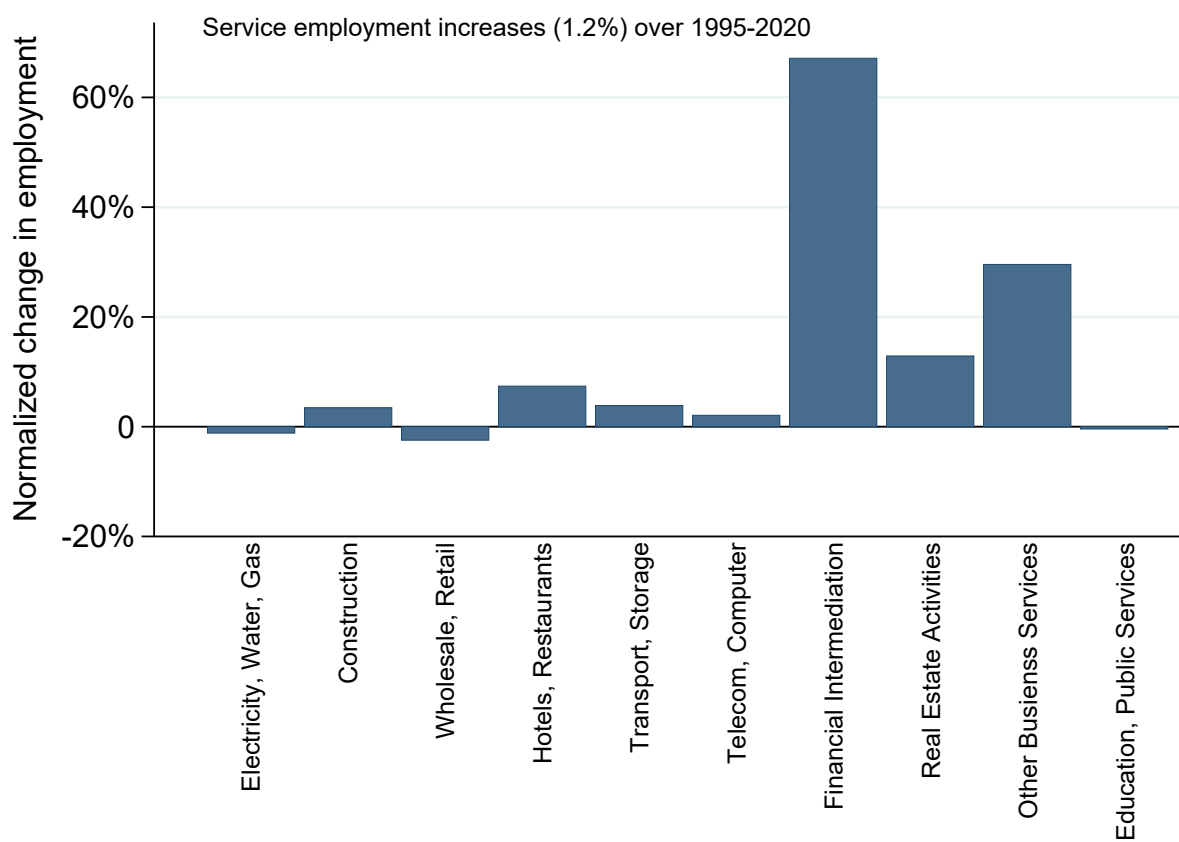
Figure B.31: Effects of bilateral tariff concessions on the employment shares of service sectors in Taiwan



*Notes:* The figure shows the change in employment share for each service sector in Taiwan over the period of 1995–2020, due to bilateral tariff concessions between Taiwan and China. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.27 footnote for the definitions of the baseline and the counterfactual economy.

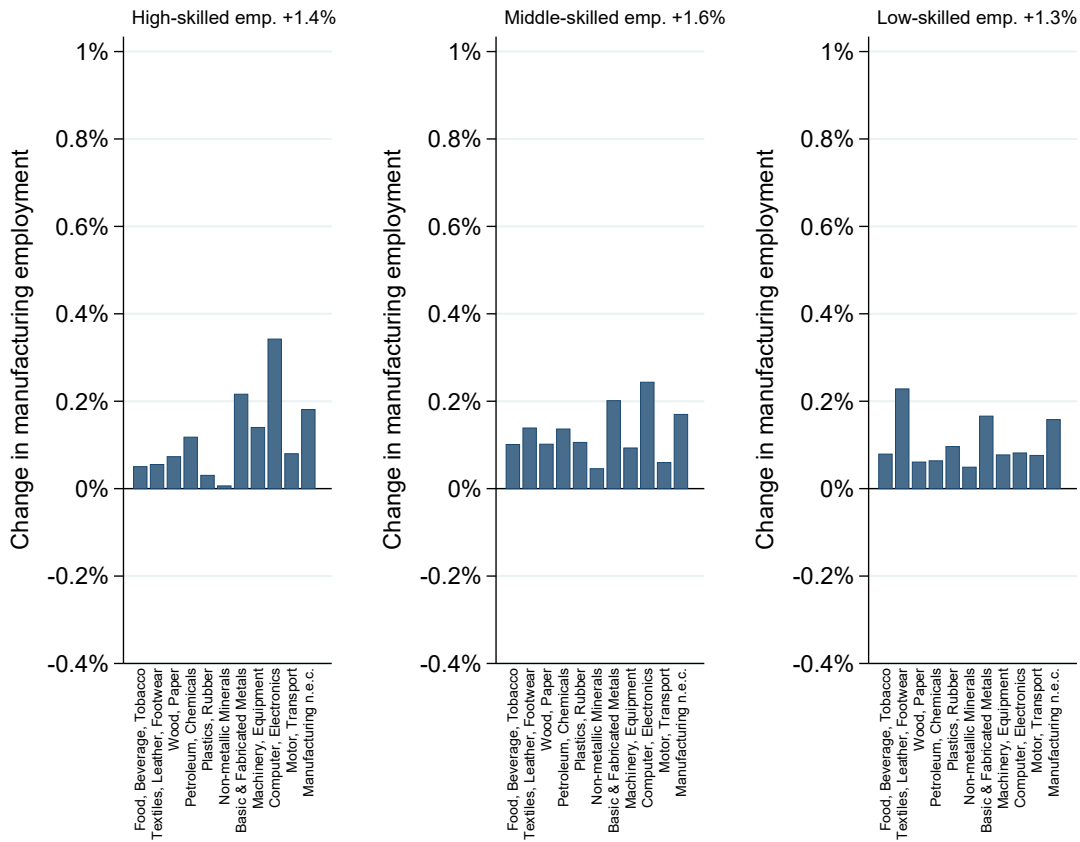


Figure B.32: Effects of bilateral tariff concessions on the employment shares of service sectors in Taiwan — normalized by sector size



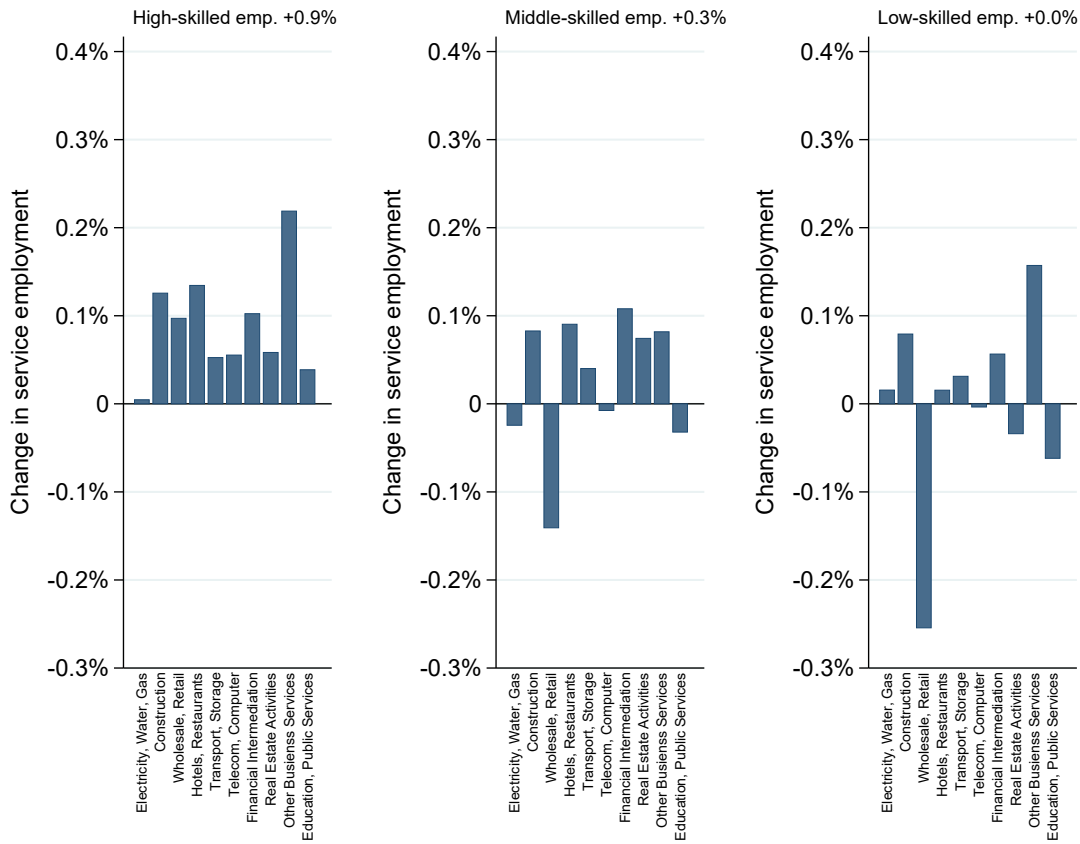
*Notes:* The figure shows the normalized change in employment share for each service sector in Taiwan over the period of 1995–2020, due to bilateral tariff concessions between Taiwan and China. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force) and normalized by the sectoral employment share in year 1995. The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.27 footnote for the definitions of the baseline and the counterfactual economy.

Figure B.33: Effects of bilateral tariff concessions on the employment shares of manufacturing sectors in Taiwan by skill groups



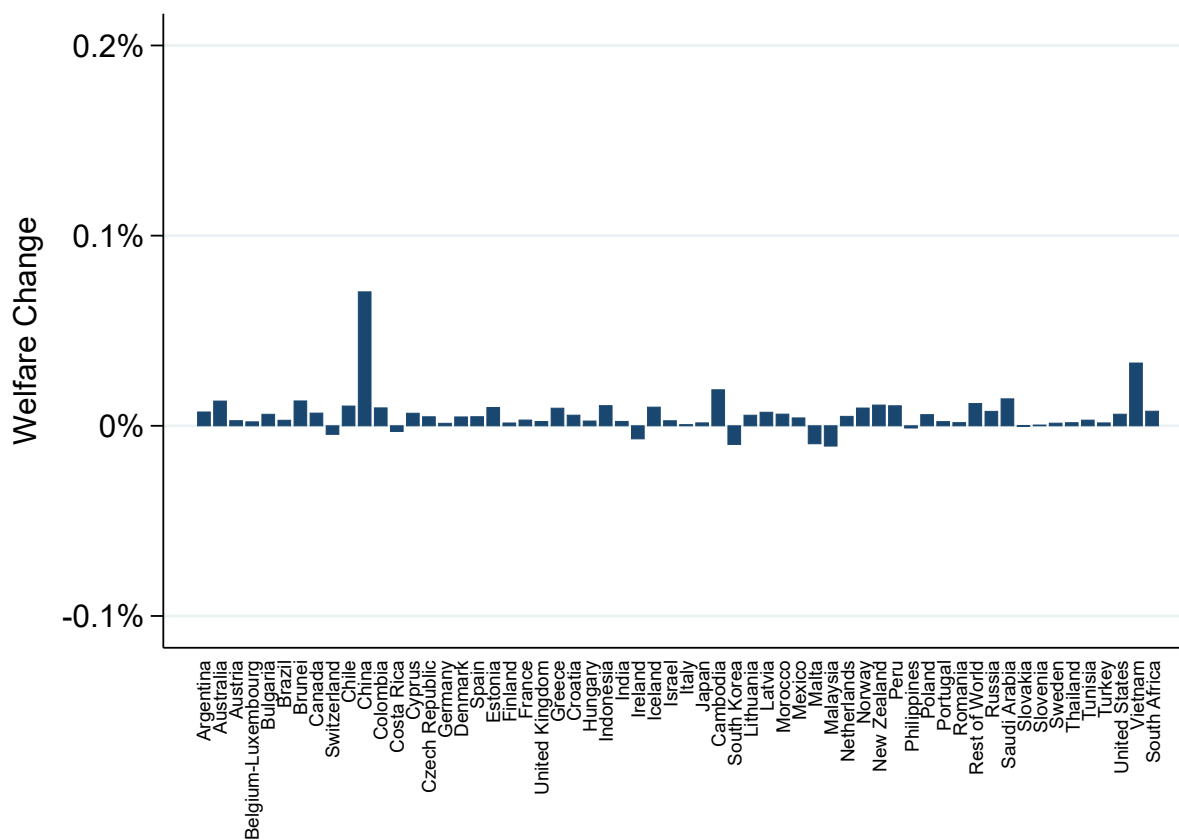
Notes: The figure shows the change in employment share by skill groups for each manufacturing sector in Taiwan over the period of 1995–2020, due to bilateral tariff concessions between Taiwan and China. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.27 footnote for the definitions of the baseline and the counterfactual economy.

Figure B.34: Effects of bilateral tariff concessions on the employment shares of service sectors in Taiwan by skill groups



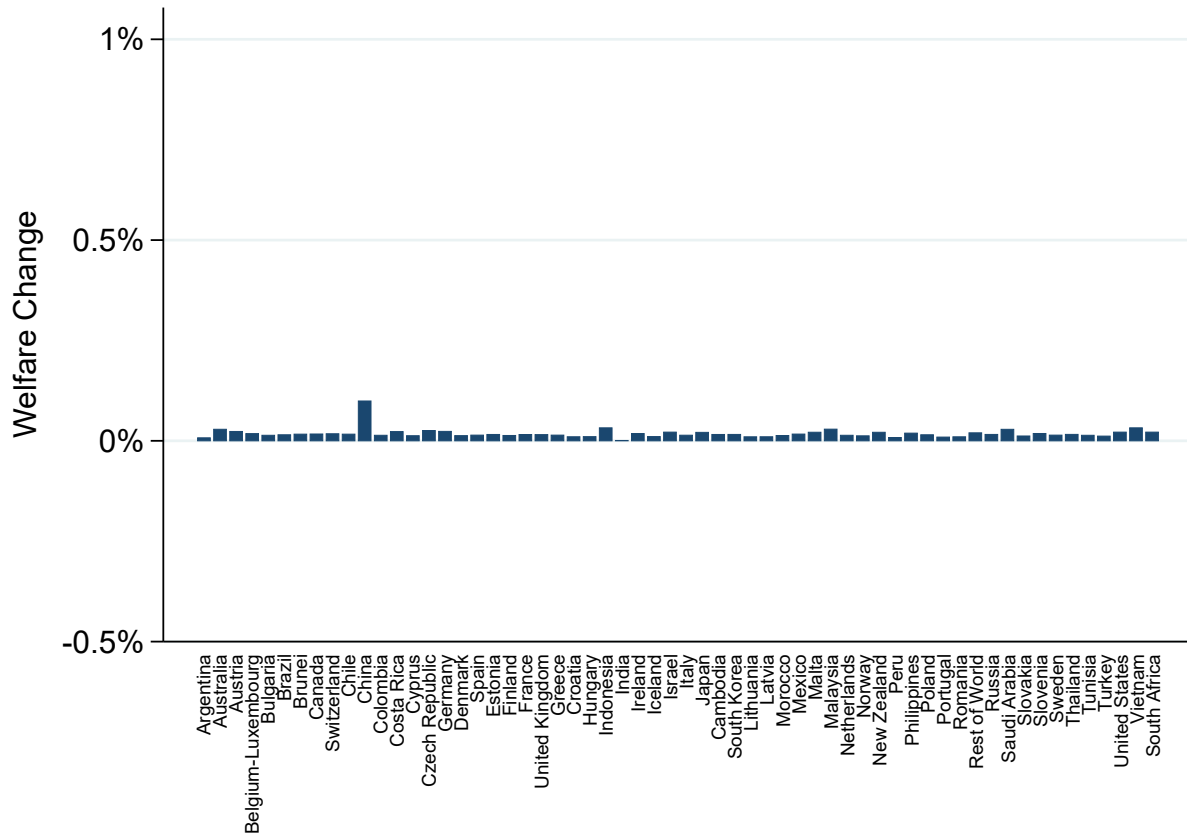
*Notes:* The figure shows the change in employment share by skill groups for each service sector in Taiwan over the period of 1995–2020, due to bilateral tariff concessions between Taiwan and China. The change in employment shares is measured in terms of shares of total population (employed, unemployed, plus not-in-labor-force). The effect is calculated to be the difference between the baseline economy and the counterfactual economy. See Figure B.27 footnote for the definitions of the baseline and the counterfactual economy.

Figure B.35: Welfare effects of bilateral tariff concessions across economies — aggregate



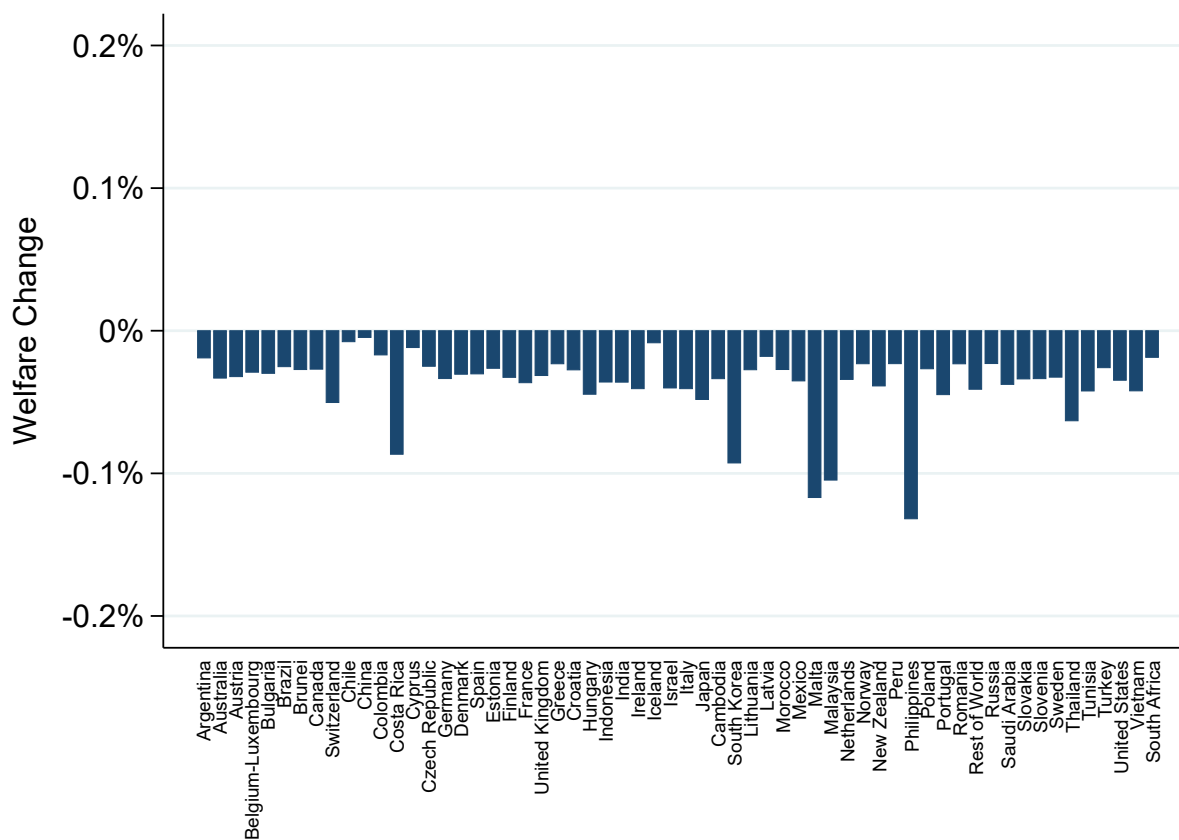
Notes: The figure shows the aggregate welfare effect of bilateral tariff concessions between Taiwan and China on workers in economies other than Taiwan over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific. We aggregate the welfare effect across different sectors for each economy by using sectoral labor value added as weights. Data on value added are based on TiVA 2016, and data on labor share of value added are from Karabarbounis and Neiman (2014).

Figure B.36: Welfare effects of bilateral tariff concessions across economies — agriculture



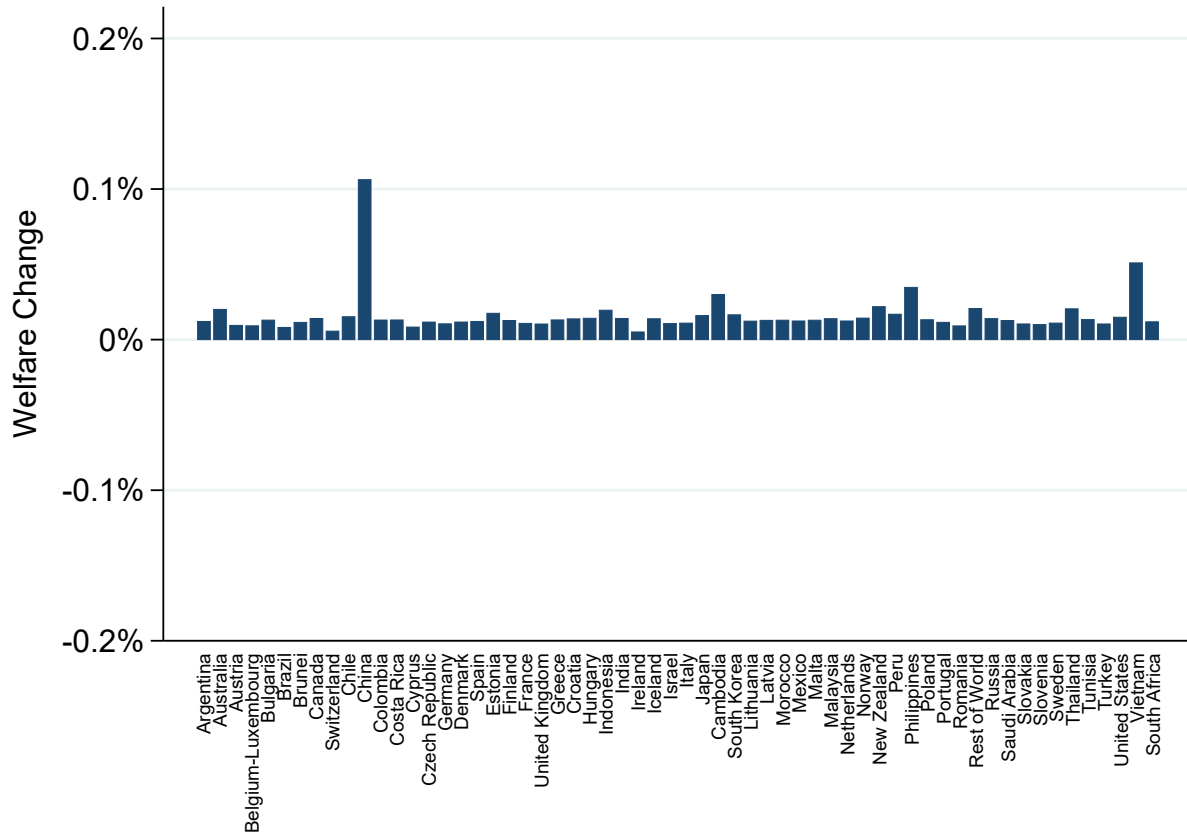
*Notes:* The figure shows the welfare effect of bilateral tariff concessions between Taiwan and China on workers in the agriculture sector in economies other than Taiwan over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific.

Figure B.37: Welfare effects of bilateral tariff concessions across economies — manufacturing



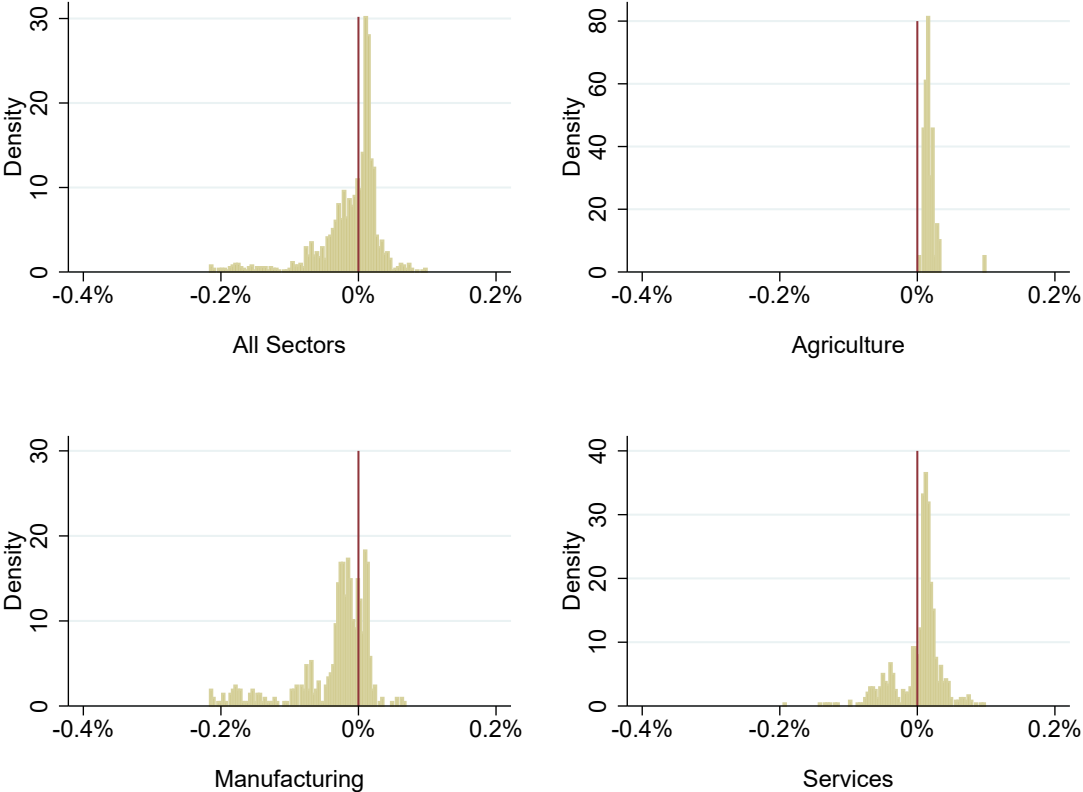
*Notes:* The figure shows the aggregate welfare effect of bilateral tariff concessions between Taiwan and China on workers in the manufacturing sectors in economies other than Taiwan over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific. We aggregate the welfare effect across different sectors for each economy by using sectoral labor value added as weights. Data on value added are based on TiVA 2016, and data on labor share of value added are from Karabarounis and Neiman (2014).

Figure B.38: Welfare effects of bilateral tariff concessions across economies — services



Notes: The figure shows the aggregate welfare effect of bilateral tariff concessions between Taiwan and China on workers in the service sectors in economies other than Taiwan over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific. We aggregate the welfare effect across different sectors for each economy by using sectoral labor value added as weights. Data on value added are based on TiVA 2016, and data on labor share of value added are from Karabarbounis and Neiman (2014).

Figure B.39: Distribution of the welfare effects of bilateral tariff concessions across economies and sectors



*Notes:* The figure shows the distribution of the welfare effects of bilateral tariff concessions between Taiwan and China on workers across sectors and economies (other than Taiwan) over the period of 1995–2020. The labor markets in economies other than Taiwan are country-sector specific. In total, there are 1,320 such labor markets across economies (other than Taiwan). Labor markets with the largest and smallest changes in welfare due to bilateral tariff concessions between Taiwan and China (above the 99th percentile and below the 1st percentile cutoffs) are dropped in each sub-figure.