The Impact of Increasing Import Competition on Employment and Wages in the Manufacturing Industries of the Asian Newly Industrialized Countries (NICs)

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This paper examines the impact of increasing import competition on employment and wages in the Asian Newly Industrialized Countries (NICs). I use the aggregate industrial level of annual data, consisting of twenty-eight International Standard Industrial Classification (ISIC) three-digit manufacturing industries, in Hong Kong, S. Korea, Singapore and Taiwan, during the period of 1980-1997. Import competition is measured by the import share of each industry. The reduced form of employment and wage equations derived from a standard competitive model of labor demand and supply that determines factor allocations and factor prices across industries is estimated. The empirical result indicates that import competition significantly decreased both employment and wages in Hong Kong, S. Korea and Singapore. The previous literature shows that in developed countries the labor adjustments, following increasing trade, occurred only in the form of employment, not of wages. However, this sluggish wage movement did not occur in the NICs. I also use a simulation method to compare the actual impact of import competition on labor adjustments with the counterfactual paths. The labor response to import competition is not uniform across sectors and countries.

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I. Introduction

This article will analyze the impact of increasing import competition on employment and wages in the manufacturing industries for the East Asian Newly Industrialized Countries (NICs). Specifically, this paper applies empirical analysis to the labor markets in Hong Kong, South Korea, Singapore and Taiwan for the period of 1980 to 1997. Calculated on an aggregate and annual level, the primary data set consists of twenty-eight International Standard Industrial Classification (ISIC) manufacturing industries with three-digit codes.[1] During this period, each of the four countries had an increasing level of aggregate imports as well as an increasing share of global imports (Figure 1.1). However, it may be unsuitable to choose aggregate imports as the variable for import competition[2] because imports, at nominal prices, are generally affected by exchange rates. In contrast to the volume of imports which are sensitive to exchange rates, the share of imports is defined as imports divided by the sum of domestic outputs and imports, giving an quantity independent of the fluctuation of exchange rates and prices. This is why import shares become the focal measurement for trade liberalization.[3] Increasing import competition is expected to bring reallocation of workers and/or readjustment of wages, thereby promoting specialization and trade. In the process of specialization, employment should increase in those industries with low import competition, and decrease in those with high import competition, along with the same directional shift in wages. However, in the empirical analysis for these four countries, there seems to exist no such standardized pattern of labor adjustments with increasing import competition. In particular, the change in wages is as significant as the change in employment in most industries.

During the period from 1980 to 1997, the share of global imports for each NIC ranged from approximately 1.4% to 2.2 %. This paper

[1]See Appendix 1 for the industry classifications.

[2]Given the same volume of imports, the variations in exchange rates may alter the aggregate import level. For example, its own currency depreciation would overvalue the true import volume while its appreciation would undervalue it.

[3]Currently, tariff and quota changes are also the popular measure of trade's impact on the labor markets due to their exogenous feature.

assumes that an increasing import share in a country implies that it experiences increasing import competition because it is opening up its domestic markets. Note that the change in employment and wages become negatively correlated with changing import shares from 1980 to 1997. Therefore, if a large positive change in import shares leads to a small negative change in employment and/or wages, it is sufficient to attract our attention. The small response of employment or wages to very large changes in trade policies or trade flows may become puzzling. It can probably occur due to imperfections in the labor markets. One simple way to test whether they are responsible for the low adjustment response is to examine the correlations between changes in output, employment, and trade policies. If employment adjustments are not costly, and wages are flexible, variations in employment should be highly correlated with variations in output. Lack of employment adjustment with respect to the changes in policies, could then be explained by the lack of output adjustment. If output levels respond sluggishly to import share changes, then it would not be surprising if employment failed to respond as well. Table 1 also reports the correlations between changes in output, employment and import shares of the NICs. The correlation coefficients suggest that the sluggish employment response can be attributed to the lack of a domestic output response to import shares. The correlation coefficients between output and employment changes are 0.48, 0.79, 0.69 and 0.50 for Hong Kong, S. Korea, Singapore, Taiwan, respectively. S. Korea and Singapore have the relatively lower degree of labor market response imperfection and Taiwan has a relatively higher level of labor market imperfection. In Taiwan, the governmental regulations or other non-economic retarding factors could obscure the true effect of trade liberalization. Even Hong Kong with its freer labor market and looser government regulations still has the political impediment of labor imperfection. The correlation coefficients between output and import share changes are -0.56, -0.27, -0.63 and -0.20. S. Korea and Taiwan are both trade-oriented, specialized in outsourcing of the intermediate goods and exporting the final products. One probable explanation of their low correlations between output and import share is that if foreign production cost is reduced in conjunction with the reforms softening the impact on firms, the output change can also be small. The correlation coefficients between employment and import share changes are

-0.39, -0.21, -0.47 and -0.09. In order to examine the impact of trade reform on employment and wages in the NICs, I investigated whether the change in import shares accounts for the change in employment and wages. If it does, to what extent does it account for the adjustment of employment and wages? Is the impact of trade reform on employment and wages uniform across industries? Since all industries are unlikely to adjust employment and wages uniformly, then how does each industry respond to a trade reform? Are there any winners or losers? Do the high capital-intensive industries have the most change in employment and wages? The high capital-intensive industries may actually benefit from the removal of barriers to imports, which lowers their production costs. Some industries may also respond to increasing competition by boosting productivity and upgrading the skills of their work force, hence leading to a "paradoxical" association between increasing import shares and higher wages in comparatively under-developed sectors. If employment and wage elasticities differ, which adjustment will be larger? Would this explain labor mobility? Understanding how such adjustment occurs, - whether there is a trade-off between employment and wage responses, and how it varies across industries and sectors, would provide essential insights into the broader workings of these labor markets.

Our conclusions fall into the following groups:

1. In the NICs, both employment and wages are relatively sensitive to increasing import shares. In contrast to the United States and Canada, the NICs experienced a relatively large wage response during trade reforms. Except for Taiwan, the other three countries experienced significant job losses of 1.4% to 11 %. Wages also fell by 1.2% to 11% with respect to a 10% increase in import share. This employment and wage volatility is a unique feature which is not seen in most DCs and LDCs. Of course, there may exist an alternative cause to these employment and wage changes. Unemployment, recession, inflation, growing productivity or output, may either slow down, or accelerate, the growth of employment or wages. Since the labor market is volatile, the workers in the NICs may have to deal with both employment and wage effects. It is difficult to trade off wages in such a way as to preserve jobs or vice-versa.
2. The OLS estimations are inconsistent. The IVs set up by the foreign industrial production cost and exchange rates, accurately

capture the impact of import shares on the labor markets.
3. The adjustment of employment and wages are diverse across sectors (ranging from high capital-intensive and low capital-intensive) and countries.
4. Import competition is not the sole factor that reduces employment and wages.

The remainder of this paper is set out as follows. Section II documents the previous literature supporting the empirical analysis. Section III outlines the empirical model using the simple labor theory. Section IV presents the description and source of data. Section V shows the econometric method and its results while Section VI explains the counterfactual simulation method and its results. Section VII concludes the paper.

II. Literature Review

There have been many discussions over the detrimental aspects of increasing trade in Developed Countries (DCs) during the last decade. As more and more Less Developed Countries (LDCs) have initiated trade with DCs, concerns have been raised over inevitable declines in employment and wages in DCs. Hypothetically, employment and wages would be dragged down by competition with lower cost, labor-abundant producers. More specifically, import competition has been regarded as a prime cause of economic injury to workers in adversely influenced sectors and, presumably, as a source of gain to workers in sectors which have benefited from the shifts in production. Do the NICs' experiences suggest that this concern of the DCs is justifiable? Or, on the contrary, does it point toward a common trend across DCs and LDCs? Usually, policy makers say that increasing trade reduces domestic employment. For example, they even argue that massive job losses in Canada from 1989 to 1993 were caused by the implementation of the Canada - U.S. Free Trade Agreement (FTA).[4] Despite the political argument over the issue of increasing trade, many studies, however, have demonstrated a weak relationship between import competition and labor stability. Regardless of comparative advantages and disadvantages, Canadian industries experienced dwindling employment

[4]This FTA regulates the bilateral trade between the U.S. and Canada, not between the North and South.

during the FTA period. The FTA was initially expected to create trade by promoting specialization; industries with comparative advantages should have expanded employment while industries with comparative disadvantages should have decreased employment. The impact of FTA-mandated tariff cuts on employment was relatively large (9% to 14%). The decline in Canadian wages did not follow in the wake of massive job losses. However, more importantly, Gaston and Trefler (1997) found that the trade policy was not the primary cause of massive job losses in Canada. Rather, other factors such as interest rate hikes to compensate for the effect of inflation, and an appreciating exchange rate contributed to job losses.[5]

The problem of increasing trade and domestic labor market vulnerability in DCs has generated much scholarly work. The widely cited papers discussing the dynamic effect of trade flows on both industry employment and wages are by Grossman (1986), Abowd and Lemieux (1991), Freeman and Katz (1991), Revenga (1992) and Gaston and Trefler (1997). All of these works commonly applied the reduced form of employment and wage equations of (3) and (4) in the following section. Using the variables of wholesale price index, aggregate capital stock, and labor force, price of energy, and import price index, Grossman (1986) found low wage elasticities and high employment elasticities in the United States' manufacturing sector, illustrating the high inter-sectoral labor mobility. The result of counterfactual simulation demonstrated that the import price did not contribute to job losses. Freeman and Katz

[5]In general, advancing technologies and increasing computer use are accepted as dominant factors for labor instability in DCs since 1980s. Berman, Bound and Griliches (1994), Autor, Katz and Krueger (1998) and Driffield and Taylor (2000) supported the point of view that growing computer use and related technologies, mainly influenced labor market movements in the United States and the United Kingdom. They argued that relative to the structural changes that occur in a dynamic economy due to the differences in the rates of technological progress across sectors, import competition was a minor factor in labor displacement. The methodology they used was an accounting decomposition that separated changes in sectoral relative wages into within- and between-effects. However, if factor substitution is possible, such an accounting approach may, for example, attribute job displacements to technological change that was, in fact, precipitated by intensification of import competition (Grossman, 1982). This paper exclusively focuses on movements in the between-industry employment and wages and does not address the within-industry changes.

(1991), using the data of immigrants-employees ratio, and percent of unionized employees, found that the shifts in production demand, due to the changes in domestic consumption by trade, and due to the changes in domestic market by the share of immigrant and unionized workers, have contributed to the changes in wages. However, both trade and domestic market development were far from the dominant force in altering the industrial wage structure in the U.S. manufacturing industries.

In contrast to the previous scholars, Revenga (1992) found that import competition significantly affected both employment and wages in the U.S. (with the greater impact on employment), arguing that results minimizing the impact of trade could be attributed to inappropriate empirical methodology in the previous literature. Mainly based upon Revenga's work, this paper seeks to examine the extent of the effect of changes in the import shares on employment and wages in the four NICs by means of an empirical analysis. The empirical analysis includes 2SLS estimation as well as OLS. The IV strategy employs the weighted Producer Price Indexes (PPIs) as instrumental variables. The relative size of the employment and wage estimates indicates whether labor is mobile across industries. Table 1 shows descriptive statistics on the change in several variables of each NIC's manufacturing sector. The magnitude of the wage change is shown to be greater than the employment change across NICs, except in the case of Hong Kong. Hong Kong's unique political status may partly explain this reversal; a significant number of its residents fled the colony in the years prior to China's takeover in 1997. This *ipso facto* reduced the supply of labor. Actually, the portion of laborers in the manufacturing consisted of 12% of the entire Hong Kong population in 1990 but it dropped to 4% in 1997. In addition, total production in the manufacturing contributed to the GDP in Hong Kong decreased from 56% to 20% during this period. It is evident that the manufacturing sector has been shrunken due to political turnover.

It was Revenga (1997) and Currie and Harrison (1997) who examined the LDCs' labor markets and found dissimilar results from those of DCs. Revenga surveyed the Mexican manufacturing labor market to determine if there would be an inevitable decline/increase in employment and/or wages in LDCs as they increased trade with DCs and whether there exists a common trend in both DCs and LDCs.[6] This is a pioneering work on the impact

of trade reform on a LDCs' labor market. She examined employment and wage adjustments at the industry as well as the firm level. What she found was there occurred almost no reduction in employment in Mexico even after the radical trade reform; most changes occurred in wages. Plants which had enjoyed protection saw their wage levels drop. Her finding demonstrated that Mexico experienced a pattern of employment and wage responses different to those of the DCs. The labor market in Mexico may have opted to maintain employment at the expense of wages.[7] Currie and Harrison (1997), who studied the adjustment of employment and wages in Morocco, followed by trade reform, found that the manufacturing firms cut their profit margins and raised productivity to keep employment levels constant after trade reform was introduced in 1983. Morocco reformed its trade policies by eventually eliminating the Special Import Tariff (SIT). Tariff and quota reductions affected neither employment nor wages in most sectors. Parastatal firms with some public ownership even hired more workers after the reform. Parastatal employment acted as a social safety net, absorbing employees displaced from other sectors. Parastatal employment, reduction in profit margins, an increase in productivity and barriers to labor mobility like strict employment or downsizing and minimum wage laws could be the explanations for the puzzling result of small changes in employment and wages in the face of large reductions in tariffs. Based on the previous literature, it seems that both Mexico and Morocco have more inelastic labor markets than the U.S. and Canada do. In the former countries, labor is less mobile across industries, and wages are the more volatile form of adjustment. This may result in higher wage inequality within the industries of LDCs after trade reform.

[6]Hypothetically, the wages of DCs are dragged down by competition with lower-labor cost and labor-abundant producers.

[7]This is similar to the role of union wages that allows for higher wage responsiveness to a shift in demand. A union may choose to offer wage concessions in order to preserve jobs. For example, powerful unions controlled wages in order to prevent job losses in Morocco and the government forced firms not to lay off workers through strict regulations. Other considerations affecting labor demand are differently skilled workers becoming imperfect substitutes. In this case, most changes in relative wages by skill-difference happened *within*-industries not *between*-industries.

III. Empirical Model

A change in wages can occur without a change in employment. Or a change in import competition that shifts an industry product demand possibly shifts employment in the same direction with wage adjustment buffering the employment response. Since elasticities are likely to be greater in the long run as factor mobility increases and as firms move in and out of industries, wage responses would be smaller and employment responses greater to any exogenous shock as time proceeds. This is one reason that DCs experience the relatively larger employment responses than wages in the labor market due to increasing trade. The magnitude of the employment and wage effects depends on the nature of the labor market and on the wage-setting mechanism. I began my search for the effect of trade variations on both employment and wages which could explain the point estimates of the labor variables. In a standard labor market, equating labor demand and supply will lead to the equilibrium employment and wage, and the elasticities will adjust employment and wages in the demand for labor. The link between import competition and the change in employment and wages is described as follows:

Consider a simple competitive labor market, in which wages adjust to equate a labor demand and a labor supply. Let the demand and supply for labor in industry i and year t be as follows, respectively,

$$\Delta \ln L_{it} = \Gamma \Delta X_{it} - \Theta_1 \Delta \ln W_{it} + \Theta_2 \Delta \ln T_{it} + \varepsilon_{1it}, \quad (1)$$

$$\Delta \ln L_{it} = \Theta_3 \Delta \ln W_{it} + \Psi \Delta Y_{it} + \varepsilon_{2it}, \quad (2)$$

where Δ is the first difference operator. Grossman (1986), Currie and Harrison (1997), Revenga (1997) and Suarez (1998), using the variables expressed by levels and not by lags, examined the long-term persistent movement in a labor market. The first-lagged variables in this article, however, will show the year-to-year growth rates; L_{it} is the employment level in industry i at year t, Γ is a vector of parameters, X_{it} is the vector of observable factors shifting the labor demand in industry i and year t, W_{it} is the wage of each industry, and T_{it} is a key variable representing the trade variation. Ψ is a vector of parameters, Y_{it} is a vector of observed factors

shifting labor supply, and ε_{1it} and ε_{2it} are the error terms reflecting the unmeasured labor demand and supply shocks, which are assumed *i.i.d.* normal. From the structural equations (1) and (2), labor market clearing yields the following reduced form of the equations for changes in employment and wages,

$$\Delta \ln L_{it} = \alpha_1 \Gamma \Delta X_{it} + \alpha_2 \Psi \Delta Y_{it} + \alpha_3 \Delta \ln T_{it} + u_{it} \quad (3)$$

$$\Delta \ln W_{it} = \beta_1 \Gamma \Delta X_{it} + \beta_2 \Psi \Delta Y_{it} + \beta_3 \Delta \ln T_{it} + \nu_{it} \quad (4)$$

u_{it} and ν_{it} represent the unmeasured components of employment and wage variation, and are the combinations of the unmeasured labor demand and supply shocks, which are assumed i.i.d. normal. In equation (3) and (4), α_3 and β_3 are the employment and wage estimates with respect to import competition. Both α_3 and β_3 are expected to be negative, reflecting the intuitive notion that increasing import competition (*e.g.* import shares) should lower employment and wages in the domestic industry. The theory underlying this adjustment is the following: The outward shift in foreign supply causes a substitution in demand to the imported good and a fall in domestic demand. This in turn induces a fall in the domestic price and in the derived demand for factors of production. The adjustment of employment and wages depends on the elasticities of sectoral factor demand. Although these reduced forms are derived from a competitive demand and supply model, the interpretation is not so restrictive. As noted by Freeman and Katz (1991) and Revenga (1992), the similar equations could be derived from the different models of union wage settings or from other non-competing models.

I use the variables of Gross Domestic Product, aggregate unemployment rate and inflation as macro factors and capital stock as a micro factor. A number of standards can be used to measure the extent of import competition. Import shares are one of them. Import shares are defined as follows:

$$IMPSH_{it} = \frac{imports_{it}}{imports_{it} + domestic\ output_{it}} \quad (5)$$

where $IMPSH_{it}$ represents the import share of the i-th industry at

time *t*. It may be unreasonable to consider import shares as exogenous. For example, if wages in an industry rise, it puts pressure on the production costs in the industry and induces it to import cheaper homogenous products from other suppliers. To tackle this endogeneity problem between import shares and labor variables, an instrumental variable is needed for consistent estimation. This instrument is expected to be correlated with import shares and not with the unobserved determinants of industrial employment and wages. A possible instrumental variable is the industrial level of foreign production costs and exchange rates. It is constructed as the aggregate Producer Price Index (PPI), which is a proxy for the foreign production cost, which is reasonably assumed to be orthogonal to the specific industry shocks, multiplied by industry weights. The weights are set up by the share of the U.S. and Japan's commodities in the aggregate imports of a NIC's *i*-th industry in an arbitrary year. These weights allow the macro variables applicable to the industry level. The first-stage equation becomes

$$\Delta \ln T_{it} (= \Delta IMPSH_{it}) = \Gamma \Delta X_{it} + \Psi \Delta \sum_{j} u_{ji} \Delta (WEIGHT_i * PPI_{ji}) + \xi_{it}, \qquad (6)$$

PPI_{jt} indicates the *j*-th country (U.S. and Japan)'s aggregate PPIs at time *t*, and $WEIGHT_i$ is the industrial weight.[8] Using the equation (6), I estimate the equations (3) and (4) by 2SLS. If tariff or quota coverage as a measurement of trade reform is used, it is not necessary to construct an IV because tariff coverage is exogenously determined by international agreements.[9]

IV. Data Description

The data to be used were obtained from a variety of sources. I used the aggregate level of average wages, employment, Gross Domestic Product (GDP), capital stock, unemployment rate, inflation

[8]Since the industrial level of data for PPIs in most countries are unavailable, I constructed the weighted industrial PPIs. All instrumental variables were deflated by an importing NIC's PPI.

[9]Gaston and Trefler (1997) said that tariffs are also potentially endogenous because an industry can successfully lobby to receive a lower tariff.

and import shares for the 28 three-digit ISIC manufacturing industries in each of the four NICs from 1980 to 1997. Employment was measured by the total number of workers employed in each industry and aggregate unemployment rate was the number of total unemployed as a percentage of the labor force. The wages, GDP, capital stocks, and the industry import values were expressed in terms of each country's domestic currency. All nominal variables were deflated by PPIs; so the actual variables for estimation are real values. To capture a cyclical fluctuation in demand, I used three alternative macroeconomic aggregate measures: the GDP, the aggregate annual unemployment rate, and inflation measured by the CPI (Base year = 1995) in each country, which were assumed to be independent of employment and wage in each manufacturing industry. The capital stock was calculated by taking total expenditures on new plants and equipment and dividing by the price deflator. The data for employment, wages, industrial output, and capital stocks are available from KOSIS (Korean Statistical Information System) database. The data for GDP, aggregate unemployment rate, and PPIs were obtained from the *International Financial Statistics Yearbook, 2000 Vol. LIII* published by The International Monetary Fund. The PPIs of Taiwan were taken from the database of The Taiwan Statistical Department. The import data was originally sourced from the ***World Trade Analyzer, 1980-97*** **from** The Department of Statistics, Canada. This data was based on Standard Industrial Trade Classification (SITC) codes, which are measured on commodity levels and not on industry. The United Nations uses this classification which is not directly compatible with the ISIC codes used for the industry-level-outputs. Thus, the trade data cannot be easily compared to domestic production data. Feenstra (2000) has addressed this problem by summing the WTA data according to a 34 manufacturing industry basis used by the U.S. Bureau of Economic Analysis, and this is similar to the International Standard Industrial Classification. Included in this resource is a compilation of annual bilateral trade values between all countries of the world from 1980 to 1997 according to this 34-industry basis.

Note that this paper uses import shares, not aggregate import volumes as a trade variable. Aggregate imports would be inappropriate to identify import competition because it is an endogenous variable influenced by developments in both the

domestic and foreign industries and exchange rates. To compute the import shares of each industry, I used equation (5). The countries that were selected for the IVs (PPIs) are the United States and Japan which are responsible for more than half of the total import volume for all NICs. Table 1 shows the descriptive statistics for employment, wage and import share changes. This table indicates that except for Hong Kong, wages changed more than employment did. To the extent that the capital-labor ratio is a good measure of factor intensity, its relative magnitude is likely to have implications on import competition, employment and wages. To investigate this, I classified the twenty-eight industries into two broad groups corresponding to high capital-intensive and low capital-intensive industries even though pooling data across industries is not ideal because technology is heterogeneous and the demand structure across industries differs. Since each NIC has a different capital intensity across industries, see Table 3 for more details.

TABLE 1

HONG KONG (a) OLS ESTIMATES 1990-7

Variables	All Industries				High Capital-Intensive				Low Capital-Intensive			
	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage
Real GDP	0.224	0.636	0.324	0.500	1.079	1.489*	1.723	1.639	0.285	0.108	0.890	1.003
	(0.797)	(0.776)	(0.999)	(1.035)	(0.731)	(0.756)	(1.558)	(1.695)	(1.240)	(1.257)	(1.154)	(1.123)
Real Capital Stock	0.035**	0.021	0.056***	0.039**	0.011	0.012	0.017	0.007	0.070**	0.034	1.107***	0.069**
	(0.015)	(0.014)	(0.018)	(0.018)	(0.011)	(0.011)	(0.023)	(0.024)	(0.031)	(0.030)	(0.029)	(0.027)
Aggregate Unem-	0.002	0.016	-0.023	-0.032	0.061	0.093	0.077	0.059	-0.001	-0.038	0.027	0.022
ployment Rate	(0.053)	(0.060)	(0.066)	(0.080)	(0.048)	(0.058)	(0.102)	(0.130)	(0.082)	(0.098)	(0.076)	(0.087)
Inflation	-1.504	-1.423	0.019	0.916	-2.152**	-3.026*	-1.301	-0.192	-1.991	-0.235	-1.765	-1.232
	(1.131)	(1.801)	(1.416)	(2.401)	(1.020)	(1.729)	(2.175)	(3.874)	(1.790)	(2.917)	(1.666)	(2.606)
Import Share	-1.511***	-0.932**	-3.308***	-3.250***	-1.200***	-0.918***	-5.081***	-5.866***	-1.148**	-1.063*	-1.194**	-1.138**
	(0.344)	(0.367)	(0.430)	(0.489)	(0.313)	(0.340)	(0.667)	(0.762)	(0.577)	(0.612)	(0.536)	(0.547)
Obrvation	145	145	145	145	60	60	60	60	85	85	85	85
R-squared	0.519	0.682	0.402	0.552	0.482	0.621	0.575	0.657	0.582	0.696	0.443	0.627
FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Hausman Specifi-	19.35	0.62	59.13	0.15	14.71	7.29	58.12	59.26	1.24	0.01	1.12	0.22
cation Test												
[p-value]	0.000	0.431	0.000	0.704	0.000	0.010	0.000	0.000	0.269	0.936	0.293	0.638

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 1

HONG KONG (b) 2SLS ESTIMATES 1990-7

Variables	All Industries				High Capital-Intensive				Low Capital-Intensive			
	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage
Real GDP	0.226	0.998	1.116	1.405	1.081	1.507*	1.901	1.940	1.377	1.424	1.965	2.206
	(0.859)	(0.967)	(1.209)	(1.363)	(0.732)	(0.768)	(2.553)	(2.045)	(1.455)	(1.575)	(1.364)	(1.412)
Real Capital Stock	0.035*	0.029	0.083***	0.060**	0.012	0.014	0.069	0.040	0.092**	0.056	0.129***	0.089***
	(0.018)	(0.019)	(0.026)	(0.027)	(0.013)	(0.016)	(0.046)	(0.044)	(0.035)	(0.035)	(0.033)	(0.032)
Aggregate Unem-	0.002	0.045	0.023	0.040	0.061	0.093	0.027	0.067	0.079	0.074	0.105	0.124
ployment Rate	(0.056)	(0.076)	(0.078)	(0.107)	(0.049)	(0.058)	(0.170)	(0.155)	(0.098)	(0.126)	(0.092)	(0.113)
Inflation	-1.509	-2.486	-1.661	-1.737	-2.158**	-3.121*	-1.877	-1.762	-4.198*	-3.783	-3.938*	-4.477
	(1.138)	(2.452)	(1.855)	(3.456)	(1.025)	(1.840)	(3.576)	(4.897)	(2.260)	(3.815)	(2.119)	(3.420)
Import Share	-1.505***	-1.053**	-1.696**	-1.057**	-1.131***	-0.718**	-2.544**	-1.332**	-1.007**	-0.865***	-0.788***	-0.754**
	(0.107)	(0.388)	(0.558)	(0.569)	(0.019)	(0.334)	(0.552)	(0.557)	(0.414)	(0.248)	(0.170)	(0.268)
Obrvation	145	145	145	145	60	60	60	60	85	85	85	85
FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
GMM	12.031	11.202	16.190	18.526	12.419	5.584	9.943	9.142	25.100	17.503	26.158	29.351
[p-value]	0.212	0.262	0.063	0.030	0.191	0.781	0.355	0.424	0.002	0.041	0.002	0.001

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 1

HONG KONG (b) 2SLS ESTIMATES 1990-7 1ST STAGE

	All Industries		High Capital-Intensive		Low Capital-Intensive	
	(1)	(2)	(1)	(2)	(1)	(2)
Variables	Import Share		Import Share		Import Share	
Real GDP	-0.258	-0.326*	0.090	0.032	-0.465**	-0.503**
	(0.199)	(0.196)	(0.337)	(0.361)	(0.222)	(0.227)
Real Capital Stock	-0.012***	-0.011***	-0.011**	-0.011**	-0.014***	-0.013**
	(0.004)	(0.003)	(0.004)	(0.004)	(0.005)	(0.005)
Aggregate Unemployment Rate	-0.015	-0.032*	0.018	0.005	-0.039**	-0.048**
	(0.014)	(0.016)	(0.023)	(0.030)	(0.015)	(0.019)
Inflation	0.653**	1.066**	0.005	0.197	1.005***	1.361**
	(0.281)	(0.481)	(0.466)	(0.871)	(0.315)	(0.567)
US IV PPI	-0.469**	-0.368***	-0.542*	-0.500***	-0.073***	0.053*
	(0.215)	(0.107)	(0.348)	(0.050)	(0.002)	(0.044)
Japan IV PPI	-0.337**	-0.157*	-0.245***	-0.107***	-0.007**	-0.008**
	(0.165)	(0.116)	(0.021)	(0.002)	(0.002)	(0.003)
Obrvation	145	145	60	60	85	85
R-squared	0.343	0.532	0.177	0.358	0.613	0.691
FE	No	Yes	No	Yes	No	Yes

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 1

S. KOREA (a) OLS ESTIMATES 1980-97

Variables	All Industries				High Capital-Intensive				Low Capital-Intensive			
	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage
Real GDP	0.044	-0.070	1.090***	1.238***	0.223***	0.112	1.235***	1.393***	-0.113	-0.196	0.957***	1.127***
	(0.065)	(0.099)	(0.065)	(0.100)	(0.056)	(0.083)	(0.067)	(0.100)	(0.109)	(0.173)	(0.102)	(0.162)
Real Capital Stock	0.073***	0.071***	0.071***	0.066***	0.023**	0.024**	0.015	0.013	0.164***	0.159***	0.178***	0.169***
	(0.014)	(0.014)	(0.014)	(0.014)	(0.010)	(0.010)	(0.012)	(0.012)	(0.029)	(0.030)	(0.027)	(0.028)
Aggregate Unemployment Rate	-0.062***	-0.084***	-0.033	-0.007	-0.024	-0.046**	-0.006	0.022	-0.063*	-0.081*	-0.024	0.007
	(0.022)	(0.026)	(0.022)	(0.026)	(0.019)	(0.022)	(0.023)	(0.026)	(0.037)	(0.045)	(0.035)	(0.042)
Inflation	-0.281***	-0.580***	-0.474***	-0.121	-0.171*	-0.459**	-0.387***	-0.011	-0.345*	-0.571	-0.516***	-0.119
	(0.108)	(0.216)	(0.108)	(0.217)	(0.093)	(0.179)	(0.112)	(0.216)	(0.182)	(0.374)	(0.170)	(0.349)
Import Share	-1.428***	-1.276***	-1.414***	-1.343***	-0.400**	-0.258	-0.493**	-0.380*	-2.952***	-2.950***	-2.752***	-2.913***
	(0.228)	(0.238)	(0.228)	(0.238)	(0.178)	(0.177)	(0.214)	(0.214)	(0.445)	(0.485)	(0.416)	(0.454)
Obrvation	421	421	421	421	217	217	217	217	204	204	204	204
R-squared	0.183	0.231	0.606	0.627	0.200	0.294	0.737	0.765	0.323	0.347	0.606	0.621
FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Hausman Specification Test	39.27	28.83	38.45	32.46	5.06	2.13	5.32	3.16	43.96	36.98	43.68	41.23
[p-value]	0.000	0.000	0.000	0.000	0.026	0.146	0.022	0.077	0.000	0.000	0.000	0.000

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 1

S. KOREA (b) 2SLS ESTIMATES 1980-97

Variables	All Industries				High Capital-Intensive				Low Capital-Intensive			
	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage
Real GDP	0.030	-0.110	1.070***	1.215***	0.227***	0.112	1.240***	1.393***	-0.061	-0.145	0.972***	1.251***
	(0.069)	(0.112)	(0.073)	(0.110)	(0.059)	(0.083)	(0.071)	(0.100)	(0.131)	(0.250)	(0.117)	(0.242)
Real Capital Stock	0.078***	0.074***	0.077***	0.068***	0.024**	0.024**	0.015	0.013	0.147***	0.153***	0.174***	0.155***
	(0.015)	(0.015)	(0.016)	(0.015)	(0.011)	(0.010)	(0.013)	(0.012)	(0.037)	(0.036)	(0.033)	(0.035)
Aggregate Unem-	-0.053**	0.084***	-0.021	-0.006	-0.012	0.047**	0.010	0.021	-0.056	-0.072	-0.022	0.028
ployment Rate	(0.025)	(0.027)	(0.026)	(0.027)	(0.022)	(0.023)	(0.027)	(0.028)	(0.040)	(0.055)	(0.036)	(0.054)
Inflation	-0.238**	-0.624***	-0.415***	-0.147	-0.132	-0.460**	-0.338***	-0.012	-0.363*	-0.496	-0.521***	0.064
	(0.121)	(0.228)	(0.127)	(0.224)	(0.103)	(0.179)	(0.124)	(0.217)	(0.193)	(0.460)	(0.172)	(0.447)
Import Share	-0.152***	-0.144*	-0.696***	-0.666***	-0.403**	-0.325*	-0.524*	-0.418**	-5.068**	-3.725**	-3.333**	-4.789*
	(0.054)	(0.132)	(0.161)	(0.130)	(0.168)	(0.157)	(0.282)	(0.168)	(2.550)	(1.763)	(1.271)	(2.681)
Obrvation	421	421	421	421	217	217	217	217	204	204	204	204
FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
GMM	6.525	3.262	5.696	6.042	4.802	8.694	11.151	15.193	1.493	1.741	4.142	2.449
[p-value]	0.258	0.660	0.337	0.302	0.440	0.122	0.048	0.010	0.914	0.884	0.529	0.784

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 1

S. KOREA (b) 2SLS ESTIMATES 1980-97 1ST STAGE

	All Industries		High Capital-Intensive		Low Capital-Intensive	
	(1)	(2)	(1)	(2)	(1)	(2)
Variables	Import Share		Import Share		Import Share	
Real GDP	0.008	0.057**	-0.009	0.038	0.018	0.067**
	(0.016)	(0.026)	(0.024)	(0.041)	(0.020)	(0.031)
Real Capital Stock	-0.004	-0.003	0.002	0.002	-0.011**	-0.011**
	(0.003)	(0.003)	(0.004)	(0.004)	(0.005)	(0.005)
Aggregate Unemployment Rate	-0.007	-0.000	-0.019**	-0.012	0.003	0.010
	(0.005)	(0.006)	(0.007)	(0.009)	(0.006)	(0.007)
Inflation	-0.029	0.053	-0.072*	0.001	0.009	0.109*
	(0.026)	(0.047)	(0.039)	(0.073)	(0.032)	(0.058)
US IV PPI	-0.176*	-0.163*	-0.266*	-0.350**	-0.062***	-0.032***
	(0.087)	(0.095)	(0.139)	(0.156)	(0.010)	(0.011)
Japan IV PPI	-0.444***	-0.351***	-1.547**	-1.611**	-1.952***	-1.224**
	(0.066)	(0.055)	(0.615)	(0.645)	(0.420)	(0.424)
Obrvation	421	421	217	217	204	204
R-squared	0.033	0.120	0.097	0.162	0.053	0.179
FE	No	Yes	No	Yes	No	Yes

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 1

SINGAPORE (a) OLS ESTIMATES 1980-97

Variables	All Industries				High Capital-Intensive				Low Capital-Intensive			
	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage
Real GDP	0.093	0.235**	0.863***	0.888***	0.074	0.167	0.823***	0.703***	0.107	0.260**	0.885***	0.970***
	(0.062)	(0.099)	(0.066)	(0.105)	(0.094)	(0.155)	(0.108)	(0.178)	(0.080)	(0.125)	(0.082)	(0.130)
Real Capital Stock	0.049***	0.042***	0.049***	0.042***	0.039***	0.036***	0.048***	0.045***	0.054***	0.046***	0.048***	0.042***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.013)	(0.014)	(0.015)	(0.016)	(0.013)	(0.013)	(0.014)	(0.013)
Aggregate Unemployment Rate	-0.029***	-0.030***	-0.007	-0.009	-0.018**	-0.018**	0.006	0.005	-0.034***	-0.035***	-0.013*	-0.014**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.009)	(0.009)	(0.010)	(0.010)	(0.007)	(0.007)	(0.007)	(0.007)
Inflation	-0.727***	-0.579**	0.098	0.113	-0.337	-0.236	0.765	0.622	-0.906**	-0.746**	-0.215	-0.129
	(0.274)	(0.280)	(0.289)	(0.298)	(0.411)	(0.438)	(0.473)	(0.501)	(0.350)	(0.353)	(0.361)	(0.369)
Import Share	-1.547***	-1.417***	-1.524***	-1.412***	-1.098***	-1.035***	-1.237***	-1.195***	-1.796***	-1.633***	-1.680***	-1.529***
	(0.126)	(0.127)	(0.132)	(0.135)	(0.172)	(0.181)	(0.198)	(0.207)	(0.169)	(0.170)	(0.174)	(0.178)
Obrvation	423	423	423	423	134	134	134	134	289	289	289	289
R-squared	0.378	0.450	0.607	0.646	0.330	0.356	0.677	0.693	0.412	0.490	0.585	0.630
FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Hausman Specification Test	151.89	124.11	132.57	108.62	40.70	32.65	38.95	33.23	113.51	92.20	93.38	74.02
[p-value]	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 1

SINGAPORE (b) 2SLS ESTIMATES 1980-97

Variables	All Industries				High Capital-Intensive				Low Capital-Intensive			
	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage
Real GDP	0.063	0.206*	0.820***	0.854***	0.045	0.124	0.775***	0.649***	0.080	0.241*	0.858***	0.950***
	(0.069)	(0.109)	(0.074)	(0.118)	(0.104)	(0.177)	(0.128)	(0.207)	(0.086)	(0.132)	(0.088)	(0.139)
Real Capital Stock	0.056***	0.054***	0.059***	0.057***	0.045***	0.044***	0.059***	0.055***	0.061***	0.059***	0.056***	0.055***
	(0.012)	(0.012)	(0.013)	(0.013)	(0.016)	(0.017)	(0.019)	(0.020)	(0.015)	(0.015)	(0.016)	(0.016)
Aggregate Unemployment Rate	-0.029***	-0.030***	-0.007	-0.008	-0.015	-0.015	0.010	0.010	-0.034***	-0.036***	-0.014*	-0.016**
	(0.006)	(0.006)	(0.006)	(0.007)	(0.010)	(0.010)	(0.012)	(0.012)	(0.007)	(0.007)	(0.008)	(0.008)
Inflation	-0.680**	-0.466	0.164	0.246	-0.279	-0.157	0.865	0.721	-0.868**	-0.637*	-0.178	-0.012
	(0.284)	(0.311)	(0.306)	(0.336)	(0.439)	(0.493)	(0.538)	(0.575)	(0.357)	(0.379)	(0.367)	(0.397)
Import Share	-0.956*	-0.311*	-0.694*	-0.115*	-0.429	-0.051	-0.080	0.034	-1.311**	-0.670*	-1.216**	-0.502*
	(0.517)	(0.177)	(0.456)	(0.062)	(0.766)	(0.904)	(0.938)	(1.054)	(0.536)	(0.357)	(0.551)	(0.360)
Obrvation	423	423	423	423	134	134	134	134	289	289	289	289
FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
GMM	7.373	5.976	16.205	11.353	3.961	3.525	3.081	9.587	11.067	8.292	23.888	15.869
[p-value]	0.598	0.742	0.063	0.252	0.914	0.940	0.961	0.936	0.271	0.505	0.004	0.070

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 1

SINGAPORE (b) 2SLS ESTIMATES 1980-97 1ST STAGE

	All Industries		High Capital-Intensive		Low Capital-Intensive	
	(1)	(2)	(1)	(2)	(1)	(2)
Variables	Import Share		Import Share		Import Share	
Real GDP	0.016	0.017	0.022	0.062	0.005	0.001
	(0.027)	(0.040)	(0.057)	(0.081)	(0.031)	(0.045)
Real Capital Stock	-0.014***	-0.012***	-0.009	-0.008	-0.017***	-0.016***
	(0.004)	(0.004)	(0.007)	(0.007)	(0.004)	(0.004)
Aggregate Unemployment Rate	-0.003	-0.002	-0.006	-0.006	-0.001	-0.001
	(0.002)	(0.002)	(0.005)	(0.005)	(0.003)	(0.003)
Inflation	0.195	0.191	-0.002	0.071	0.318**	0.274
	(0.135)	(0.144)	(0.270)	(0.292)	(0.159)	(0.169)
US IV PPI	-0.372*	-0.274**	-0.208	-0.216	-0.610*	-0.280*
	(0.195)	(0.111)	(0.294)	(0.323)	(0.314)	(0.147)
Japan IV PPI	-0.197**	-0.225**	-0.117	-0.130	-0.339***	-0.408***
	(0.083)	(0.085)	(0.140)	(0.150)	(0.114)	(0.118)
Obrvation	423	423	134	134	289	289
R-squared	0.096	0.169	0.073	0.136	0.153	0.229
FE	No	Yes	No	Yes	No	Yes

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 1

TAIWAN (a) OLS ESTIMATES 1980-97

Variables	All Industries				High Capital-Intensive				Low Capital-Intensive			
	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage
Real GDP	0.142***	0.009	1.014***	1.087***	0.127**	0.007	1.030***	1.176***	0.175***	0.005	1.027***	1.025***
	(0.044)	(0.065)	(0.054)	(0.083)	(0.063)	(0.096)	(0.093)	(0.143)	(0.057)	(0.083)	(0.063)	(0.096)
Real Capital Stock	0.049*	0.009	0.060*	0.009	-0.010	-0.026	-0.029	-0.044	0.053	0.013	0.081**	0.028
	(0.027)	(0.026)	(0.034)	(0.034)	(0.042)	(0.042)	(0.061)	(0.063)	(0.034)	(0.033)	(0.038)	(0.038)
Aggregate Unemployment Rate	0.020*	-0.003	0.001	0.008	0.010	-0.009	-0.001	0.020	0.017	-0.010	-0.006	-0.008
	(0.011)	(0.012)	(0.013)	(0.016)	(0.015)	(0.018)	(0.022)	(0.027)	(0.014)	(0.016)	(0.016)	(0.019)
Inflation	-1.034***	-1.638***	-0.878***	-0.891***	-0.249	-0.680**	0.034	0.427	-1.335***	-2.112***	-1.285***	-1.615***
	(0.178)	(0.219)	(0.218)	(0.281)	(0.251)	(0.334)	(0.367)	(0.499)	(0.238)	(0.278)	(0.266)	(0.324)
Import Share	-0.073	-0.027	-0.119	-0.056	0.036	0.052	-0.025	0.002	-0.561***	-0.443**	-0.490**	-0.353*
	(0.073)	(0.069)	(0.090)	(0.089)	(0.071)	(0.071)	(0.104)	(0.106)	(0.186)	(0.175)	(0.208)	(0.204)
Obrvation	315	315	315	315	120	120	120	120	195	195	195	195
R-squared	0.145	0.316	0.794	0.820	0.060	0.151	0.789	0.801	0.275	0.449	0.823	0.853
FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Hausman Specification Test	1.00	0.15	1.73	0.40	0.26	0.54	0.06	0.00	9.06	6.37	5.55	2.99
[p-value]	0.318	0.694	0.189	0.530	0.611	0.466	0.808	0.985	0.003	0.013	0.019	0.086

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 1

TAIWAN (b) 2SLS ESTIMATES 1980-97

Variables	All Industries				High Capital-Intensive				Low Capital-Intensive			
	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage	(1) Employment	(2) Employment	(3) Wage	(4) Wage
Real GDP	0.143***	0.013	1.014***	1.092***	0.130**	0.012	1.036***	1.184***	0.176***	-0.007	1.024***	1.031***
	(0.044)	(0.065)	(0.054)	(0.083)	(0.064)	(0.097)	(0.094)	(0.144)	(0.057)	(0.085)	(0.064)	(0.098)
Real Capital Stock	0.051*	0.010	0.062*	0.010	-0.010	-0.027	-0.029	-0.045	0.049	0.007	0.092**	0.031
	(0.027)	(0.027)	(0.034)	(0.034)	(0.042)	(0.043)	(0.062)	(0.064)	(0.038)	(0.034)	(0.042)	(0.039)
Aggregate Unem-	0.022**	-0.000	0.003	0.011	0.011	-0.008	0.002	0.022	0.014	-0.019	0.002	-0.003
ployment Rate	(0.011)	(0.012)	(0.013)	(0.016)	(0.015)	(0.018)	(0.022)	(0.027)	(0.018)	(0.021)	(0.020)	(0.024)
Inflation	-1.604***	-1.668***	-0.909***	-0.925***	-0.269	-0.700**	0.001	0.396	-1.286***	-2.005***	-1.424***	-1.673***
	(0.179)	(0.221)	(0.220)	(0.283)	(0.253)	(0.337)	(0.370)	(0.503)	(0.313)	(0.318)	(0.351)	(0.367)
Import Share	-0.073	-0.008	-0.278	-0.085	0.120	0.148*	0.111	0.146	-0.801*	-0.689*	-0.160*	-0.125*
	(0.100)	(0.097)	(0.252)	(0.196)	(0.081)	(0.080)	(0.118)	(0.120)	(0.529)	(0.366)	(0.061)	(0.063)
Obrvation	315	315	315	315	120	120	120	120	195	195	195	195
FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
GMM	16.622	6.711	7.520	10.579	4.429	2.665	8.635	8.424	16.412	8.282	10.328	12.026
[p-value]	0.020	0.460	0.377	0.158	0.729	0.914	0.280	0.297	0.022	0.308	0.171	0.100

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%.

TABLE 1

TAIWAN (b) 2SLS ESTIMATES 1980-97 1ST STAGE

	All Industries		High Capital-Intensive		Low Capital-Intensive	
	(1)	(2)	(1)	(2)	(1)	(2)
Variables	Import Share		Import Share		Import Share	
Real GDP	-0.031	-0.008	-0.015	-0.075	-0.009	-0.038
	(0.039)	(0.026)	(0.048)	(0.072)	(0.024)	(0.036)
Real Capital Stock	-0.009	-0.012	-0.009	-0.009	-0.029**	-0.017
	(0.015)	(0.014)	(0.028)	(0.030)	(0.013)	(0.014)
Aggregate Unemployment Rate	-0.023***	-0.019***	-0.011	-0.020	-0.023***	-0.027***
	(0.007)	(0.006)	(0.010)	(0.013)	(0.005)	(0.007)
Inflation	0.363***	0.434***	0.500***	0.332	0.380***	0.335***
	(0.132)	(0.095)	(0.168)	(0.230)	(0.090)	(0.127)
US IV PPI	-0.503***	-0.543***	0.093	0.056	-0.556***	-0.552***
	(0.126)	(0.130)	(0.180)	(0.184)	(0.180)	(0.189)
Japan IV PPI	-0.174***	-0.173***	-0.109***	-0.111***	-0.289**	-0.269**
	(0.053)	(0.059)	(0.049)	(0.054)	(0.112)	(0.125)
Obrvation	315	315	120	120	195	195
R-squared	0.597	0.618	0.790	0.796	0.281	0.341
FE	No	Yes	No	Yes	No	Yes

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%.

V. Empirical Methodology and Results

To begin the methodology, I used the first-lagged natural logs rather than contemporaneous values. I used equations (3) and (4) with (6) for empirical estimations. First, I ran an OLS regression without an instrumental variable. I, then, ran a 2SLS regression. All estimations were included with industrial fixed effects. The time-varying covariates capture the period-specific changes that are common to all industries. To test the endogeneity of import shares with labor factors, a Hausman specification test was performed by including the residuals of each endogenous right-hand side variable, as a function of all exogenous variables, in a regression of the original model. Back to our example, we would first perform the following regression,

$$\Delta \ln T_{it} (= \Delta IMPSH_{it}) = \mu_1 \Delta X_{it} + \mu_2 \Delta Y_t + \xi_{it},$$

get the residuals of the import share variable, then perform an augmented regression:

$$\Delta \ln L_{it} = \alpha_1 \Gamma \Delta X_{it} + \alpha \Psi_2 \Delta Y_{it} + \alpha_3 \Delta \ln T_{it} + \alpha_4 \Delta \ln T_{it} RESID + u_{it}$$
$$\Delta \ln W_{it} = \beta_1 \Gamma \Delta X_{it} + \beta_2 \Psi \Delta Y_{it} + \beta_3 \Delta \ln T_{it} + \beta_4 \Delta \ln T_{it} RESID + v_{it}$$

If α_4 and β_4 are significantly different from zero, then OLS is inconsistent. When the *p*-value of Hausman test is low, I would reject the validity of OLS estimation.

In addition, the Generalized Method of Moments (GMM) test of overidentifying restrictions is performed to check whether the equation for 2SLS is properly performed. This test involves regressing the 2SLS residuals on the set of instrumental variables. When the errors are homoscedastic and serially independent, this test has the following simple form,

$$Test_{GMM} (\equiv nR^2) \overset{a}{\sim} x^2 (L-k)$$

where *n*, number of observations times R^2 from the regression of residuals on the instruments, asymptotically follows a x^2 distribution. *L* is the number of moment restrictions and *k* is the number of parameters. A weak relationship between residuals and instruments would indicate that the equation is properly specified. When the *p*-value of GMM specification test[10] is lower than 0.95, we fail to reject the null hypothesis of no misspecification at the 0.05 level.

These four NICs experienced a volatile change in both employment and wages. The results from these NICs are different from those of DCs because the United States and Canada only experienced the high employment

[10]This is not a test for whether all the instrumental variables are "valid." Instead, this test is whether the "extra" instrumental variables become valid given that a subset if the instrumental variables is valid and exactly identifies the coefficients. See Johnston and DiNardo (1997) for further reference.

adjustment. There, import competition mainly influenced employment with wages only dampening the employment adjustment. Since every NIC has a unique pattern to its labor market, I will report the results individually.

Hong Kong

The most remarkable feature of Hong Kong's labor market was that Hong Kong residents more suffered job losses than wage reduction from 1990 to 1997 (Table 1) than any other NICs. In other NICs, wages tended to fluctuate much more than employment levels did (for example, employment changes were constant around 1% while wages fluctuated up to 10%).[11] However, Hong Kong had a relatively high negative employment growth (13%) during the 1990s. The OLS point estimates of employment and wages with respect to import shares in the whole sector became negative and statistically significant. As with OLS, the 2SLS method supported the theory that import competition decreased both employment and wages. The change in wages was as enormous as the change in employment. These point estimates implied that 10% increase in import shares reduced employment and wages by 11%. In Hong Kong, massive job losses and declining wages occurred in all types of industries. While the employment adjustment was similar in both high and low capital-intensive industries, the wage fluctuation was greater in the high capital-intensive sector. The wages in this sector were very elastic. Since the specifications in column (1) do not allow any heterogeneity across industries, they may lead to biased results. Including industrial dummies in the first difference equations will allow the different growth rate of employment and wages across industries. In column (2) and (4), the coefficients of import share estimates on employment and wages in the whole sector were -1.053 and -1.057 with statistical significance. No time effect was included to prevent perfect collinearity between the fixed effects and the instruments. At the first stage, the production cost of the United States and Japan played a key role to impact the change in import share. Since the imports from these two DCs are more than half of the total imports in all of the East Asian NICs, the first stage result seems not to be surprising. Unlike other NICs, Hong Kong experienced more volatility in employment and wages in the high capital-intensive industries. It is possible that the two DCs' imports were mainly concentrated on this sector. Table 2 clearly demonstrates that deepening import penetration significantly reduced both employment and wage levels in Hong Kong.

[11]Our survey period ends in 1997. The financial crisis, which occurred in late 1997 across several countries in Asia, led to a huge fall in both employment and wages.

TABLE 2

THE IMPACT OF IMPORT COMPETITION ON EMPLOYMENT AND WAGES IN HONG KONG 1990-7 (Unit: %)

Industry	Employment			Wages			Capital Intensity*
	Actual	Simulated	Difference	Actual	Simulated	Difference	
Footwear, except rubber or plastic	-40.5	-13.4	-36.2	-37.7	-4.7	-43.7	L
Furniture, except metal	-30.7	-14.8	-15.9	-23.2	-6.1	-17.0	L
Leather products	-25.0	-12.2	-12.8	-13.5	-2.8	-10.7	L
Plastic products	-24.7	-15.7	-9.0	-16.3	-5.9	-10.4	L
Wearing apparel, except footwear	-20.8	-15.1	-5.6	-14.9	-5.7	-9.2	L
Professional and scientific equipment	-18.4	-13.2	-5.2	-8.5	-3.8	-4.8	L
Wood products, except furniture	-16.8	-12.3	-4.5	-7.6	-2.6	-5.0	L
Fabricated metal products	-17.4	-14.9	-2.5	-8.6	-5.1	-3.4	L
Machinery, electric	-14.0	-11.8	-2.2	-4.1	-1.5	-2.6	H
Other manufactured products	-12.0	-10.9	-1.0	-5.3	-0.9	-4.4	L
Rubber products	-11.6	-11.8	0.3	-5.9	-2.6	-3.3	L
Iron and steel	-13.1	-10.8	0.4	-2.8	-0.2	1.8	H
Paper and products	-12.4	-13.2	0.8	-4.4	-3.4	-1.0	L
Industrial chemicals	-8.3	-9.5	1.2	19.5	0.2	19.3	H
Machinery, except electrical	-11.0	-12.3	1.3	-1.3	-2.0	0.6	H
Transport equipment	-5.8	-8.8	3.0	2.4	2.1	0.3	H
Non-ferrous metals	-4.1	-8.9	4.8	5.5	2.8	2.7	H
Food products	-1.7	-9.6	7.9	5.7	0.9	4.8	L
Petroleum refineries	0.0	-9.3	9.3	13.0	0.0	13.0	H
Other non-metallic mineral products	2.9	-8.3	13.1	10.7	1.9	8.8	H

Notes: The industries of Beverages, Tobacco, Textiles, Other Chemicals, Miscellaneous petroleum & coal products, Pottery and Glass Printing are excluded due to unavailable data. The figures under the columns are the annual percentage changes.

* H represents the high capital-intensive industries and L represents the low capital-intensive industries.

TABLE 2

THE IMPACT OF IMPORT COMPETITION ON EMPLOYMENT AND WAGES IN S. KOREA 1980-97 (Unit: %)

Industry	Employment			Wages			Capital Intensity*
	Actual	Simulated	Difference	Actual	Simulated	Difference	
Tobacco	-6.6	3.8	-10.4	2.2	9.8	-7.5	L
Rubber products	-6.8	2.9	-9.7	2.3	10.9	-8.6	H
Textiles	-3.3	3.2	-6.5	4.2	10.6	-6.4	L
Wood products, except furniture	-2.7	3.1	-5.8	4.9	10.8	-5.8	L
Other manufactured products	-2.6	3.0	-5.6	5.4	10.2	-4.8	L
Beverages	-2.7	2.5	-5.2	3.9	11.1	-7.2	H
Wearing apparel, except footwear	-1.2	3.0	-4.2	6.7	10.4	-3.7	L
Leather products	0.4	2.6	-2.3	8.6	11.7	-3.0	L
Food products	0.9	2.8	-1.9	7.5	11.3	-3.7	L
Non-ferrous metals	1.6	3.4	-1.8	8.5	10.4	-1.9	H
Other non-metallic mineral products	1.4	3.0	-1.6	8.6	10.7	-2.1	H
Iron and steel	1.0	2.5	-1.6	8.0	11.3	-3.3	H
Paper and products	1.4	2.4	-1.0	8.8	11.6	-2.7	H
Other chemicals	1.8	2.6	-0.8	8.5	11.2	-2.7	H
Footwear, except rubber or plastic	2.4	2.9	-0.4	9.4	10.7	-1.2	L
Professional and scientific equipment	2.1	2.2	-0.1	10.3	11.4	-1.1	L
Industrial chemicals	2.9	2.7	0.1	10.0	11.2	-1.3	H
Machinery, electric	3.1	2.2	0.8	11.0	11.6	-0.6	H
Fabricated metal products	4.0	2.4	1.6	11.6	11.5	0.1	L
Furniture, except metal	4.3	2.6	1.6	11.8	11.0	0.8	L
Plastic products	4.3	2.3	2.0	11.8	11.6	0.3	H
Petroleum refineries	5.3	2.2	3.1	11.6	12.5	-0.9	H
Transport equipment	5.9	2.3	3.6	13.4	11.9	1.5	H
Machinery, except electrical	8.3	2.0	6.3	15.3	12.8	2.5	H

Notes: The industries of Printing, Miscellaneous petroleum & coal products, Pottery and Glass are excluded due to unavailable data. The figures under the columns are the annual percentage changes.

* H represents the high capital-intensive industries and L represents the low capital-intensive industries.

TABLE 2

THE IMPACT OF IMPORT COMPETITION ON EMPLOYMENT AND WAGES IN SINGAPORE 1980-97 (Unit: %)

Industry	Employment			Wages			Capital Intensity*
	Actual	Simulated	Difference	Actual	Simulated	Difference	
Wood products, except furniture	-10.6	1.1	-11.6	0.1	10.5	-10.4	L
Textiles	-9.9	1.0	-10.9	1.1	10.3	-9.2	L
Footwear, except rubber or plastic	-10.0	0.8	-10.8	2.1	10.2	-8.1	L
Wearing apparel, except footwear	-7.2	0.8	-8.0	3.7	10.5	-6.8	L
Rubber products	-3.8	2.2	-6.0	7.0	11.6	-4.6	L
Other manufactured products	-4.5	1.4	-5.9	7.7	10.9	-3.2	H
Tobacco	-3.4	1.4	-4.8	10.5	11.4	-0.8	H
Beverages	-2.9	1.7	-4.6	7.9	11.2	-3.3	H
Leather products	-2.2	1.6	-3.8	9.8	10.9	-1.1	L
Iron and steel	-1.7	1.9	-3.6	9.4	11.1	-1.7	H
Professional and scientific equipment	-0.8	2.2	-3.0	11.7	11.4	0.3	L
Machinery, electric	-0.2	1.9	-2.1	12.4	11.4	1.0	H
Petroleum refineries	0.2	1.7	-1.5	10.4	10.9	-0.5	H
Furniture, except metal	0.0	1.5	-1.4	10.7	11.0	-0.4	L
Paper and products	1.1	2.0	-1.0	13.2	11.2	2.0	L
Non-ferrous metals	1.0	1.7	-0.7	7.7	11.1	-3.4	L
Food products	1.6	2.1	-0.5	12.7	11.3	1.4	H
Transport equipment	1.6	1.9	-0.2	11.2	11.1	0.1	L
Other non-metallic mineral products	2.3	2.4	-0.1	12.4	11.5	0.9	L
Industrial chemicals	3.3	3.2	0.1	15.4	12.1	3.3	H
Plastic products	3.9	2.4	1.5	15.6	11.5	4.0	L
Fabricated metal products	3.8	2.3	1.6	14.8	11.4	3.4	L
Other chemicals	5.7	3.5	2.2	18.4	12.5	5.9	H
Machinery, except electrical	9.7	3.4	6.3	18.9	12.1	6.8	H

Notes: The industries of Printing, Miscellaneous petroleum & coal products, Pottery and Glass are excluded due to unavailable data. The figures under the columns are the annual percentage changes.

* H represents the high capital-intensive industries and L represents the low capital-intensive industries.

TABLE 2

THE IMPACT OF IMPORT COMPETITION ON EMPLOYMENT AND WAGES IN TAIWAN 1980-97 (Unit: %)

Industry	Employment			Wages			Capital Intensity*
	Actual	Simulated	Difference	Actual	Simulated	Difference	
Wood products, except furniture	-5.4	-3.9	-2.0	3.3	11.1	-7.8	L
Leather products	-3.2	-3.8	0.0	7.4	11.1	-3.6	L
Textiles	-2.9	-3.8	0.8	7.1	11.2	-4.1	L
Wearing apparel, except footwear	-1.8	-3.9	1.1	7.7	11.1	-4.1	L
Other non-metallic mineral products	-1.6	-3.8	2.5	8.6	11.2	-1.7	H
Furniture, except metal	-0.1	-3.8	2.7	9.6	11.2	-2.2	L
Plastic products	-0.4	-3.8	3.0	9.8	11.3	-1.1	L
Other manufactured products	-0.3	-3.8	3.2	10.1	11.2	-0.7	L
Rubber products	0.0	-3.8	3.5	9.3	11.3	-1.5	L
Food products	-0.6	-3.8	3.7	9.4	11.3	-0.5	H
Tobacco	0.4	-3.8	4.1	11.7	11.2	0.6	H
Professional and scientific equipment	1.4	-3.8	5.2	11.6	11.2	1.2	L
Industrial chemicals	0.8	-3.8	5.2	11.0	11.3	1.4	H
Paper and products	1.8	-3.8	5.6	10.4	11.2	0.3	H
Transport equipment	2.0	-3.8	5.7	11.2	11.3	0.4	L
Iron and steel	2.6	-3.8	6.2	11.9	11.3	1.3	H
Petroleum refineries	2.4	-3.7	6.4	14.8	11.5	3.8	H
Other chemicals	1.4	-3.7	6.5	11.3	11.4	1.8	L
Machinery, except electrical	3.5	-3.7	7.1	12.0	11.4	1.7	L
Machinery, electric	3.1	-3.7	7.2	13.7	11.3	3.8	L
Fabricated metal products	4.2	-3.7	7.8	13.1	11.3	2.4	L

Notes: The industries of Beverages, Footwear, Printing, Miscellaneous petroleum & coal products, Pottery, Glass and Non Ferrous Metals are excluded due to unavailable data. The figures under the columns are the annual percentage changes.

* H represents the high capital-intensive industries and L represents the low capital-intensive industries.

S. Korea

S. Korea is a slightly different case from Hong Kong in terms of labor adjustments by increasing import shares. To begin with, the OLS estimates for employment and wages showed that trade reduced employment and wages by approximately 12 percent. The point estimates of employment and wages with respect to import shares were -1.276 and -1.343, respectively. However, the 2SLS estimates report that the OLS results are overestimated especially in the change in employment. Other variables such as capital stock, unemployment rate and inflation rate did not significantly influence the labor market in the Korean manufacturing industries. A Hausman specification test showed that the OLS estimates became inconsistent and overestimated. When the foreign PPIs were used as instrumental variables, the magnitude of point estimates of employment and wages decreased. Both employment and wages were reduced by approximately 1.4% to 7% with respect to 10% increase in import shares. S. Korea is especially vulnerable to the change in Japanese production cost. Japan is the trading partner who brings most trade deficit to S. Korea. In contrast to Hong Kong, S. Korea suffered more employment and wage displacement in the low capital-intensive industries. Over 30% of employment and wage reduction occurred in the low capital-intensive industries. The laborers in the low capital-intensive industries may not possess the skilled premium enough to adjust them on external trade shock. Imports into the high capital-intensive industries tend to contribute to increase in production through outsourcing while the low capital-intensive industries tend to import more of the final products. It is one reason that they become more vulnerable in trade liberalization. Such labor instability is verified in the following simulation section. Based on the regression result, the impact of increasing import shares was seen through wage adjustments as well as employment changes across industries in S. Korea.

Singapore

The OLS point estimates of employment and wages in Singapore were -1.417 and -1.412 (14% reduction in employment and wages with respect to the 10% increase in import shares), respectively, which were quite sizable and statistically significant. A Hausman specification test, however, showed that the OLS estimation contained an endogeneity problem, so the IV regression was implemented. The 2SLS point estimates of employment and wages were -0.311 and -0.115, respectively. The OLS estimations without the IVs overestimated the effect of increasing trade. The GMM test of overidentifying restrictions examining the assumption of the orthogonality of the instruments and the error terms in the employment and wage equations verified a weak relationship between the instrument sets and the residuals. Therefore, the 2SLS estimation was properly specificied. In terms of vulnerabilities in labor adjustments, the manufacturing industries in Singapore are less vulnerable than those in Hong Kong and S. Korea from foreign production cost fluctuations. The point estimates of employment in Hong Kong, S. Korea and Singapore were -1.053, -0.144 and -0.311, respectively. Those of wages were -1.057, -0.666 and

-0.115. Singapore experienced the relatively stable wage fluctuations across industries, which is the similar pattern of that in DCs. Capital stock and other time-varying covariates such as unemployment rate and inflation were seldom influential to employment and wages in the regressions. At the first stage, the weighted industrial level of PPIs is shown to be influential on import shares, which implies the NICs' import decision relies on the trading partners' production condition. There was a peculiar feature between high and low capital-intensive industries in Singapore. The low capital-intensive industries became much more vulnerable by increasing trade while the high capital-intensive industries did not show any statistically significant labor adjustment. Especially, the low capital-intensive industries in Singapore were very sensitive on the change in the Japanese production cost, which implies that the production in these industries are heavily dependent on the imports from Japan. Based on these results, S. Korea and Singapore may need to diversify the routes of importation to minimize the trade impact from Japan on their low capital-intensive industries. In contrast to the low capital-intensive sector, the high capital- intensive industries in S. Korea and Singapore were relatively more competitive in trade liberalization. It is against our intuition in the trade-specialization theory.

Taiwan

Taiwan had somewhat different regression results from the previous countries did. First, import shares did not seem to affect employment and wages in both OLS and 2SLS framework. The point estimates of employment and wages were -0.008 and -0.085, respectively. The coefficients were small and statistically insignificant. The estimates were only consistent with a negative sign. The 2SLS estimates with the industry fixed effects did not demonstrate the statistically significant impact of varying import shares on employment and wages, either. In the light of the First Stage estimations, Taiwan must have its own labor market imperfections to obscure the trade impact. The 2SLS estimates showed that the low capital-intensive industries only experienced a dramatic drop in employment, which implies that the most vulnerable sector in Taiwan by increasing import competition is the low capital-intensive industries like S. Korea and Singapore. In Taiwan, the model did not capture the significant labor adjustments following import competition in the whole and high capital-intensive sector. These weak regression results in most sectors were somewhat predictable from the aforementioned descriptive statistics and will also be replicated by a simulation method in the following section.

IV. Counterfactual Simulations

In this section, I will discuss a simulation analysis of import competition on employment and wages. The simulation covers the period from 1980 to 1997 and creates theoretical constant (neither strengthened nor weakened) paths under the counterfactual assumption that constant import competition would

not impact employment or wage changes. The simulation method makes it possible to identify the actual effect of import competition on labor adjustments while the empirical analysis in the precious section explains the labor demand elasticities. For the purpose of neutral competition, I set up the assumption in the following way:

$$\frac{IMP_{it}}{IMP_{it}+OUTPUT_{it}} = \frac{IMP_{i,t=1980}}{IMP_{i,t=1980}+OUTPUT_{i,t=1980}} \quad (7)$$

where IMP_{it} is the import amount of the i-th industry at time t and $OUTPUT_{it}$ represents the domestic output of the i-th industry at time t. For simulations, I use the right hand side of equation (7) in place of the import shares with everything else held constant in the 2SLS estimation. The simulations were performed at the industrial level. The figures under the columns of actual and simulated employment and wages in Table 3 represent the percent change of annual employment and wages over the period of 1980-97. The difference between the actual and simulated paths explains the annual change in labor factors by the effect of import competition in each industry. Increasing import shares would theoretically reduce employment and wages. Therefore, the difference between actual and simulated values should be negative. In order to look into the sectoral comparative advantage as well as each industry' s idiosyncratic labor response, I classify the industries into high capital-intensive and low capital-intensive sectors based on factor intensity. Capital-intensity is derived by the capital and labor ratio. For example, if an industry has a greater capital-labor ratio than the entire manufacturing sector's average ratio, this industry is defined as high capital-intensive.

In Hong Kong, job and earning losses were occurred in most industries under both actual and simulated frameworks. Specifically, the low capital-intensive industries most suffered by increasing import competition while the high capital-intensive sector experienced relatively sluggish job losses and wage reduction. Interestingly, employment and wages in several high capital- intensive industries even increased following increasing import competition, implying that the workers in the high capital-intensive industries in Hong Kong actually benefited from the removal of barriers to imports by receiving higher wages than before. At least, the laborers in this sector had higher sectoral mobility. It is noticeable that Hong Kong would have experienced the significant decline in employment even under the simulated paths. It implies that increasing import competition actually accelerated labor displacements following any other substantial effects which I did not capture in the model. As I mentioned before, Hong Kong residents' mass exodus prior to its return to China could be one of the substantial shocks. In S. Korea, seven industries with a large negative difference between actual and simulated employment and wages were all low capital-intensive while the high capital-intensive sector even had the positive sign on employment and wages. Although this stylized fact is less salient in S. Korea, the low capital-intensive

sector in both Hong Kong and S. Korea with supposedly comparative advantage most suffered job losses and wage decline while the high capital-intensive industries provided more jobs and higher wages by increasing import competition. The more detrimental impact of trade on the low capital-intensive industries is not exceptional in Singapore. In contrast to Hong Kong and S. Korea, however, Singapore yielded the weak evidence. That is, some of the low capital-intensive industries such as fabricated metal and plastic also got employment and wages to increase. It verifies again labor stability in Singapore in terms of intersectoral labor mobility. Taiwan's low capital-intensive industries followed the similar pattern of Singapore in terms of the unpredictable labor response. However, Taiwan's high capital-intensive industries experienced relatively smaller impact of increasing import shares on employment and wages. Like Hong Kong, Taiwan showed that even under the simulated paths, it experienced massive job losses. The simulation results clearly demonstrated that most of the NICs" high capital-intensive industries would have become less harmed from increasing import competition. Trade liberalization even promoted more employment and wages. According to the regression and simulation results, the response to import competition was not uniform across sectors and countries. These various results are distinguished from the previous works on the United States, Canada, Mexico and Morocco.

VII. Conclusion

This article has analyzed the impact of import competition on employment and wages in the East Asian Newly Industrialized Countries (NICs). Utilizing the pooled aggregate data for each NIC's 28 manufacturing industries from 1980 to 1997, I estimated the reduced form of employment and wage equations, and measured the sensitivity of sectoral employment and wage adjustments, as import shares changed. I demonstrated that the exogenous changes in the level of import competition have altered both employment and wages in all NICs. Specifically, considering import competition as an exogenous shock which affects domestic labor markets and using the industry-level foreign PPIs, to generate exogenous variations in import competition level, I found that as import shares changed, all NICs demonstrated that wages were as elastic as employment changes on import shares. This finding was different from what occurred in other developing countries where the wage effect mediated employment fluctuations during trade reforms. In the cases of Mexico and Morocco, a constant employment level was maintained. Although the sensitivity of employment and wages to import share varied considerably across industries as well as countries, there are a few common features. The low capital-intensive industries experienced the largest decline in employment and wages in all the NICs. The high capital-intensive industries were relatively less vulnerable in terms of labor adjustments, or at least had high sectoral labor mobility. The OLS estimates demonstrated that an endogenous problem existed between industry employment, wages and import shares, so the OLS estimates

of import shares were inconsistent. The empirical analysis demonstrated that the labor markets in Hong Kong, S. Korea, and Singapore were very active and diverse in terms of high sectoral labor mobility across industries and they also experienced high fluctuations in wages. However, it is also true that this partly, but not completely, accounted for the movement in the labor market (especially, in Hong Kong and Taiwan). No single factor such as import share explained the whole eccentric feature of labor market adjustments in these countries. For example, deindustrialization or the growth in the Chinese economy (not captured due to the unavailable PPI data) would have affected these economies.

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Appendix Table

Descriptive Statistics for Hong Kong's Trade and Labor Data

A. Major Variables Changes, 1990-7:	Whole Sector		High Capital-Intensive		Low Capital-Intensive	
	Mean	SD	Mean	SD	Mean	SD
DLN(employment)	-0.134	0.165	-0.060	0.101	-0.190	0.182
DLN(wage)	-0.044	0.232	0.052	0.261	-0.114	0.179
DLN(GDP)	-0.048	0.333	0.025	0.421	-0.104	0.234
DLN(output)	0.104	0.033	0.104	0.033	0.104	0.033
DLN(capital stock)	-0.143	0.884	0.002	1.130	-0.245	0.645
DLN(unemployment rate)	0.129	0.587	0.129	0.589	0.129	0.588
D(inflation)	0.082	0.016	0.082	0.016	0.082	0.016
D(import share)	0.020	0.038	0.009	0.040	0.028	0.034

B. Correlations, 1990-7:	Whole Sector							
	DLN (employ-ment)	DLN (wage)	DLN (GDP)	DLN (output)	DLN (capital stock)	DLN (unemploy ment rate)	D (inflation)	D (import share)
DLN(employment)	1.000							
DLN(wage)	0.706	1.000						
DLN(GDP)	-0.020	0.052	1.000					
DLN(output)	0.482	0.842	0.029	1.000				
DLN(capital stock)	0.157	0.266	-0.041	0.382	1.000			
DLN(unemployment rate)	-0.114	-0.080	-0.328	0.014	0.065	1.000		
D(inflation)	-0.114	-0.079	-0.344	0.027	0.090	0.901	1.000	
D(import share)	-0.390	-0.535	0.010	-0.559	-0.175	0.016	0.028	1.000

Note: DLN(.)=change in logarithm in variable.

Appendix Table

Descriptive Statistics for S. Korea's Trade and Labor Data

A. Major Variables Changes, 1980-97:	Whole Sector		High Capital-Intensive		Low Capital-Intensive	
	Mean	SD	Mean	SD	Mean	SD
DLN(employment)	0.009	0.143	0.021	0.087	-0.004	0.185
DLN(wage)	0.084	0.189	0.092	0.161	0.074	0.214
DLN(GDP)	0.111	0.160	0.118	0.143	0.103	0.177
DLN(output)	0.094	0.095	0.094	0.096	0.094	0.096
DLN(capital stock)	0.095	0.486	0.111	0.558	0.078	0.396
DLN(unemployment rate)	-0.153	0.354	-0.153	0.354	-0.153	0.354
D(inflation)	0.059	0.039	0.059	0.039	0.059	0.039
D(import share)	-0.001	0.028	-0.001	0.031	-0.001	0.024

B. Correlations, 1980-97:	Whole Sector							
	DLN (employ-ment)	DLN (wage)	DLN (GDP)	DLN (output)	DLN (capital stock)	DLN (unemploy ment rate)	D (inflation)	D (import share)
DLN(employment)	1.000							
DLN(wage)	0.890	1.000						
DLN(GDP)	0.183	0.293	1.000					
DLN(output)	0.792	0.808	0.348	1.000				
DLN(capital stock)	0.263	0.293	0.237	0.315	1.000			
DLN(unemployment rate)	-0.145	-0.191	-0.695	-0.235	-0.097	1.000		
D(inflation)	-0.214	-0.254	-0.322	-0.196	-0.060	-0.089	1.000	
D(import share)	-0.210	-0.188	0.062	-0.267	-0.008	-0.087	0.090	1.000

Note: DLN(.)=change in logarithm in variable.

Appendix Table

Descriptive Statistics for Singapore's Trade and Labor Data

A. Major Variables Changes, 1980-97:	Whole Sector		High Capital-Intensive		Low Capital-Intensive	
	Mean	SD	Mean	SD	Mean	SD
DLN(employment)	-0.008	0.131	0.003	0.106	-0.013	0.141
DLN(wage)	0.104	0.140	0.122	0.127	0.095	0.146
DLN(GDP)	0.068	0.194	0.091	0.176	0.057	0.201
DLN(output)	0.118	0.052	0.118	0.052	0.118	0.052
DLN(capital stock)	0.104	0.552	0.140	0.616	0.087	0.520
DLN(unemployment rate)	-0.035	0.978	-0.035	0.980	-0.035	0.978
D(inflation)	0.023	0.019	0.023	0.019	0.023	0.019
D(import share)	0.004	0.041	0.002	0.045	0.004	0.039

B. Correlations, 1980-97:	Whole Sector							
	DLN (employ-ment)	DLN (wage)	DLN (GDP)	DLN (output)	DLN (capital stock)	DLN (unemploy ment rate)	D (inflation)	D (import share)
DLN(employment)	1.000							
DLN(wage)	0.844	1.000						
DLN(GDP)	0.199	0.165	1.000					
DLN(output)	0.686	0.738	0.103	1.000				
DLN(capital stock)	0.335	0.315	0.216	0.309	1.000			
DLN(unemployment rate)	-0.258	-0.054	-0.653	-0.032	-0.235	1.000		
D(inflation)	0.043	0.097	0.503	-0.095	0.053	-0.319	1.000	
D(import share)	-0.474	-0.478	-0.048	-0.628	-0.174	0.050	-0.037	1.000

Note: DLN(.)=change in logarithm in variable.

Appendix Table

Descriptive Statistics for Taiwan's Trade and Labor Data

A. Major Variables Changes, 1980-97:	Whole Sector		High Capital-Intensive		Low Capital-Intensive	
	Mean	SD	Mean	SD	Mean	SD
DLN(employment)	0.003	0.065	0.008	0.055	0.001	0.071
DLN(wage)	0.102	0.123	0.111	0.121	0.097	0.124
DLN(GDP)	0.081	0.144	0.082	0.129	0.081	0.153
DLN(output)	0.115	0.087	0.115	0.087	0.115	0.087
DLN(capital stock)	0.104	0.153	0.109	0.145	0.102	0.158
DLN(unemployment rate)	0.088	0.384	0.088	0.385	0.088	0.385
D(inflation)	0.031	0.034	0.031	0.034	0.031	0.034
D(import share)	0.003	0.047	0.000	0.069	0.005	0.026

B. Correlations, 1980-97:	Whole Sector							
	DLN (employ-ment)	DLN (wage)	DLN (GDP)	DLN (output)	DLN (capital stock)	DLN (unemploy ment rate)	D (inflation)	D (import share)
DLN(employment)	1.000							
DLN(wage)	0.776	1.000						
DLN(GDP)	0.323	0.394	1.000					
DLN(output)	0.496	0.466	0.392	1.000				
DLN(capital stock)	0.189	0.264	0.148	0.352	1.000			
DLN(unemployment rate)	-0.105	-0.251	-0.732	-0.195	-0.029	1.000		
D(inflation)	-0.391	-0.386	-0.558	-0.348	-0.197	0.217	1.000	
D(import share)	-0.093	-0.080	-0.010	-0.200	-0.066	-0.109	0.083	1.000

Note: DLN(.)=change in logarithm in variable.

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Appendix A. - International Standard Industrial Classification of All Economic Activities (three-digit level)

300 Total manufacturing
311 Food products
313 Beverages
314 Tobacco
321 Textiles
322 Wearing apparel, except footwear
323 Leather products
324 Footwear, except rubber or plastic
331 Wood products, except furniture
332 Furniture, except metal
341 Paper and products
342 Printing and publishing
351 Industrial chemicals
352 Other chemicals
353 Petroleum refineries
354 Miscellaneous petroleum and coal products
355 Rubber products
356 Plastic products
361 Pottery, china, earthenware
362 Glass and products
369 Other non-metallic mineral products
371 Iron and steel
372 Non-ferrous metals

381 Fabricated metal products
382 Machinery, except electrical
383 Machinery, electric
384 Transport equipment
385 Professional and scientific equipment
390 Other manufactured products