Trade Adjustment Assistance in Korea: Theory and Practice

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1. Introduction

The Korean Ministry of Commerce, Industry and Energy and the Korean Ministry of Labor jointly proposed "The Act on Trade Adjustment Assistance for Manufacturing and Related Service Industries," which passed the National Assembly. It was legislated as Act No. 7947 on April 28, 2006, by the National Assembly and enforced one year after its promulgation. Trade adjustment assistance (TAA) is a government compensatory and assistance program that aims to help reimburse domestic firms and workers for their material loss or expected loss as the result of policies implemented toward a freer trade regime. Currently, the United States is the only country that has systematically institutionalized and consistently operated a TAA program. Although such programs as the EU's Structural Fund (ESF), Japan's System for Revitalizing Industrial Competitiveness, Mexico's Sectoral Promotion Programs (PROSEC), and Canadian, Chilean, Czech, and Polish industrial programs have been in existence, they are not TAA programs. Instead, these programs are part of industrial policies that aim at strengthening the competitiveness of weak industries (or regions).

The TAA program is essential for the Korean government to smoothly implement the KOR-US FTA as well as other already concluded or prospective FTAs by facilitating the internal negotiations. However, the background against which the TAA program was introduced and the details of the operation plan remain controversial, making it difficult to reach a consensus even among policymakers and scholars in the area. Unlike the U.S. TAA, in which major resources are administered by the Department of Labor as a form of a compensatory and extended scheme for Social Security, the TAA in Korea is mainly to be operated by the Korean Ministry of Commerce, Industry and Energy through accommodating the policy to the opinions of the business sector. As a result, the TAA program in Korea shows a strong inclination

toward an industrial policy that protects and assists the marginal small and medium Korean enterprises from intensified import competition. This raises questions regarding the main purpose of the system and its effectiveness in many ways.

This paper aims at synthetically reviewing and analyzing the recently introduced TAA system in Korea and then deriving detailed policy implications. In doing so, the paper's focus centers on the following questions.

First, what are the major contents and operational process of the Korean TAA? Second, what is the empirical evidence regarding the impacts of import competition on the labor market in Korea? Third, is the Korean tariff determined endogenously or not? Lastly, what are the policy implications we can derive from the experience of the U.S. TAA?

2. Trade Adjustment Assistance in Korea

The Korean government began to implement the TAA system in May 2007 to financially support firms whose sales, production, and profits decrease and workers who are completely or partially laid off or threatened with job loss due to increased imports. The program seems to have a structure similar to the U.S. TAA system. However, a deeper look into the substance of the program finds that its major contents, especially the purpose of the program and its consequent allocation of resources, makes the Korean TAA quite different from the U.S. TAA.

Operation System: The TAA Committee (Chairperson: Minister of Finance and Economy) was established to adjust policies, including the deliberation, resolution, and development of TAA-related programs. The committee consists of a maximum of 15 members, and each member has a two-year term of office. The Ministry of Commerce, Industry and Energy and the Ministry of Labor manage the programs for firms and workers, respectively. The Vice Minister of Commerce, Industry and Energy chairs the TAA Administrative Committee, which consists of a maximum of 20 members serving two-year terms. The Ministry of Commerce, Industry and Energy leads two teams under the administrative committee: the Adjustment Plan Evaluation Board, which is in charge of reviewing the feasibility and enforcement of the trade adjustment plan of the firms, and the Trade Adjustment Assistance Center (TAAC), which is in charge of providing detailed assistance to firms. The Ministry of Commerce, Industry and Energy consigns the establishment of the TAAC to the Small Business Corporation. Firms

submit petitions for certification to the Ministry of Commerce, Industry and Energy through the TAAC, which provides assistance regarding the filing of certification petitions, assessment of firms' viability, development of adjustment plans, consultation, provision of information, and technical support for the implementation of adjustment plans. Once the Korean Trade Commission evaluates the qualification of the firms and the Adjustment Plan Evaluation Board approves the adjustment plan, then the ministry certifies the TAA firms. The Ministry of Labor is responsible for investigating and certifying petitions for workers. It assists workers through local labor offices. The worker representative or the employer can submit the TAA application form to the Ministry of Labor.

Firm Eligibility: To be eligible, the firm should fall under all of the following categories: (i) a firm is severely injured (total sales or production reduced more than 25% during the period of, by the order of the President, more than six months), or will be severely injured; (ii) increased imports (from the parties which signed an FTA with Korea only) of articles 'like or directly competitive' with the firm's products is the major cause of such injury in (i); and (iii) the plan for trade adjustment (hereafter, AP) of the corresponding firm should be adequate to secure the competitiveness of the firm. The Korean Trade Committee is responsible for examining the firm's compliance with conditions (i) and (ii) while the Adjustment Plan Evaluation Board examines compliance with condition (iii).

Worker Eligibility: To be eligible for the TAA, the worker must fall under all of the following categories: (i) a worker who is currently laid off or has high possibilities of being laid off or currently has or will have working hours of less than 70% of weekly working hours before for the last two months; (ii) a worker (including the unemployed) of a firm that falls under any of the following categories: A. workers whose firm is a TAA firm; B. workers of an upstream supplier or a downstream producer to a primary TAA firm; C. workers of a firm that has shifted its production facilities abroad because of the increased imports as a result of an FTA and manufactures similar products or products in direct competition with imported goods; D. Although the worker falls under the categories (i) and (ii), the firm did not file a petition for certification as a TAA firm or the submitted adjustment plan was not approved by the board. An upstream supplier is the firm that produces and supplies component parts directly to TAA firms, and a downstream producer performs an additional, value-added production process directly for a firm for articles that were the basis for certification, including final assembly, finishing, or packaging.

Benefits for TAA Firms: Financing is the major part of the benefits for the TAA firms. The government finances the firm to purchase raw and subsidiary materials and purchase or lease factory sites to maintain the operation of the production. The government also assists the firms to implement the approved adjustment plan by providing loans for business restructuring and conversion, management improvement, development of technology, facility investment, and employee training. The loan has an annual interest rate of 4.75%, and its amount is limited to 3 billion won for facility investment and 500 million won for operational use. The loan period is eight years for facility investment and five years for operational use. The estimated financial need for 10 years is 2,463 billion won, and 20 billion won of the budget has already been allocated for fiscal year 2007. Moreover, the government provides information (on capital, manpower, technology, market, and location) necessary for trade adjustment and consultative assistance on business management (such as finance and marketing) and technological areas (such as operation management, quality control, R&D, and certification). In the case of consultative support, the financial limit for strategic trade adjustment support is planned to be 24 million won, while the financial support for partial management and technological improvement is planned to be 16 million won. The estimated amount of the consultation-related budget for the next 10 years is 107 billion won, of which 760 million won is allocated for fiscal year 2007. Investment support is another method that a Corporate Restructuring Company (CRC) can use to invest in a TAA firm by forming a corporate restructuring association to finance up to 50% of the association investment. Seventy billion won is expected to be allocated for the next 10 years.

Benefits for TAA Workers: The Ministry of Labor provides TAA workers with information on industry trends, labor demand, vocational education, and a new business establishment. The Ministry of Labor also provides consultative assistance on re-employment and job transfers. Financial support for job transfers, employment, re-employment, and extended training allowance (TRA) is also provided under the supervision of the Ministry of Labor. However, these types of financial support are applied not exclusively to trade-displaced workers but to all unemployed men.

Timeframe: The Ministry of Commerce, Industry and Energy should inform the firm of the ministry's determination within two months after receiving the application (The Trade Commission: one month, AP Evaluation Board: one month) and the Ministry of Labor within one month. When the time period for trade damage has passed two years,

the firm is unable to apply for TAA certification. The implementation period of a trade adjustment plan is within five years upon certification. When the firm wishes to receive financial and consultation support, the firm should submit an application to the Ministry of Commerce, Industry and Energy together with the detailed list of required capital within three years after being certified as a TAA firm.

3. Import Competition and Labor Market in Korea

This section tests the validity of the social equity argument in Korea, which is one of the rationales for introducing the TAA system. The underlying premises for the equity argument in favor of TAA is that first, the promotion of freer trade by the government yields more displaced workers and second, trade-displaced workers are different from other displaced workers, and therefore, they should be entitled to extra compensation. First, we will examine whether intensified import competition results in more displaced workers or not in Korea. Second, with the survey data, we will analyze the characteristics of trade displaced workers compared to other displaced workers.

3.1. The Impact of Import Penetration on Unemployment

Regression Model

Job displacement in the industry can be represented as the following function.

$$D_i = f_i(I, Z)$$

Where D_i represents the displacement rate in the industry, I is an industry measure of import competition, and Z is a vector of other determinants. Based on the models of Clark et al. (1998) and Kletzer (2003), the regression equation could be set out as follows:

$$D_{it} = \alpha \cdot \Delta IP_{it} + \beta \cdot Z_{it} + \theta_{i,t}$$

D_{it} is the displacement rate of the industry i in the year t. Here, the job displacement rate is different from the simple unemployment rate we observe. The number of displaced workers was obtained by subtracting the number of workers who quit their jobs voluntarily or who took up other employment from the total number of workers who lost their jobs in each industry in the year. Then the job displacement rate is calculated by dividing the headcount of these displaced workers by the total number

of employees in each industry. ΔIP_{it} is the increasing rate of import share with industry i in the year t (import penetration rate of industry i). Z_{it} is a vector of other variables showing industry characteristics such as changes in export share, average wage, percentage of female workers, average age of the workers, job tenure, and level of education in industry i in year t.

Data on 20 industries (at the two-digit SKTC) were collected from the Korea International Trade Association (KITA), the Korea Statistical Information System (KOSIS), and the Korea Labor Institute. Data from 1993 to 2003, excluding 1998, are examined. The year 1998, which was the year of the foreign currency crisis in Korea, was excluded because all the data in this year show a very different pattern from other years and might distort the analysis as an outlier. Those data were adjusted to the two-digit Standard Korean Trade Classification (SKTC) in order to show the consistency with the data on other variables such as unemployment rate, head counts of displaced workers, and employees' educational level in each sector that are provided only with the two-digit SKTC.

Empirical Results

The results of the empirical analysis are reported in <Table-1>. *First*, although the increasing rate of the import share has a positive and statistically significant impact on the displacement rate, the rate's elasticity is negligible in its magnitude. *Second*, interestingly enough, changes in export share influence the displacement rate negatively, implying that export promotion contributes to a reduction in job displacement. *Third*, the percentage of female workers have a significant influence on the displacement rate at the 0.05 level, and workers' average age and job tenure at the 0.01 level. Higher percentages of female workers and older workers can raise the job displacement rate in the corresponding industries. Workers' average job tenure affects the job displacement rate negatively. These empirical results of the Korean industry show that the impact of trade expansion on the displacement rate in industries is minor. However, variables regarding industry characteristics such as gender, educational level, average age, and average job tenure are much more significant. These results are consistent with those of Hoekman and Winters (2005), Kletzer (2003), Clark et al. (1998), Grossman (1987), Gaston and Trefler (1997), and Revenga (1992). Twenty industries in manufacturing are classified into 3 levels of import competition (high, medium, and low), and the same regression equation is tested for different categories of the industries. The empirical

<Table-1> Determinants of Job Displacement in Korea

Variable	Model (Pooled OLS)	
	1	2
Import Penetration	**0.0024* (1.9604)**	**0.0032* (1.8520)**
Changes in Export Share		**-0.0017* (-2.0065)**
Average Wage		**-.0.0012 (-1.4466)**
Laborer Characteristics		
Share of Female Workers	**0.0461* (2.2084)**	**0.0423* (1.8503)**
Average Age	**0.0117**(13.8606)**	**0.0169**(4.9390)**
Average Job Tenure	**-0.0142**(-10.8543)**	**-0.0143**(-11.3964)**
Education		
Share with Less Than a High School Graduate Education	**0.0013**(3.0970)**	**0.0010**(2.3333)**
R^2	**0.83**	**0.85**
F-statistic	**71.58**	**52.7**
Durbin-Watson Stat	**1.99**	**1.89**

* t-test significant at 0.05 level ** t-test significant at 0.01 level † t-statistics in the parentheses

results are very similar. Again, female, older, and relatively less educated workers in Korean manufacturing are at risk of losing their jobs more easily.

3.2. Characteristics of Trade-related Unemployed Workers in Korea

Data used in this section were gathered through the Korean Labor Institution. Specifically, they were obtained from a simple questionnaire. Answers to the questionnaire were provided by 498 people who had lost their jobs, but only 378 of the relevant responses were used for this research. <Table-2> presents the displaced workers' characteristics in terms of their average age, educational background, average job tenure, and gender. *First*, no big difference exists between displaced workers in manufacturing and non-manufacturing industries in terms of age and the percentage of female workers. However, discernable differences exist regarding educational levels. *Second*, displaced workers in high import-competing industries are slightly older, are less educated, and have longer job tenure than those in other industries.

<Table-2> Characteristics of Displaced Workers in Korean Industry Groups

Characteristics	High Import-competing Industry	Medium Import-competing Industry	Low Import-competing Industry	Manufacturing Industry	Non-manufacturing Industry
Average Age	40.87	36.74	38.06	38.54	37.83
Education					
Less Than Middle School	0.28	0.21	0.19	0.22	0.17
Middle School Graduate	0.42	0.43	0.44	0.43	0.38
High School Graduate and College Dropout	0.21	0.22	0.24	0.22	0.26
College Degree or Higher	0.08	0.11	0.12	0.11	0.20
Average Job Tenure	6.9	6.7	6.5	6.7	6.2
Share of Female	0.425	0.456	0.335	0.391	0.431

<Table-3> Comparison of the Characteristics of Korean and US Unemployed

Variables	Korea (1993-2003)			US (1990-1999*)		
Import Competition	**High**	**Medium**	**Low**	**High**	**Medium**	**Low**
Average Age	40.8	36.7	38.0	40.2	39.4	38.3
Education						
Less Than Middle School	0.70	0.64	0.63	0.59	0.58	0.62
High School Graduate and College Dropout	0.21	0.22	0.24	0.24	0.28	0.27
College Degree or Higher	0.08	0.11	0.12	0.16	0.13	0.11
Average Job Tenure	6.9	6.7	6.5	7.4	7.2	6.5
Share of Female	0.425	0.456	0.335	0.460	0.303	0.366

*U.S. Source: Kletzer (2001)

<Table-3> compares the characteristics of displaced workers in import-competing industries in Korea and in the US. The results reveal a similar pattern between the two countries. In terms of educational level, there is a huge difference between displaced workers in the manufacturing industries and those in the non-manufacturing industries.

According to the empirical results, Korea does not have sufficient evidence to justify the introduction of the TAA system on the equity ground. It is not easy

to find evidence that imports have an influence on unemployment in the Korean manufacturing sector. Moreover, the displaced workers in the high import-competing industry did not have differential characteristics compared to those in other industries.

Empirical testing of economic efficiency, the second rationale for the TAA system, is currently impossible in Korea. Because TAA was introduced this year, there are no accumulated data available. We analyze the 'endogeneity of tariffs' in Korea to test the effectiveness of the TAA program in Korea for blunting political opposition of interest groups to trade liberalization. If tariff, the proxy for trade policy, is endogenously determined by interest groups or political factors, it is hard to exclude the possibility of using TAA to control the interest groups to lower or remove the tariff rates.

4. Tariff Endogeneity in Korea

Korea is an interesting case in that its protective measures have been strategically designed and extensively implemented as a means for successful economic development. The Korean government has used tariffs as an integral part of its industrial policy, and they indeed played a pivotal role in the constant upgrading of the industrial structure. Artificially distorted market prices worked as a catalyst to correct market failures and promote exports (Heo, 2001).

The Korean government cannot deny the fact that it used tariffs as an effective means to foster strategic industries and to enhance continuous growth of an industrial basis. This kind of view is basically based on the assumption that a sectoral tariff is determined by the voluntary political decision of the government. However, many scholars have argued that tariffs are not exogenous in nature but rather are endogenously determined by characteristics endemic to the industries.

Empirical works on endogenous protectionism have also been carried out by many economists such as Magee et al. (1989), Bohara and Kaempfer (1991), Trefler (1993), Das and Das (1994), Ray (1981), Anderson (1980), and Tombazos (2003). These scholars mainly tested cases in Australia and the United States.

Regression Model

In order to test the endogeneity of tariffs for 186 Korean manufacturing industries, we used the system of two equations introduced by Trefler (1993) and Tombazos (2003) as follows:

$$T = \alpha_T + \beta_M \cdot M + C_T \cdot X_T + \epsilon_T \quad \textbf{(1) Tariff Equation}$$
$$M = \alpha_M + \beta_T \cdot T + C_M \cdot X_M + \epsilon_M \quad \textbf{(2) Import Equation}$$

T denotes the nominal average tariff rate that corresponds to the level of protection given to an industry a level of import penetration M. X_T and X_M represent vectors of industry characteristics that determine tariff concessions and the demand for imports, respectively. The vectors of each equation's constants and residuals are given by α_T, α_M, and ϵ_T, ϵ_M, respectively. β and C are estimated coefficients.

Data on the average tariff rates of 186 industries are taken from Korea's 2000 tariff schedule issued by the Korean Customs and Trade Institute (KCTI), and are adjusted to the KSIC, HS, and ISIS codes to be consistent with other variables. Tariff refers to the average rate of tariff applied to products coming into Korea. An establishment is a unit that engages in industrial-related activity at a single location, under a single ownership of control. We limit the size of a unit to only those employing more than 10 workers. Data on exports and imports are obtained from the input-output tables provided by the Bank of Korea. Total assets refer to the total value of assets that each industry possesses. They include the value of capital stock plus the value of land and inventory. Employment refers to the total number of people who work in the unit. The total number of workers in this paper includes regular and part-time workers on the payroll, people working outside the unit who belong to it and are paid by it, and unpaid family workers. Total wages and salaries include all monetary payments and payments in kind paid or supplied by the employer to all people counted on the payroll. They include all payments in cash or in kind paid, payment for time not worked, and special payments such as gratuities or bonuses. The sources of data on labor and capital are statistical databases offered by the Korean Ministry of Labor and the Korean National Statistical Office.

The results of the regression analysis are reported in <Table-4>. First, as expected, import penetration is positively correlated with the tariff rate applied. The result is not statistically significant, however, implying that the industries with strong import

penetration do not always come up with higher levels of protection. In other words, as Anderson (1980) noted in the Australian case, "the more assisted industries have not necessarily been those whose domestic markets have been supplied largely by imports."

<Table-4> Determinants of Tariffs in Korea

	2SLS	
	Coefficients	t-statistics
Tariff Equation		
Import Penetration	0.324	1.141
Δ Import Penetration	-0.631*	-2.314
Exports	-0.095	-0.389
Establishments	-4.807*	-1.751
Industry growth	-0.161	-1.021
Employment	0.045	1.241
Manager, Technicians, and professionals	7.573	0.575
Clerks	11.794	0.826
Service and Sales	8.935	0.674
Production-related	8.986	0.677
Elementary-occupation	8.856	0.665
Adjusted R-square	0.449	
Import Equation		
Tariff	-0.310	-1.350
Capital Intensity	3.558*	2.206
Labor Intensity	87.087*	2.46
Adjusted R-square	0.574	

*P<0.05, **P<0.01

Second, dynamic change in import penetration [Δ (Import Penetration)] is negatively correlated with the tariff rate applied at a significance level of 5%. This implies that even though import competition intensifies in the short run, it does not necessarily lead to a higher level of protection. In other words, a large increase in import penetration does not necessarily push up the relevant protection level. This result is consistent with Tombazos (2003), a study on Australian industries.

Third, as expected, exports have a negative influence over the tariff rate applied; as exports shrink, lobbying for higher levels of government protection increases, although the estimated coefficient is statistically insignificant. In the United States and Australia, the coefficients were both negative and statistically significant (Trefler, 1993 and Tombazos, 2003).

Fourth, with regard to establishments, the estimated coefficient is found to be negative and statistically significant. This result is exactly the same as in the case study of the United States conducted by Trefler (1993). A smaller number of establishments alleviate the free-rider problem, thereby increasing the level of protection. This result shows that the lobbying contribution from the supply side (that is, businesses), rather than the demand side (that is, consumers), strongly affects decisions about the level of protection. More concentrated industries lobby for a high level of protection either to block free-riders or to block new players from both inside and outside. Tombazos (2003) also found the relationship between establishments and tariffs to be negative but not statistically significant. Such a result is opposite the theories of Caves (1976) or Ray (1987), which predict that a higher number of establishments in the industry is correlated with a higher trade barrier because they can form stronger lobbying power.

Fifth, industry growth is negatively correlated with the protection level, but the result is not statistically significant. Our result is consistent with our a priori expectation that the level of protection offered by the government is believed to be biased toward industries that are characterized by sluggish growth.

Sixth, no differentiated impacts on tariffs were discernible among the various categorized groups of labor. We found that the proportions of all categories are also positively related to the level of protection, although the results are not statistically significant. That is, the tariff, in general, is positively correlated with employment. A large workforce itself is an existing lobby that can be redirected toward lobbying for trade protection; therefore, a large workforce leads to high levels of protection. In the United States, engineers and scientists received the most protection while less skilled workers received little protection (Trefler, 1993).

Seventh, regarding the import equation, as expected, labor intensity and capital intensity are positively correlated with import penetration. This is related to the import-demand function. Tariff decreases were found to have a small effect on imports.

In conclusion, the variable “market structure,” which is measured by the number of establishments in the industry, plays an important role in determining the trade policy of the Korean manufacturing industry. The intensification of import competition in the short run will not drive the relevant tariff concessions higher than that awarded to any other industry facing higher overall import penetration. Accordingly, the government

will face high pressures from the monopoly or oligopoly sectors when the market is opened wider. While promoting free trade and the structural adjustment of these industries, we cannot neglect the situation in which the promotion is neutralized by effective lobbying to the government.

5. Policy Implications

Based on the 45-year experience of operating the TAA system in the US, the following policy implications can be derived for the future direction of the TAA system in Korea.

5.1. Characteristics of the TAA System

The support to firms provided by the Korean TAA system is much more comprehensive than that provided by the U.S. TAA system. In fact, the Korean TAA system could be characterized by an industrial policy, which reinforces existing assistance aimed at industrial restructuring and development. According to the law, the government should provide financial support for trade-related injured firms to stabilize short-term management, convert the business and improve the firm's competitiveness as well as provide consultative supports on management, technology, etc. Financial support for business conversion and competitiveness improvement include technology development, investment in equipment, guarantee of location, and training of human resources. The problem is that support for the firm to 'exit' the industry, the essential TAA for the firms, is excluded. Clearly, the Korean TAA contrasts with the U.S. TAA in that the US confines its fundamental assistance (to the firms) to the provision of consulting service for management restructuring and technological development, while banning any kind of support for improvement in production equipment, introduction of new machines, and financial loans after 1986. Although Korea has a clear statement of this law to comply with the "Marrakesh Agreement Establishing the World Trade Organization," financial support for the firm to stabilize short-term management and improve the firm's competitiveness or tax exceptions, etc. could trigger criticism about the government's compliance with the WTO rules. Undoubtedly, as the TAA system generally assists small and medium enterprises, it will have few trade conflicts resulting from actual increased import regarding the 'subsidy' issue. It is true that 'national treatment' does not apply to the case of subsidies. However, the government implicitly supports pure domestic firms rather than firms with uncertain nationality, and therefore,

there are high probabilities of conflict with the foreign affiliates located in Korea during the certification process. The US allocates approximately 1% of the total $1 billion budget to firms, 9% to farmers, and the remaining 90% to workers. The budget of a single U.S. Trade Adjustment Assistance Center (TAAC) is only $800,000 per year; each center is responsible for one firm a month. Each firm receives government financial support of less than approximately $55,000. In contrast, according to the Korean Ministry of Commerce, Industry and Energy, Korea is planning to allocate 92% of the budget (2,845 billion won) to firms and less than 8% to workers during the next 10 years. Clearly, the US focuses on the 'minimum compensation' for trade-related injury through income allowance and training so that workers can maintain post-displacement income. As the Korean TAA system is characterized by an industrial policy, the government is obliged to prove its efficiency based on operational results. It is reasonable to curtail or abolish the detailed programs that could create possible problems of 'moral hazard' or 'adverse selection.' The government should place more weight on its assistance to trade-related workers, the ultimate victims of import liberalization. Moreover, it is recommended that the Korean Ministry of Labor provide suitable and effective training measures such as on-the-job training, customized training, or on-line cyber training instead of the traditional lecture in class. In the US, the effectiveness of the training program itself was questioned; in particular, the traditional lecture was ineffective.

5. 2. Scope of the TAA System

The objects of Korean TAA are the firms and workers that are injured by increased imports as a result as FTA implementation. In the United States, if a causal relationship is found that increased imports of similar or directly competitive products greatly contribute to the decrease in production of certain firms or worker layoffs, then they are the targets of TAA, regardless of the FTA. If there is a shift in production abroad, the firm is eligible only if its production is shifted to the countries with which the United States has concluded or will conclude a trade agreement (in the case of the downstream firm, eligible countries are limited to Canada and Mexico). Therefore, Korea could face an equity debate among the firms and workers in various industries over the relevance of the scope of the TAA program. For example, the injuries from import competition with the U.S. can be partially covered by the government while those from China cannot. The case for removing trade barriers through multilateral trade negotiations is not included in the program, either. Favoring a group injured due to FTA implementation could be positive in the short term because it amicably promotes FTA

implementation. However, in the medium and long terms, it is desirable to reduce the size of the neglected injured group by expanding the support to all the firms and workers injured by free trade. In the US, the agricultural sector is incorporated into TAA. In Korea, TAA focuses on the manufacturing industry and related services, and the agricultural sector is fundamentally excluded from TAA coverage. It seems that related assistance programs for the agricultural sector should be incorporated in the mid- and long-term. We should consider inclusion of the services industry in the TAA system as well. However, in the services industry, it is relatively difficult to measure the magnitude of the injury and to select the beneficiaries. In addition, the introduction of numerous special laws and the subsequent operation of institutions based on these laws for the assistance of agricultural and service sectors could lead to a drastic increase in overall adjustment costs. Therefore, to ensure sectoral equity and cost efficiency, it is advisable to incorporate all industries into an integrated TAA program and facilitate an internal negotiation process among the interested groups and the government. <Table-5> lists industries in the manufacturing and related services that fall under TAA coverage. This is an expanded list that the Ministry of Finance and Economy has proposed to the Ministry of Commerce, Industry and Energy. The Korean government announced that it would expand coverage of the program to all service sectors this year.

5.3. Unified Process of Certification

In the US, the International Customs Committee under Congress (currently the U.S. International Trade Commission, USITC) has originally been in charge of certification. Then the Division of Trade Adjustment Assistance (DTAA) under the Department of Labor administers individual certification, the Economic Development Administration (EDA) under the Department of Commerce administers firm certification, and the USITC administers farmer certification. Thus, in addition to unorganized data collection and control, the administration could be somewhat unprofessional. In the case of Korea, it would be advisable to unify the certification of injured workers or firms under a specialized government agent such as the Korean Trade Commission. In Korea, the Ministry of Labor administers TAA certification for workers, while the Trade Commission and the Adjustment Plan Evaluation Board administers the TAA certification process for firms.

<Table-5> List of Industries in the Manufacturing and Related Services

Industrial Classification	Industries	Industrial Classification	Industries
402	Manufacture of Gas, Distribution of Gaseous Fuel Through Mains	731	Research and Experimental Development of Natural Sciences and Engineering
403	Steam and Hot Water Supply	732	Research and Experimental Development of Social Sciences and Humanities
45124	Installation of Environmental Hygiene Treatment Appliances	742	Market Research and Management Consulting Services
45125	Construction of Industrial Plants	743	Architectural, Engineering Services
46201	Heating, Air Conditioning, and Plumbing Related Works	744	Scientific and Technical Services
603	Road Freight Transport	745	Advertising
604	Transport Via Pipelines	746	Specialized Design Services
61202	Inland Water Freight Transport	751	Facilities Support and Employment Services
631	Cargo Handling	7593	Packaging and Filling Activities
6320	Warehousing	7594	Office Support Services
63911	Supporting, Railway Transport Activities	75991	Weighing and Sampling Services of Goods
63913	Operation of Freight Terminal Facilities	75992	Business and Intangible Rights Brokerages
63914	Operation of Highways and Related Facilities	75994	Exhibition and Trade Fair Organization Agencies
63921	Operation of Harbor and Marine Terminal Facilities (Limited to freight operation)	87111	General Motion Picture and Video Production
63931	Airport Operation (Limited to freight operation)	87112	Animated Cartoon and Video Production
63991	Freight Transport Arrangement	87113	Commercials Advertising Motion Picture and Video Production
63992	Packing and Crating	87114	Broadcasting Programs Production
63999	All Other Supporting Transport Services n.e.c. (Limited to freight transport)	8712	Allied Services to Motion Picture and Production
6412	Couriers and Messengers	87212	Television Broadcasting
711	Renting of Transport Equipment	8722	Cable Networks and Program Distribution
712	Renting of Machinery and Equipment	901	Sewage, Human and Animal Waste Treatment Services
721	Computer System Design and Consultancy	902	Waste Collection and Disposal
722	Software Consultancy and Supply	921	Maintenance and Repair Services of Machinery and Equipment
723	Data Processing and Computer Facilities Management Services	922	Maintenance and Repair Services of Motor Vehicles, and Motorcycles
724	Database Activities and On-line Information Provision Services	93911	Industrial Laundry Services
729	Other Computer Activities		

5. 4. Strengthening the Monitoring System

Many academic papers and reports in the US have pointed out that there were problems in collecting and sharing the U.S. TAA-related data. These problems could obstruct the organized and appropriate assessment of the system itself and severely waste resources. Therefore, the collection and control of related data should be guaranteed before the introduction of the TAA system. It is necessary to construct a data interchange system to ensure the collection of data among related institutions. GAO (2006) submitted a report to the U.S. Congress calling for the systematic collection of up-to-date data to correct the current controlling, storing, and distribution problems. Even though the Ministry of Commerce, Industry and Energy issues the enforcement ordinance and the Ministry of Labor manages the TAA statistics, it should be more concretely specified and system oriented with a unified effort of all related government agencies.

5.5. Relevance of the Budget for Trade Adjustment Assistance

The TAA system is a political device aimed at easing the opposition or winning the silence of the injured interest group in the process of the expansion of trade. Thus, providing ‘sufficient compensation’ for trade-related damage or seeking ‘industrial restructuring’ as an industry policy could rather delay the restructuring by undermining the benefits of free trade. TAA is basically a ‘social cost’ going along with the free trade, so the compensation must be ‘reasonable,’ not ‘sufficient.’ ‘Reasonable compensation’ means the level where internal negotiations could be successfully achieved. The government and interest groups (such as the industries and the unions) should negotiate to determine the amount of compensation, given the government’s limited financial capacity. If we compare the U.S. budget, trade volume, and the actual TAA expenditure, we see that the U.S. TAA system provides compensation at the “minimum level.” In the case of Korea, a survey of the injured firms and/or estimate of the decrease in sales by CGE or partial equilibrium analysis are used to identify the appropriate volume of TAA expenditure. It can easily overestimate the amount of loss due to the nature of the survey and also lacks scientific accuracy in its method.

6. Conclusion

We can characterize the Korean TAA system as an industrial policy aimed at strengthening the manufacturing and related industries, expanding support to small and medium firms and minimizing the role of the Ministry of Labor. The empirical results show that Korea does not have sufficient evidence to justify the introduction of a TAA system on the equity ground. Moreover, "market structure" plays an important role in determining the tariff rates of the Korean manufacturing industry. As the Korean government adopts 'a support scheme for marginal firms' as the essential part of TAA, the government has imposed a burden on itself of proving the efficiency of operating the system. In the next 3 to 5 years, it will be critical to Korea to decide the direction of TAA. If the newly introduced system adequately accomplishes the promotion of restructuring and operates successfully as an effective means for internal negotiations, the system will create a new 'TAA model of Korea.' On the other hand, if the system fails to serve its objectives and simply succeeds in retaining 'marginal firms in comparative disadvantage,' the system's poor performance will threaten the system's own existence. Even if the TAA system continues to exist, it will inevitably be converted into a worker-centered program instead of a firm-oriented program.

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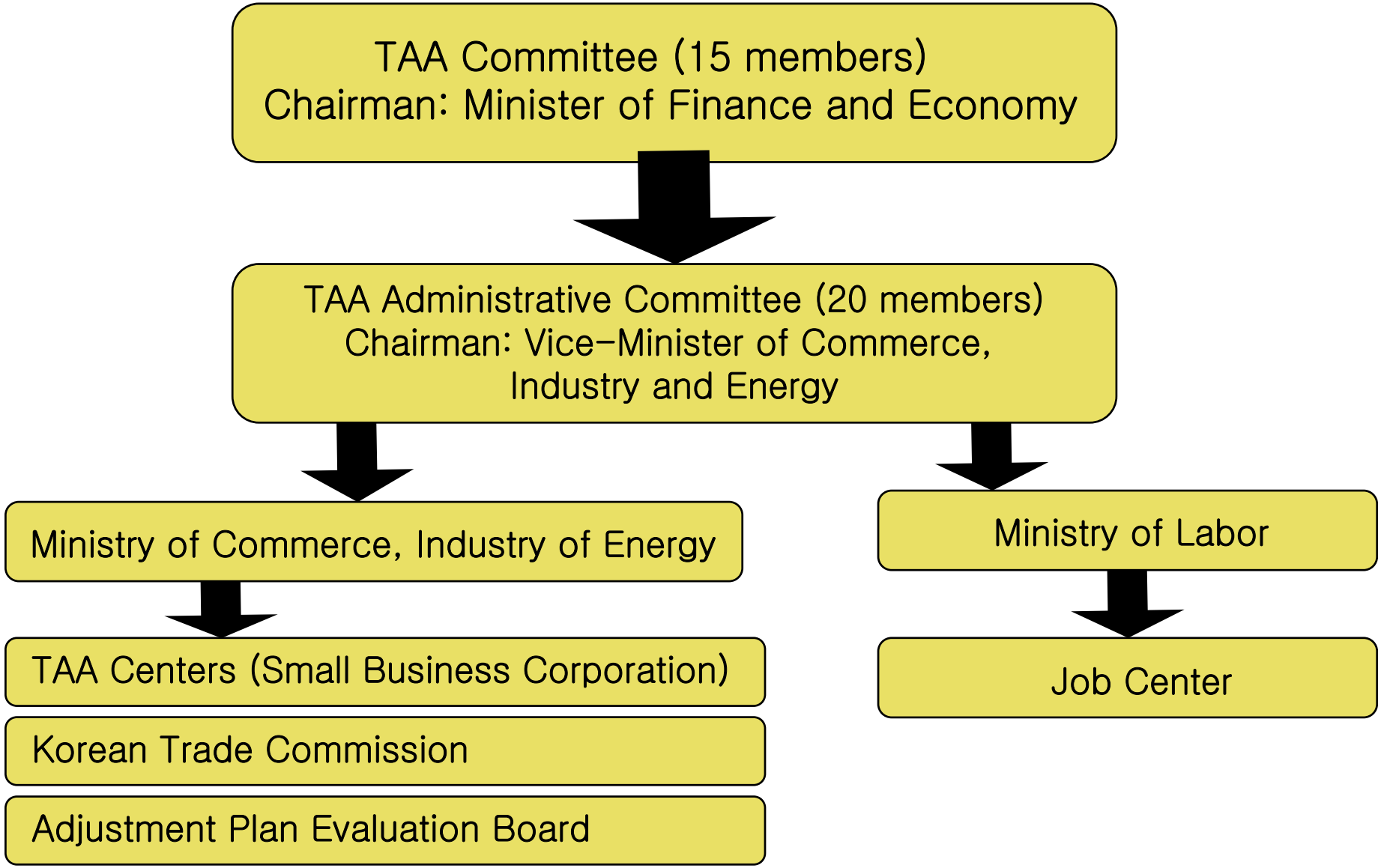
Operation System of TAA in Korea



TAA Process in Korea: Workers

1. **Workers**
   - •Laid off (possible) by FTA
   - • Working hours↓(possible)
   - • Production shift
   - •Upstream and downstream

2. •Worker Representative
   • Employer

3. Ministry of Labor (Job Centers)
   Certification Process

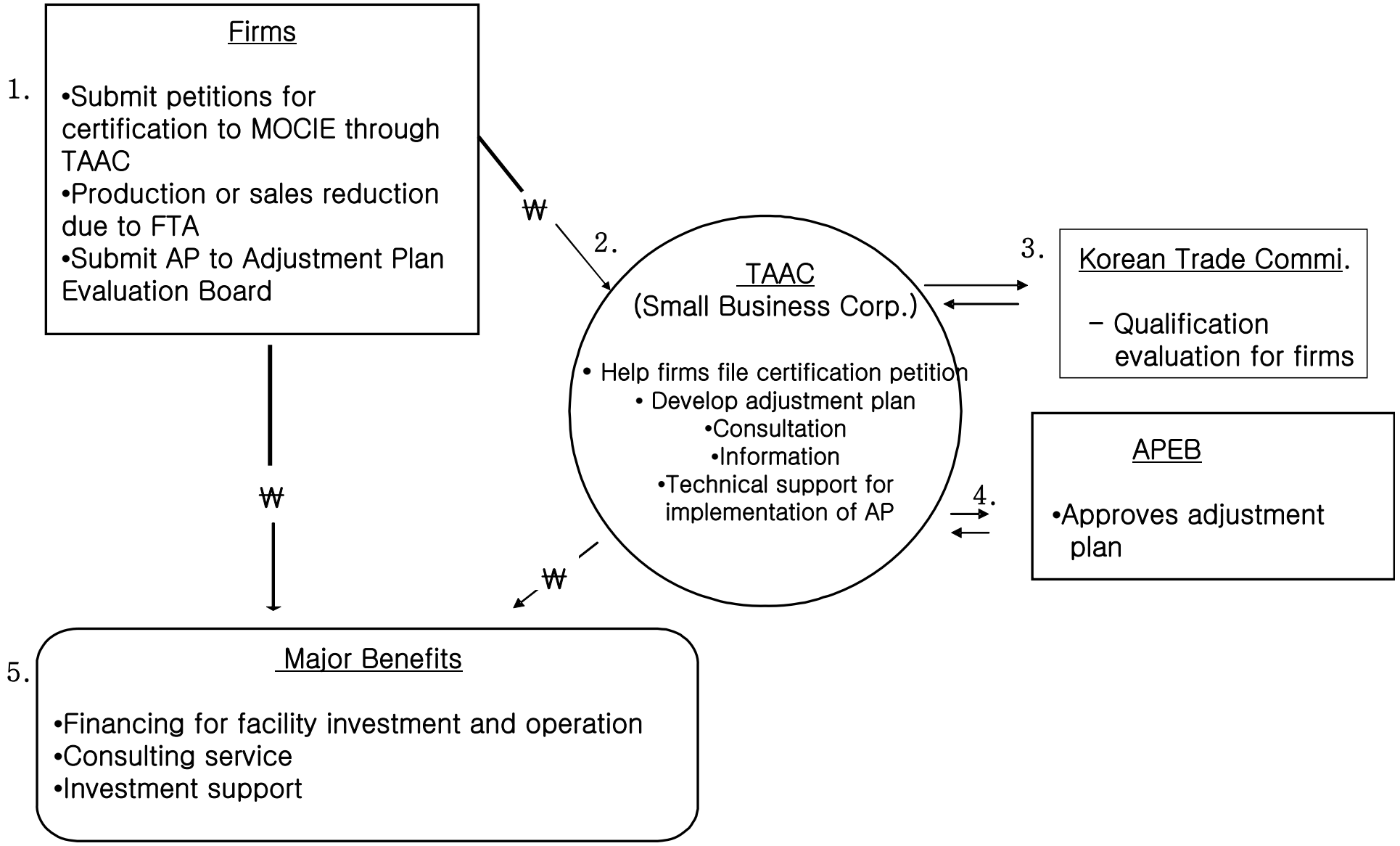
4. • Notification (within one month)
   YES
   ↓ NO
   • general social security system

5. • Certified workers (TAA benefits)

Major Benefits
- •Information Provision
- •Consulting Service for job transfers and re-employment
- • TRA (general)
- • Subsidies for Job Transfer, Employment and Re-employment

6. Training → Reemployment

TAA Process in Korea: Firms



<Table-1> Determinants of Job Displacement in Korean Manufacturing Industries

Variable	Model (Pooled OLS)	
	1	2
Import Penetration	0.0024* (1.9604)	0.0032* (1.8520)
Changes in Export Share		-0.0017* (-2.0065)
Average Wage		-.0.0012 (-1.4466)
Laborer Characteristics		
Share of Female Workers	0.0461* (2.2084)	0.0423* (1.8503)
Average Age	0.0117** (13.8606)	0.0169** (4.9390)
Average Job Tenure	-0.0142** (-10.8543)	-0.0143** (-11.3964)
Education		
Share with Less Than a High School Graduate Education	0.0013** (3.0970)	0.0010** (2.3333)
R2	0.83	0.85
F-statistic	71.58	52.7
Durbin-Watson Stat	1.99	1.89

* t-test significant at 0.05 level ** t-test significant at 0.01 level † t-statistics in the parenthesis

<Table-2> Determinants of Job Displacement with Different Groups of Industries in Korea
(Analysis of Groups Classified by Levels of Import Competition)

Variable	Groups		
	High	Medium	Low
Import Penetration	0.0015* (1.6830)	0.0200 (0.6814)	0.0046** (3.0900)
Changes in Export Share	-0.0020* (-1.7092)	0.0325 (0.8694)	-0.0048 (-0.5042)
Average Wage	0.0001 (0.0944)	0.0002 (0.1002)	-0.0032 (-0.4623)
Laborer Characteristics			
Percentage of Female Workers	0.0576* (1.7687)	-0.2276 (-1.0945)	0.0747* (1.9432)
Average Age	0.0140* (1.8790)	-0.0166 (-0.9520)	0.0253** (4.1476)
Average Job Tenure	-0.0158** (-7.7110)	-0.0200** (-3.6587)	-0.0135** (-7.9217)
Education			
Share with Less Than a High School Graduate Education	0.0011* (1.6958)	0.0007 (1.1936)	0.0012* (1.6712)
R2	0.8772	0.8552	0.8927
F-statistic	63.14	40.17	67.47
Durbin-Watson Stat	2.1685	1.7642	2.3173

* t-test significant at 0.05 level ** t-test significant at 0.01 level † t-statistics in the parenthesis

<Table-3> Characteristics of Displaced Workers in Korean Industry Groups

Characteristics	High Import-Competing Industry	Medium Import-Competing Industry	Low Import-Competing Industry	Manufacturing Industry	Non-Manufacturing Industry
Average Age	40.87	36.74	38.06	38.54	37.83
Education					
Less Than Middle School	0.28	0.21	0.19	0.22	0.17
Middle School Graduate	0.42	0.43	0.44	0.43	0.38
High School Graduate and College Dropout	0.21	0.22	0.24	0.22	0.26
College Degree or Higher	0.08	0.11	0.12	0.11	0.20
Average Job Tenure	6.9	6.7	6.5	6.7	6.2
Share of Female	0.425	0.456	0.335	0.391	0.431

<Table-4> Comparison of the Characteristics of the Korean and the US Unemployed Workers

Variables	Korea (1993-2003)			US (1990-1999*)		
Import Competition	High	Medium	Low	High	Medium	Low
Average Age	40.8	36.7	38.0	40.2	39.4	38.3
Education						
Less Than Middle School	0.70	0.64	0.63	0.59	0.58	0.62
High School Graduate and College Dropout	0.21	0.22	0.24	0.24	0.28	0.27
College Degree or Higher	0.08	0.11	0.12	0.16	0.13	0.11
Average Job tenure	6.9	6.7	6.5	7.4	7.2	6.5
Share of Female	0.425	0.456	0.335	0.460	0.303	0.366

*U.S. Source: Kletzer (2001)

<Table-5> Regressors of Equation and Expected Signs of the Coefficients.

Tariff Equation	Regressors	Expected Sign
Import Penetration	Imports as % of domestic consumption	+
Δ Import Penetration	Import Share of growth rate	+
Exports	Exports as percentage of turnover	−
Establishments	Number of establishments scaled by industry turnover	−
Industry growth	Change in turnover	−
Employment	Unscaled number of workers in industry	+
Manager, technicians and professional	% of manager, professionals and technicians in industry employment	
Clerks	% of clerks in industry employment	
Service and Sales	% of service and sales workers in industry employment	
Production Related	% of laborers and related workers in industry	
Elementary-occupation	% of unskilled workers in industry employment	

Import Equation	Regressor	Expected Sign
Tariff	Average Applied Tariff Rate	−
Capital Intensity	Value of total assets scaled by turnover	+
Labor Intensity	Gross wages and salaries scaled by turnover	+

<Table-6> Determinants of Tariffs in Korea

	2SLS	
	Coefficients	t-statistics
Tariff Equation		
Import Penetration	0.324	1.141
Δ Import Penetration	-0.631*	-2.314
Exports	-0.095	-0.389
Establishments	-4.807*	-1.751
Industry growth	-0.161	-1.021
Employment	0.045	1.241
Manager, technicians and professional	7.573	0.575
Clerks	11.794	0.826
Service and Sales	8.935	0.674
Production Related	8.986	0.677
Elementary-occupation	8.856	0.665
Adjusted R-square	0.449	
Import Equation		
Tariff	-0.310	-1.350
Capital Intensity	3.558*	2.206
Labor Intensity	87.087*	2.46
Adjusted R-square	0.574	

*P<0.05, **P<0.01

<Table-7> List of industries in the Manufacturing and Related Services

Industrial Classification	Industries	Industrial Classification	Industries
402	Manufacture of Gas, Distribution of Gaseous Fuel Through Mains	731	Research and Experimental Development On Natural Sciences and Engineering
403	Steam and Hot Water Supply	732	Research and Experimental Development On Social Sciences and Humanities
45124	Installation of Environmental Hygiene Treatment Appliances	742	Market Research and Management Consulting Services
45125	Construction of Industrial Plants	743	Architectural, Engineering Services
46201	Heating, Air Conditioning and Plumbing Related Works	744	Scientific and Technical Services
603	Road Freight Transport	745	Advertising
604	Transport Via Pipelines	746	Specialized Design Services
61202	Inland Water Freight Transport	751	Facilities Support and Employment Services
631	Cargo Handling	7593	Packaging and Filling Activities
6320	Warehousing	7594	Office Support Services
63911	Supporting, Railway Transport Activities	75991	Weighing and Sampling Services of Goods
63913	Operation of Freight Terminal Facilities	75992	Business and Intangible Rights Brokerages
63914	Operation of Highways and Related Facilities	75994	Exhibition and Trade Fair Organization Agencies
63921	Operation of Harbor and Marine Terminal Facilities (Limited to freight operation)	87111	General Motion Picture and Video Production
63931	Airport Operation(Limited to freight operation)	87112	Animated Cartoon and Video Production
63991	Freight Transport Arrangement	87113	Commercials Advertising Motion Picture and Video Production
63992	Packing and Crating	87114	Broadcasting Programs Production
63999	All Other Supporting Transport Services n.e.c. (Limited to freight transport)	8712	Allied Services to Motion Picture and Production
6412	Couriers and Messengers	87212	Television Broadcasting
711	Renting of Transport Equipment	8722	Cable Networks and Program Distribution
712	Renting of Machinery and Equipment	901	Sewage, Human and Animal Waste Treatment Services
721	Computer System Design and Consultancy	902	Waste Collection and Disposal
722	Software Consultancy and Supply	921	Maintenance and Repair Services of Machinery and Equipment
723	Data Processing and Computer Facilities Management Services	922	Maintenance and Repair Services of Motor Vehicles, and Motorcycles
724	Database Activities and On-line Information Provision Services	96911	Industrial Laundry Services
729	Other Computer Activities		

Policy Implications

- Industrial Policy vs. Trade Policy
- Scope of TAA in Korea
- Unified Process of Certification
- Data Collection and Control
- Relevant Budget?
- New TAA model vs. Direction Change

Thank You !