

How Well Does Korea's Employment Insurance System Support Workers Facing Trade Shocks?¹

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I. Introduction

To optimize the net benefits of trade, effective policies are necessary to support firms and workers who experience adjustment frictions due to trade shocks. This is particularly pertinent to Korea, as its economy is heavily reliant on international trade. To respond to trade shocks in the manufacturing sector, Korea has primarily implemented the Trade Adjustment Assistance System and the Employment Insurance System as complementary domestic measures. The Trade Adjustment Assistance System is used mainly to support trade-affected firms, while the Employment Insurance System is used to assist trade-affected workers. This dual structure is a unique feature of Korea's complementary measures to trade shocks.

The present study aims to conduct an empirical analysis of the effects of Korea's unemployment insurance system in supporting trade-affected workers. To accomplish this, we utilize the increase in Korea's trade with China and Vietnam, resulting from their rapid economic growth since the 2000s, as an exogenous trade shock. Specifically, we investigate the average long-term changes in the earnings and employment status of workers in industries that were relatively exposed to import competition from China and Vietnam during the period of 2003-19.² Then, we analyze how employment insurance programs such as unemployment benefits and vocational training supported the affected workers' earnings and employment stability.³

¹ This is a summary article based on the second subchapter of the third chapter of Koo et al. (2022).

² This analysis is an extension of some of the analysis in the fourth chapter of Koo and Kim (2020) to the period 2003-19.

³ The Korean employment insurance system consists of the unemployment benefit program, which is a passive labor market policy, and employment stability programs and vocational training programs, which are active labor market

II. Empirical Methodology and Data

The main econometric model used in this study is the one used in Koo and Kim (2020).

$$\begin{aligned}
 Y_{ij[t,t+9]} = & \beta_0 + \beta_1 IMP_{j[t,t+9]}^{CV} \\
 & + \beta_2 EXS_{j[t,t+9]}^{CV} + P_{it}\gamma \\
 & + X_j\theta + \alpha_i + \eta_{[t,t+9]} \\
 & + \epsilon_{ij[t,t+9]} \quad (1)
 \end{aligned}$$

The dependent variable $Y_{ij[t,t+9]}$ denotes the ten-year change in earnings, employment status, and experience with the employment insurance system of worker i who worked in industry j in year t (the starting year). $IMP_{j[t,t+9]}^{CV}$ and $EXS_{j[t,t+9]}^{CV}$ denote the ten-year exposure of industry j to import competition from and export expansion to China and Vietnam, respectively. Specifically, $IMP_{j[t,t+9]}^{CV}$ refers to the annualized change in Korean imports of industry j from China and Vietnam in the period t to $t + 9$ divided by the domestic absorption of industry j in the base year (2003). In turn, $EXS_{j[t,t+9]}^{CV}$ refers to the annualized change in Korean exports of industry j to China and Vietnam in the period t to $t + 9$ divided by the gross domestic output of industry j in the base year (2003). To mitigate the endogeneity problem of using the

change in Korea's trade with China and Vietnam to create variables $IMP_{j[t,t+9]}^{CV}$ and $EXS_{j[t,t+9]}^{CV}$, we also generate instrumental variables using the change in trade with China and Vietnam of six countries (Japan, Taiwan, Singapore, Malaysia, Thailand, and India) in the same period, where these countries are comparable to Korea in terms of GDP per capita in the Asian region.⁴ Then, we estimate equation (1) using the 2SLS (Two-Stage Least Squares) method.

P_{it} is a vector of variables controlling for the time-varying characteristics of worker i , including age, age squared, and years of tenure in the occupation he was working in in year t (the starting year). X_j is a vector of variables controlling for characteristics of industry j , including the amount of capital per worker and the wage per worker in industry j in the base year (2003). The other two variables α_i and $\eta_{[t,t+9]}$ denote the individual fixed effects of worker i and the year (or time period) effects, respectively. α_i controls for time-invariant individual characteristics, while $\eta_{[t,t+9]}$ controls for general economic conditions over the 10-year period from t to $t + 9$. Finally, $\epsilon_{ij[t,t+9]}$ stands for the residual term. We use worker-specific weights to ensure that the regressions results are representative, and we

policies. Among the three components, this study focuses on examining the effects of unemployment benefit and vocational training programs on trade-affected workers due to data constraints.

⁴ Korea's imports from and exports to China and Vietnam may be affected by various domestic factors in addition to exogenous factors such as economic

growth in China and Vietnam. For example, Korea's imports from China and Vietnam may increase due to the weakening competitiveness of a particular domestic industry rather than productivity gains in China and Vietnam. Also, offshoring of low-value-added production processes to China and Vietnam may increase imports from China and Vietnam while increasing Korea's productivity in a particular domestic industry.

compute standard errors that are robust to heteroskedasticity by clustering at the worker i level.

In this study, we use the 2003-19 Korean Labor & Income Panel Survey (KLIPS) to track workers' earnings, employment status, and experiences with employment insurance programs over a long period (10 years). Specifically, our sample consists of workers aged 18-54 who were employed in the Korean manufacturing sector during 2003-10 and who participated in the KLIPS survey for at least 10 consecutive years, i.e., until 2012-19. In other words, a sample worker must have been employed in manufacturing in the starting year of the 10-year observation period, while we do not control for the industry in which the worker worked after the starting year and whether the worker continued to work or not. Thus, our regression analysis aims to examine how the ten-year exposure of an industry to trade shocks from China and Vietnam affected a worker who worked in the industry in the starting year of the ten-year period in terms of his or her labor market outcomes and experience with the employment insurance system.

Trade data for Korea and a comparison group of countries (Japan, Taiwan, Singapore, Malaysia, Thailand, and India) with China and Vietnam were obtained from UN Comtrade at the 6-digit HS code level. Data on domestic absorption and gross domestic product by industry for the base year (2003) were obtained

from the 2003 Industrial Input-Output Table provided by the Bank of Korea, the National Business Survey, and the Mining and Manufacturing Survey.⁵

III. Main Results

Our study's findings align with those of Koo and Kim (2020) in that the long-term trajectory of a worker's earnings and employment status exhibits significant variations based on the extent to which the industry of initial employment was exposed to trade shocks emanating from China and Vietnam. Specifically, a 10%p increase in an industry's exposure to import competition from China and Vietnam over a 10-year period was associated with a 4.8%p decrease in labor income growth rate over the same period for workers employed in the industry in the starting year. On the contrary, a 10%p increase in an industry's exposure to increased exports to China and Vietnam over a 10-year period led to a 5%p increase in labor income growth rate over the same period for workers employed in the industry in the starting year (see column (1) in Table 1). In addition, a 10%p increase in the exposure of a worker's industry to import competition from China and Vietnam over the next 10 years let the worker experience 0.1 more involuntary separations over the same period (see column (2) in Table 1). Therefore, the job security of workers in industries exposed to import competition from China and Vietnam was weakened in the long run.

⁵ See the second subchapter of the third chapter of

Koo et al. (2023) for details.

Table 1. The Long-term (10 years) Performance of Korea's Employment Insurance System against Trade Shocks from China and Vietnam

	Period: 2003–19				
	Log difference in monthly earnings for 10 years	Number of involuntary job losses for 10 years	Number of unemployment benefits received for 10 years	Number of experiences in gov't-funded vocational training programs for 10 years	Likelihood of being covered by employment insurance if employed for 10 years
	(1)	(2)	(3)	(4)	(5)
	(2SLS)	(2SLS)	(2SLS)	(2SLS)	(2SLS)
Industrial exposure to import competition for 10 years	-0.483*** (0.186)	0.010*** (0.003)	0.005** (0.002)	-0.001 (0.000)	0.000 (0.006)
Industrial exposure to export expansion for 10 years	0.497*** (0.164)	-0.002 (0.002)	-0.002** (0.001)	0.001* (0.001)	0.013*** (0.004)
Time-varying individual characteristics	0	0	0	0	0
Initial industrial characteristics	0	0	0	0	0
Individual fixed effects	0	0	0	0	0
Time fixed effects	0	0	0	0	0
Observations	3,984	3,984	3,984	3,984	3,984
# of respondents	845	845	845	845	845

Notes: 1) All variables except controls for individual/industry characteristics and time effects are annualized.

2) The figures in parenthesis are robust standard errors. (*** p<0.01, ** p<0.05, * p<0.1)

In columns (3) through (5) of Table 1, we present how workers who were more exposed to import competition from China and Vietnam were supported, on average, by the Korean employment insurance system. Our analysis reveals that workers who were more exposed to Chinese and Vietnamese import competition were significantly more likely to receive unemployment benefits. Specifically, an increase of 10%p in an industry's exposure to Chinese and

Vietnamese import competition over a 10-year period resulted in a 0.05 increase in the number of unemployment benefits received by workers employed in that industry in the first year. However, we find no significant evidence that greater relative exposure to Chinese and Vietnamese import competition makes workers more likely to participate in government-sponsored vocational training. Rather, workers in industries with higher export growth to China

and Vietnam were significantly more likely to participate in government-sponsored training. Furthermore, our analysis suggests that greater relative exposure to import competition from China and Vietnam did not lead to a higher like-

lihood of being covered by employment insurance. In contrast, workers in industries with higher export growth to China and Vietnam were significantly more likely to have their jobs covered by employment insurance.

Table 2. The Effects of Korean Industry's Exposure to Trade Shocks from China and Vietnam on the Labor Income of Manufacturing Workers (Heterogeneous Effects Depending on Employment Insurance Experience)

	Period: 2003–19	
	Log difference in monthly earnings for 10 years	Log difference in monthly earnings for 10 years
	(1) (2SLS)	(2) (2SLS)
Industrial exposure to import competition from China and Vietnam for 10 years	-0.512* (0.302)	-0.546*** (0.195)
Industrial exposure to export expansion to China and Vietnam for 10 years	0.475*** (0.171)	0.577*** (0.173)
Unemployment benefits received	-18.617*** (7.225)	
Unemployment benefits received x Industrial exposure to import competition from China and Vietnam for 10 years	1.671 (2.173)	
Unemployment benefits received x Industrial exposure to export expansion to China and Vietnam for 10 years	1.671 (4.368)	
Gov't-funded vocational programs attended		16.653* (9.253)
Gov't-funded vocational programs attended x Industrial exposure to import competition from China and Vietnam for 10 years		-0.257 (3.631)
Gov't-funded vocational programs attended x Industrial exposure to export expansion to China and Vietnam for 10 years		-6.859*** (2.229)
Time-varying individual characteristics	0	0
Initial industrial characteristics	0	0
Individual fixed effects	0	0
Time fixed effects	0	0
Observations	3,984	3,984
# of respondents	845	845

Notes: 1) All variables except controls for individual/industry characteristics and time effects are annualized.

2) The figures in parenthesis are robust standard errors. (***) $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

In Table 2, we present whether receipt of unemployment benefits or participation in government-funded vocational training played a significant role in improving labor income growth for workers employed in industries exposed to import competition from China and Vietnam. We do not find that receipt of unemployment benefits significantly improves long-term (10-year) labor income growth for workers in industries exposed to import competition (see column (1) in Table 2). In contrast, participation in government-funded vocational training appears to have been statistically significant in increasing workers' long-term (10-year) earnings growth, with workers in industries exposed to increased import competition benefiting more than workers in industries exposed to increased exports (see column (2) in Table 2). Specifically, workers in industries with a 10%p increase in import competition over 10 years experienced, on average, a 16%p higher labor income growth rate from one-time participation in government-sponsored training. For workers in industries with a 10%p increase in exposure to export expansion over the 10-year period, one-time participation in government-sponsored training increased the earnings growth rate by 10%p. This implies that, while job training also increased the earnings growth rate for workers in export-expanding industries, the effect was 6%p less than the effect of training for workers in import-competing industries.

IV. Conclusion

The main findings of this study are as follows. The rapid economic growth of China and Vietnam since the 2000s has subjected some Korean industries to heightened import competition. The Korean workers who were employed in these industries in their earlier careers tended to experience a long-term (10-year) decline in the growth rate of labor income and a relative deterioration in their employment security as the probability of involuntary job separation increased. With an increased probability of involuntary job separation, workers in import-competing industries were more likely to receive unemployment benefits. This implies that the unemployment benefit system in Korea was relatively effective in the short term to alleviate employment shocks triggered by trade shocks. Nevertheless, the trade adjustment support function of the unemployment benefit system had certain limitations in that the receipt of unemployment benefits could not ultimately counteract the downward trend in long-term labor income for workers in import-competing industries.

In contrast to unemployment benefits, government-supported vocational training holds the potential to increase the long-term earnings of workers more exposed to import competition. However, workers employed in import-competing industries were not more likely to participate in government-supported vocational training; on the contrary, workers in export-expanding industries were more likely to participate in government-supported

vocational training. This finding implies that the jobs of workers in import-intensive industries were less likely to be covered by employment insurance than those in export-intensive industries. Consequently, workers in import-intensive industries, who are at greater risk of trade shocks, may be less safeguarded than their counterparts in export-growing industries under the prevailing employment insurance system.

These findings suggest that policy efforts should be made to ensure that the employment

insurance system covers more firms and workers that are likely to be negatively affected by trade. They also suggest that improving the effectiveness of vocational training programs may be one of the most important ways to increase the effectiveness of policies to support trade-affected workers. More research is needed to determine what types of vocational training programs should be established and how such programs should be implemented to have the most positive impact on the labor outcomes of workers in import-competitive industries. **KIEP**

References

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