

A COMPARATIVE STUDY ON THE IMPACTS OF TRADE EXPANSION AND FDI ON EMPLOYMENT IN KOREA AND VIETNAM

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SUMMARY

This paper compares the impacts of trade expansion and FDI on employment in the case of Korea and Vietnam. In the case of Korea, it shows that outward direct investment corresponds positively to employment. The role of exports and imports in employment generation has been changed in that exports have been no longer a source a job creation while import intensity displaced domestic jobs in recent years. In the case of Vietnam, it is found that there are export-induced efficiencies in the use of labor in export sector. Regarding FDI inflows, it has positive impacts on employment in the current period. However, it also promotes efficiencies and productivity as the lagged FDI inflows has negative impacts on employment. Both regression models of Korea and Vietnam show its robustness.

Key words: *Employment, Trade, Foreign Direct Investment, GMM, Korea, Vietnam*

INTRODUCTION

This paper focuses on two major aspects of globalization, international trade and FDI and their impacts on manufacturing employment in a comparative study between Korea and Vietnam. In the Korea's case, this paper investigates the impacts of trade expansion and FDI outflows on the generation of employment. For Vietnam, it examines how trade expansion and FDI inflows are associated with the employment level. Therefore, the focus of this study is on three key questions: (1) What are the impacts of trade expansion and FDI inflows on employment in Korea and Vietnam? (2) How do these impacts affect these economies differently? (3) What policy implications do these empirical results suggest?. Our contribution to the existing literature is twofold. This study incorporates both trade and FDI into a single model. International trade and FDI are closely linked with each other. However, the international trade and FDI have been separated in the analysis of employment effects in the existing literature. Second, this study uses a system GMM estimator, which is more appropriate for a short panel dataset than the static or first differenced GMM estimator.

MODEL SPECIFICATION

This study starts with the Cobb-Douglas production function:

$$Q_{it} = A^{\gamma} K_{it}^{\alpha} N_{it}^{\beta} \quad (1)$$

where: i denotes industry; t denotes time; Q represents real output; A represents total factor productivity (TFP); K represents capital stock; N represents units of labor utilized; α and β denote factor share coefficients; γ allows for growth in efficiency in the production process.

Assuming that firms are profit-maximizing, the marginal productivity of labor equals the wage (w) and the marginal revenue product of capital equals its real cost (C). Solving this system simultaneously to eliminate capital from the expression for firms' output yields the following equation:

$$Q_{it} = A^{\gamma} \left(\frac{\alpha N_{it} * W_t}{\beta C} \right)^{\alpha} N_{it}^{\beta} \quad (2)$$

Taking logarithms to linearize and rearrange the above equation provides the derivation of the firms', and thus the industry's, derived demand for labor as:

$$\ln N_{it} = \phi_0 + \phi_1 \ln \left(\frac{W_t}{C} \right) + \phi_2 \ln Q_{it} + \varepsilon_{it} \quad (3)$$

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Where $\phi_0 = -\frac{(\gamma \ln A + \alpha \ln \alpha - \alpha \ln \beta)}{(\alpha + \beta)}$;

$\phi_1 = -\frac{\alpha}{(\alpha + \beta)}$; $\phi_2 = \frac{1}{(\alpha + \beta)}$ and ε_{it} is a disturbance term.

Regarding the total factor productivity (TFP), A , one may expect that TFP of the production process increases over time and that the rate of technology adoption and the increases in x-efficiency would be correlated with trade expansion and FDI inflows via pressures of competition in the international markets and knowledge spillovers from FDI-funded imports and other foreign contacts. In fact, previous empirical studies (Greenaway et al., 1999; Fu and Balasubramanyam, 2005) show that exports, imports, and FDI inflows all have impacts on the TFP. On the one hand, existing studies focusing on the role of exports and imports as sources of the impacts of trade expansion on TFP conclude that both exports and imports, by and large, enhance productivity (Greenaway et al., 1999; Hoekman and Winters, 2005). Regarding the impacts of FDI on TFP, empirical evidences indicate the positive effect of FDI on TFP (Fu and Balasubramanyam, 2005). This can be partly explained by the fact that the FDI inflows are not only a source of capital, but also a supplier of technology transfer. Therefore, parameter A is hypothesized in the production function, which varies with time in the following manner:

$$A_{it} = e^{\delta_0 T_i} X_{it}^{\delta_1} M_{it}^{\delta_2} FDI_{it}^{\delta_3}, \quad (4)$$

$$\delta_0, \delta_1, \delta_2, \delta_3 > 0$$

Where: T is time trend; X is export intensity index of industry i in year t (measured by export-output ratio); M is import penetration index of industry i in year t {measured as a share of apparent consumption (is measured as domestic production + imports – exports)}; FDI is the inflows of foreign direct investment of industry i in year t .

Therefore, the labor demand equation can be derived from the combination of (3) and (4) as follows:

$$\ln N_{it} = \phi_0^* - \mu_0 T - \mu_1 \ln M_{it} - \mu_2 \ln X_{it} - \mu_3 \ln FDI_{it} + \phi_1 \ln\left(\frac{W_i}{C}\right) + \phi_2 \ln Q_{it} + \varepsilon_{it} \quad (5)$$

Where, $\phi_0^* = \frac{\alpha(\ln \beta - \ln \alpha)}{(\alpha + \beta)}$;

$$\mu = \frac{\gamma}{(\alpha + \beta)}; \mu_0 = \mu\delta_0; \mu_1 = \mu\delta_1;$$

$$\mu_2 = \mu\delta_2; \text{ and } \mu_3 = \mu\delta_3$$

Many economic relationships are dynamic, and one of the advantages of panel data is that they allow researchers to understand the dynamics of adjustment. To take adjustment processes into account, time lags are also introduced for the independent variables. Following Greenaway et al. (1999) variation in users' cost of capital (c) is captured by time dummies in estimation by assuming perfect capital markets; thus it varies only over time. Explanatory variables are assumed to have common impacts across industries. In order to eliminate the industry specific effects and to ensure that the two-year lag of level variables is not correlated with error terms, the employment equation (5) is differenced and a dynamic employment equation is derived as follows.

$$\Delta \ln N_{it} = -\mu_0 + \sum_{j=1}^t \phi_0^j \Delta \ln N_{i,t-j} - \sum_{j=0}^t \mu_1^j \Delta \ln X_{i,t-j} - \sum_{j=0}^t \mu_2^j \Delta \ln M_{i,t-j} - \sum_{j=0}^t \mu_3^j \Delta \ln FDI_{i,t-j} + \sum_{j=0}^t \phi_1^j \Delta \ln\left(\frac{W_{i,t-j}}{C_{t-j}}\right) + \sum_{j=0}^t \phi_2^j \Delta \ln Q_{i,t-j} + \Delta \eta_t + \Delta \varepsilon_{it} \quad (6)$$

where Δ indicates differences in variables' transformation; for example, $\Delta \ln N_{it} = \ln N_{it} - \ln N_{i,t-1}$.

Unlike the unobserved industry-specific effects, time-specific effects are not eliminated by the difference transformation of variables. Equation (7) will be used to estimate separately for each country.

ESTIMATION RESULTS AND DISCUSSIONS

Table 1. Korea's System one-step GMM Estimation Results: 1991-1997

Independent Variables	Specification 1 (Base model)		Specification 2 (Full model)	
	Coefficient	t-ratio	Coefficient	t-ratio
$\Delta \ln N_{t-1}$	0.381	4.18***	0.245	2.59**
$\Delta \ln (W/C)_t$	0.003	0.01	-0.071	-0.31
$\Delta \ln (W/C)_{t-1}$	0.077	0.47	-0.001	-0.01
$\Delta \ln Q_t$	0.041	0.24	0.141	0.71
$\Delta \ln Q_{t-1}$	0.243	3.41***	0.374	5.78***
$\Delta \ln EXTEN_t$			0.037	1.69
$\Delta \ln EXTEN_{t-1}$			0.034	2.22**
$\Delta \ln IMPEN_t$			-0.037	-0.68
$\Delta \ln IMPEN_{t-1}$			0.023	0.63
$\Delta \ln ODI_t$			0.011	1.98*
$\Delta \ln ODI_{t-1}$			0.008	1.03
Constant	-0.021	-0.08	-0.127	-0.49
AR (1) p-value	0.051		0.064	
AR (2) p-value	0.850		0.785	
Instrument validity test (Sargan)	0.09		0.26	
No. of groups	22		22	
Total observation	110		110	

Note: 1. The dependent variable is $\Delta \ln N_t$

2. Coefficients on time dummies are not reported

3. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively.

Table 2. Korea's System one-step GMM Estimation Results: 1999-2006

Independent Variables	Specification 1 (Base model)		Specification 2 (Full model)	
	Coefficient	t-ratio	Coefficient	t-ratio
$\Delta \ln N_{t-1}$	0.151	1.28	0.150	1.44
$\Delta \ln (W/C)_t$	-0.383	-8.33***	-0.265	-5.52***
$\Delta \ln (W/C)_{t-1}$	-0.086	-1.13	-0.146	-1.96*
$\Delta \ln Q_t$	0.437	10.13***	0.496	10.08***
$\Delta \ln Q_{t-1}$	0.041	0.61	-0.015	-0.21
$\Delta \ln EXTEN_t$			0.017	0.99
$\Delta \ln EXTEN_{t-1}$			0.005	0.39
$\Delta \ln IMPEN_t$			0.033	1.26
$\Delta \ln IMPEN_{t-1}$			-0.079	-2.41**
$\Delta \ln ODI_t$			0.014	3.18***
$\Delta \ln ODI_{t-1}$			0.004	1.39
Constant	-0.159	-3.67***	-0.174	-4.40***
AR (1) p-value	0.002		0.002	
AR (2) p-value	0.631		0.862	
Instrument validity test (Sargan)	0.08		0.194	
No. of groups	22		22	
Total observation	132		132	

Note: 1. The dependent variable is $\Delta \ln N_t$

2. Coefficients on time dummies are not reported

3. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively.

Tables 1 to 3 report the results of one-step GMM estimations of Equation (7) for Korea and Vietnam. Table 1 presents the result of estimations for the sub-period of 1991-1997. It is essential to highlight in this period that exports are positively correlated with employment whereas imports do not have statistically significant impacts on employment. It is argued that the major bulks of manufacturing imports were machinery and transport equipments, which were highly intra-industry trade. Thus, imports were a complementary to domestic productions thus it did not necessarily have negative impacts on employment. Regarding ODI, current investment outflows are positively correlated with employment at 10 percent significant level. However, lagged investment outflows are positive but statistically insignificant, indicating that the positive impact is weak in this period and that the positive impact is fade away.

The estimated coefficients for the post crisis period are reported in Table 2. As compared to the first period, wage and output behave better in terms of statistical significance. Also, the magnitude of the impacts is stronger. It is noteworthy to witness the changes in the effects of exports and imports on employment. Exports are no longer positively correlated with employment at the conventional level of significance. On the other hand, imports have negative impacts on employment in this period. This means that the growth of imports is negatively associated with the employment, indicating that import intensity will displace domestic job. Concerning ODI, we find a positive impact of investment outflows on employment at a 1% statistical significance. The positive employment effect of ODI was stronger in this period as compared to the previous period owing to the deepening of the market-seeking investment.

Table 3. Vietnam's System one-step GMM Estimation Results

Independent Variables	Specification 1 (Base model)		Specification 2 (Full model)	
	Coefficient	t-ratio	Coefficient	t-ratio
$\Delta \ln N_{t-1}$	-0.12384	-1.01	0.011	0.10
$\Delta \ln (W/C)_t$	-0.35756	-4.18***	-0.331	-4.88***
$\Delta \ln (W/C)_{t-1}$	-0.33025	-3.69***	-0.296	-3.41***
$\Delta \ln Q_t$	0.58145	3.81***	0.522	3.02***
$\Delta \ln Q_{t-1}$	0.54726	2.31**	0.417	1.70
$\Delta \ln EXTEN_t$			-0.007	-0.11
$\Delta \ln EXTEN_{t-1}$			-0.038	-2.65**
$\Delta \ln IMPEN_t$			0.016	0.51
$\Delta \ln IMPEN_{t-1}$			-0.039	-1.33
$\Delta \ln FDI_t$			0.007	2.00*
$\Delta \ln FDI_{t-1}$			-0.007	-2.61**
Constant	-0.140	-1.35	-0.109	-1.18
AR (1) p-value		0.009		0.004
AR (2) p-value		0.296		0.673
Instrument validity test (Sargan)		0.004		0.01
No. of groups		22		22
Total observation		88		88

Note: 1. The dependent variable is $\Delta \ln N_t$

2. Coefficients on time dummies are not reported

3. ***, **, and * represent statistical significance at the 1%, 5%, and 10% level, respectively.

In the case of Vietnam, the result of our base specification shows that an increase in output positively impacts labor demand; whereas a rise in the wage decreases the employment level. The lagged dependent variable's estimated coefficient is negative and statistically insignificant, indicating that fast growth in one year might reduce the growth potential for the succeeding year. This result is also consistent with a study on China by Fu and Balasubramanyam (2004). In the panel 2 of Table 3, we incorporate three new explanatory variables; namely, exports, imports, and FDI. Again, the Sargan test for instrumental validity is satisfied and the Arellano–Bond test for the existence of second–order correlation cannot reject the null hypothesis that the residuals have no second–order correlation. The introduction of exports and imports as independent variables into the regression equation did not change the signs of the estimated coefficients of industrial output or wage, reflecting the robustness of the model. An increase in the output will be followed by increasing labor demand; whereas an increase in the wage rate will lead to a decline in the employment level, with statistical significance at conventional levels.

The results of introducing exports and imports into the base model are statistically insignificant at conventional level for the current estimated coefficients. However, the lagged estimated coefficients of exports is negative and statistically significant at 5% level, indicating that there are export-induced efficiencies in the use of labor in export sector in the previous period. This result is in line with the result of Greenaway etc. (1999) for the UK. Regarding FDI inflows, it has positive impacts on employment in the current period. However, it also promotes efficiencies and productivity as the lagged FDI inflows has negative impacts on employment.

CONCLUSION

The empirical study on the impacts of trade and FDI on employment in Korea and Vietnam yields several notable results. In the case of Korea, it shows that growth in current output positively impacts employment; whereas growth in current wage has a negative effect on employment. The impacts of output have been found to be stronger in compared to wage on employment. Outward direct investment corresponds positively to employment which can be explained in a number of ways such as the supervisory and ancillary employment at home and the demand stimulation by foreign subsidiaries for domestically-produced intermediate products. The role of exports and imports in employment generation has been changed in that exports have been no longer a source a job creation while import intensity displaced domestic jobs in recent years.

In the case of Vietnam, the result of our base specification shows that an increase in output positively impacts labor demand; whereas a rise in the wage decreases the employment level. The results of introducing exports and imports into the base model are statistically insignificant at conventional level for the current estimated coefficients. However, it is found that there are export-induced efficiencies in the use of labor in export sector. Regarding FDI inflows, it has positive impacts on employment in the current period. However, it also promotes efficiencies and productivity as the lagged FDI inflows has negative impacts on employment. Both regression models of Korea and Vietnam show its robustness.

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TÓM TẮT
NGHIÊN CỨU SO SÁNH ẢNH HƯỞNG CỦA THƯƠNG MẠI VÀ ĐẦU TƯ
TRỰC TIẾP NƯỚC NGOÀI ĐẾN VIỆC LÀM TẠI HÀN QUỐC VÀ VIỆT NAM

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Trường Đại học Kinh tế & Quản trị kinh doanh – ĐH Thái Nguyên

Bài viết so sánh sự ảnh hưởng của thương mại quốc tế và đầu tư trực tiếp nước ngoài đến việc làm giữa Hàn Quốc và Việt Nam. Đối với Hàn Quốc, kết quả nghiên cứu cho thấy đầu tư trực tiếp ra nước ngoài ảnh hưởng tích cực đến việc làm. Xuất khẩu làm mất việc làm trong giai đoạn 1991-1997, tuy nhiên xuất khẩu lại không ảnh hưởng đến việc làm trong giai đoạn 1999-2006, ngược lại nhập khẩu có tác động tiêu cực đến việc làm tại Hàn Quốc trong giai đoạn 1999-2006. Trong trường hợp của Việt Nam, trẻ của xuất khẩu ảnh hưởng tiêu cực đến việc làm, trong khi đó đầu tư trực tiếp nước ngoài ảnh hưởng tích cực đến việc làm.

Từ khóa: *Việc làm, Thương mại, Đầu tư trực tiếp nước ngoài, GMM, Hàn Quốc, Việt Nam*

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