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# An Analysis of International Labor Mobility: The Case of Korea

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## Abstract

The employment of foreign workers is getting more attention among policy makers and labor market experts, as the Korean population is aging in an unprecedentedly rapid way.

In this paper, we analyze the impacts of foreign labor force influx on the domestic labor market theoretically and overview the foreign worker employment system in Korea. Theories show that foreign workers may lead to reduction of wages as well as some substitution of native workers with foreign workers, depending on industry, skill level and firm type. However, job market segmentation and induced new investment may decrease a negative impact on the domestic labor market. Combining the theory, the institutional facts, and current states of foreign workers in Korea, we draw some policy implications. First, H-2 visa holders could neutralize the effort on the industrial quotas. And also, this may make the government lose control over the foreign workers' labor supply. Second, statistics on the labor shortage may need to be improved since domestic employers have an incentive to overemphasize their labor shortage. Third, the current quota system may need to incorporate a long-run forecast by encompassing the long-run industrial trend and change in Korean population. Fourth, the principle of short-term migration is losing its ground as the government allows foreign workers to reside for longer periods. The government may need to decide whether to stick to the principle or not. Fifth, the government needs a more systematic way to introduce high-skilled, professional foreign workers as the employment permit system does for low-skilled foreign workers. Finally, the government needs to clarify the policy targets through a more sophisticated classification of

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foreign workers and has to decide whether it would encompass those foreign workers between high-skilled professionals and low-skilled workers.

## I. Introduction

As the Korean population gets older and is projected to decrease within a couple of decades, the labor force, which is an essential factor in production, is also expected to decrease at a similar pace. This problem not only has an impact on the present Korean economy, but would probably have a bigger influence on the economy in the future.

The government considers various alternatives to deal with this problem, such as more and better utilization of female workers, extension of working age through adjustment of retirement age, elevation of matching efficiency between workers and job vacancies, and permission of immigrant workers. Among them, introduction of immigrant workers is emerging as one of the most important alternatives to cope with the older Korean labor market. Apart from the ageing labor market, the issues of admission and utilization of foreign workers have been getting more attention from businesses and policy makers since relative wages of Korean workers increased and the industries of 3D – dirty, dangerous, and demeaning – suffered from labor shortage. The issue of immigrant workers, therefore, are getting more attention not just from the labor supply side but also from the labor demand side.

However, due to the relatively short history of introduction of foreign workers in Korea, we do not have sufficient related

literature on this topic. Although recently the Statistics Office began to produce micro data on foreign residents in Korea, insufficiency of statistical micro data did not allow for empirical analysis of their impacts.

This paper aims to analyze the effects of the international mobility into Korea. This paper mainly focuses on theoretical analysis of the effects of foreign workers on the domestic labor market. This study intends to give some insights to the current foreign employment permit system and draw some policy implications. Other studies (Yoon (2009), Kim (2012)) have covered similar research topics but rather focus on current states of foreign workers in Korea without showing explicitly sufficient theoretical backgrounds for policy implications. This paper tries to show some related theoretical background as well as institutional aspects and current states of the foreign worker employment in Korea to draw out policy implications.

We have to admit that due to the limit of its data, this study could not analyze the effects empirically. The effects have not been analyzed as much as they deserve, mainly because it is very hard to obtain the data of foreign workers - not to mention that of illegal immigrant workers - and thus difficult to analyze the effects of immigrant workers on the Korean labor market empirically. In particular, the information on their wages and industries are very limited. We would attempt to analyze empirically the effects of foreign workers on the domestic labor market with better accumulation of data.

The paper is organized as follows. In Chapter II, we describe institutional aspects of the foreign workers employment system

in Korea. Chapter III analyzes the domestic labor market impacts due to foreign labor employment. In Chapter IV we infer some policy implications.

## **II . Overview of Foreign Workers Employment System in Korea**

In this chapter, the foreign worker employment system in Korea is reviewed. This chapter is organized as follows: in the first section, its history is described; in the second section, the current foreign worker employment system is surveyed; and in the third section its current employment process is reviewed.

### **1. History of Foreign Workers Employment System in Korea**

Compared with other advanced countries, such as Germany, Britain, and the United States, Korea has a relatively short history of employment permission of foreign human resources.

In 1993, Korea started to introduce the foreign labor force with the industrial trainee system for foreign workers in 3D (dirty, dangerous, and demeaning) industries, as well as to offer skill-accumulating opportunities for foreign workers from developing countries. However, in the system the trainees had some problems, such as illegal stay, emigration corruption, lack of systematic labor force control, and not being legally protected as a worker. In addition, the demand side also wanted more foreign workers to fill vacancies. This system was changed to a trainee-

employment system: in 2000 it was with a 2-year traineeship and 1-year employment. 2 years later it was changed to a 1-year traineeship and 2-year employment.

However, this system caused many subsequent problems and was not effective to meet the labor demand.

As an effort to improve the foreign worker introduction system, the Employment Permit System was initiated in 2004, which is the current foreign manpower introduction system. This system officially acknowledges the introduction of foreigners as worker's status. The visa type of foreign residents shows that the size of industrial trainees (D-3) gradually de-creased to 3,507 in 2014 but employment-permit foreign workers (E-9) increased to 270,569 in 2014.

Foreign national Koreans from China and former Soviet Union Regions (CIS) were also allowed to work under the employment management system from 2002, which was later merged into the Employment Permit System as the special employment permit. Low-skilled foreign national Koreans from these regions can obtain H-2 visa status under the Employment Permit System. Workers with H-2 visa can work in the areas which are larger than employable business areas for foreign workers with E-9 visa. However, H-2 visa holders have been managed by total residence control of maximum 303,000 since 2010 because of concerns on domestic labor market disturbance.

Apart from the Employment Permit System, which is for low-skilled foreign workers, more skilled or professional foreign workers receive other E-type visas: E-1 for professors, E-2 for language instructors, E-3 for researchers, E-6 for artists and

athletes, E-7 for workers with special skills.

## **2. Current System: Employment Permit System**

As described in the previous section, Korea allows foreign workers to work under the Employment Permit System, which was initiated in 2004, and other foreign worker employment systems were unified into the Employment Permit System in 2007. Unlike the industrial traineeship, the Employment Permit System officially admits foreign human resources in the domestic labor market as worker's status by law. The Employment Permit System works under 5 major principles: Complementarity, Transparency, Alignment with the Market, Short-term Migration, and Non-Discrimination.

The Employment Permit System consists of two parts: general employment permit and special employment permit. The special employment permit is designed to employ low-skilled foreign national Koreans, who are mostly from China and Central Asia.

Each year the Foreign Workforce Policy Committee decides on industries and the introduction scale of foreign workers. The decision on foreign workers is required to reflect supply and demand of domestic workforce. When the committee decides on the yearly quota of foreign workers, it puts into consideration current states of domestic labor market, labor supply and labor demand by industry, replacability of domestic workers, domiciliation of foreign workers, social integration costs.

As of 2015, industries where foreign workers can be introduced

Table 1. Foreign Worker Employment Permission by Industry

	General employment permit	Special employment permit
Manufacturing	Establishment with full-time workers less than 300 or capital stock with less than or equal to 8 billion Korean Won	
Construction	All construction works	
Services	Construction Waste Disposal (3823)	Sewage, Wastewater and Human Waste Treatment Services (37) Waste Collection, Disposal and Materials Recovery (38) Wholesale of Live Animals (46205) Wholesale of Other Agricultural Raw Materials and Live Animals (46209) Wholesale of Household Goods (464) Wholesale of Machinery Equipment and Supplies (465) Retail Sale of Other Household Equipment (475) Retail Sale in Other Specialized Stores (478) Retail Sale not in Stores (479) Transit and Ground Passenger Transportation (492) Hotels (55111) Inns (55112) Restaurants (5611)

<Continue>

	General employment permit	Special employment permit
Services	Construction Waste Disposal (3823)	Lunch Counters (5619) Business Facilities Support Management Services (7410) Cleaning of Building and Industrial Facilities (7421) Activities of Travel Agencies and Tour Operators and Tourist Assistance Activities (752) Social Work Activities (87) General Repair Services of Motor Vehicles (95211) Repair Services of Motor Vehicles Specializing in Parts (95212) Maintenance and Repair Services of Motorcycles (9522) Saunas (96121) Industrial Laundry Services (96911) Private Nursing and Similar Services (96993) Private Households with Employed Persons (97)
	Collection and Wholesale of Recycling Materials (46791) Refrigerated Warehousing (52102) Publishing of Books, Magazines and Other Publications (581) Publishing of Music and Other Audio (59201)	

&lt;Continue&gt;

	General employment permit	Special employment permit
Fishing	Coastal and Offshore Fishing (03112) Cultivating Fishing (03210) Extraction of Salt (07220)	
Agriculture & Animal Farming	Growing of Crops (011) Farming of Animals (012) Services Incidental to Growing of Crops & Animal Farming (014)	

Source : <https://www.eps.go.kr/>

to work are restricted to manufacturing, construction, services, agriculture and farming, and fishing. More details on the industries in which foreign workers are allowed to work are described in Table 1. Workers with special employment permits are allowed to work in more business sectors than workers with general employment permits. Workers with general employment permits are not allowed to work in the service sectors with the five exceptions of construction waste disposal, collection and wholesale of recycling materials, refrigerated warehousing, publishing of books, magazines and other publications, and publishing of music and other audio.

The committee decided that the scale of introduction of foreign manpower in 2015 is 55,000 for E-9 visa holders, allocating 45,000 for new entrants and 10,000 for re-entering foreigners. The total quota is increased by 1,900 from the previous year, reflecting labor shortages especially in small and mid-sized firms. The committee allocated 42,400 foreign workers to manufacturing, 6,000 to agriculture and farming, 2,300 to fishing, 2,300 to con-

struction, and 100 to services. The remaining foreign human resources would be allocated across the industries, depending on the industrial demand situation.<sup>1)</sup>

The maximum of foreign national Koreans with H-2 visa, managed by the gross number of residents in Korea, was decided to remain at 303,000 in 2015. But unlike E-9 visa holders, allocation of H-2 visa holders by industry is not possible since they can be moved without restriction across the industries appropriate to special permit holders.<sup>2)</sup>

### **3. Process of the Employment Permission**

The Korean government can introduce the foreign labor force under the Employment Permit System. The countries that signed an MOU on labor emigration to Korea are 15 less-developed countries as of 2015: Sri Lanka, Vietnam, Cambodia, Bangladesh, Thailand, Indonesia, Nepal, Myanmar, East Timor, Philippines, Mongolia, Uzbekistan, Pakistan, Kyrgyzstan, and China. Foreign national Koreans from China and central Asia can arrive with an H-2 visa.

Compared with average wages in those countries, the minimum wage level in Korea is so high that Korea may induce virtually as many foreign workers as possible. Therefore as far as low-skilled foreign manpower is concerned, the supply side may not be the problem, at least for the time being.

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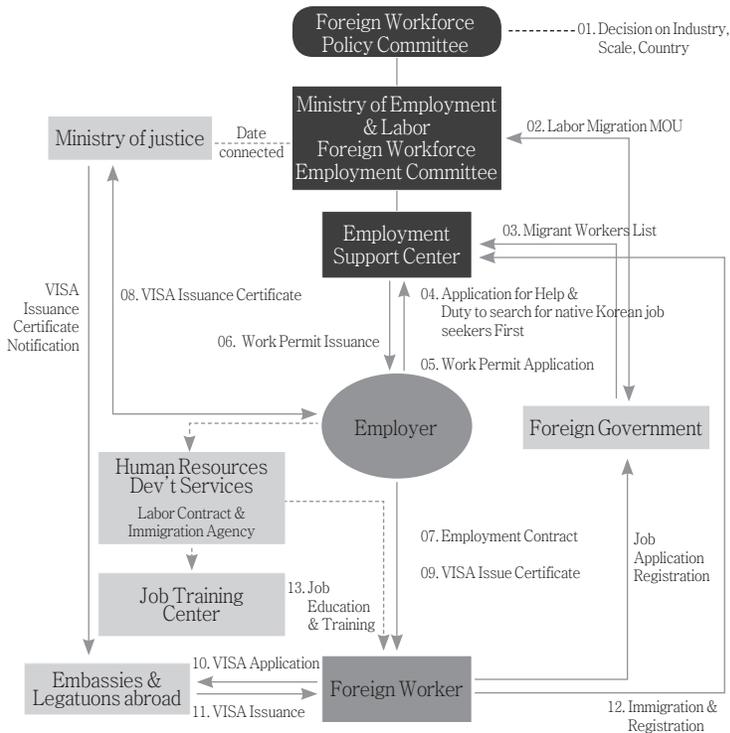
1) Ministry of Employment & Labor (2013, 2014).

2) Ministry of Employment & Labor (2013, 2014).

Hence, the size of the foreign labor force introduced in the domestic market is totally decided by the Korean demand side.

The Employment Permit System is a quota system, wherein the total size of the demand is fixed annually by the decision of the Foreign Workforce Policy Committee. The annual size of the quota is determined based on labor shortage in the small and medium size firms which have difficulty in finding domestic workers. The types of business is also determined by the Foreign

Figure 1. General Employment Process of Immigrant Workers



Source : <http://www.eps.go.kr>

Workforce Policy Committee.

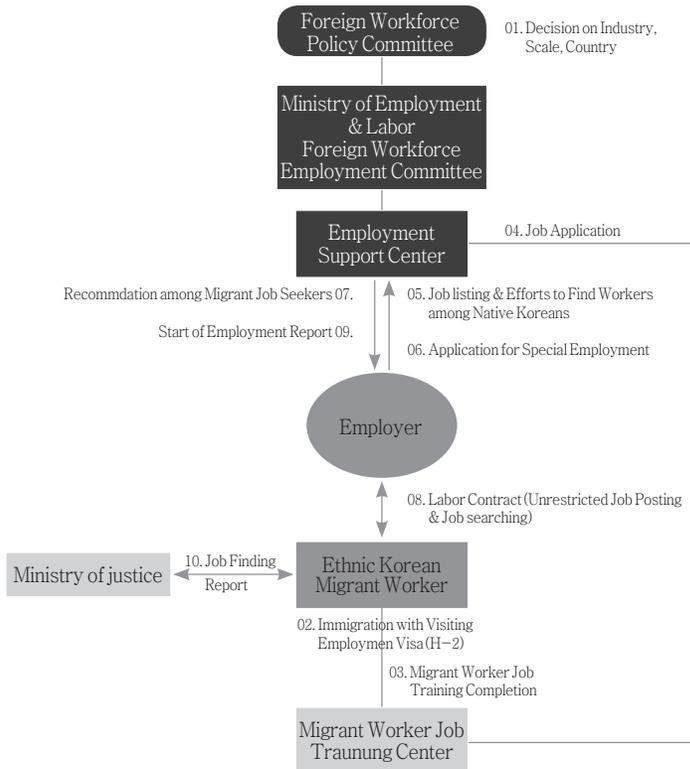
Once the types and the size of the industrial quota is determined, allocations to specific establishments can be made by a point system. Those qualified firms that made an effort to find domestic workers to fulfill their vacancies and were unsuccessful can apply to hire foreign workers under the Employment Permit System. The firms receive positive or negative points by the evaluation system. For example, 1 point can be added to a workplace with 5-year consecutive zero accident. Establishments that get higher points have priority in allocation of foreign workforce by industry. Detailed information on the process of foreign workers with an E-9 and general employment permit is shown in Figure 1.

Under the Employment Permit System, the determination of the quota of foreign national Koreans - H-2 visa type holders - is different with foreign workers with E-9 visa type.

The number of H-2 visa holders are managed by the gross numbers, which is for several years fixed at 303,000 people. Unlike E-9 type visa holders, H-2 type visa holders can freely change jobs within the selected business categories set by the government. And they can work in broader service sectors than E-9 type visa holders. Detailed information about the employment process for foreign national Koreans under the Employment Permit System is shown in Figure 2.

Under the short-term migration principle, which aimed to prevent foreign workers in Korea from permanent settlement, the Employment Permit System sent them back with 3-year period limit. The limit is extended to 4 years 10 months due to employers' requests. If requirements are met, reemployed for-

Figure 2. Special Employment Process of Immigrant Workers



Source : <http://www.eps.go.kr>

Foreign workers, after a 3 month break in their countries, can return and work in Korea for an additional 4 years and 10 months. Less than 5 years could be important to the government as the limit on foreigners' continuous residence, because staying past that period could qualify them for permanent residence and naturalization and this would violate the short-term migration principle for low-skilled foreign workers.

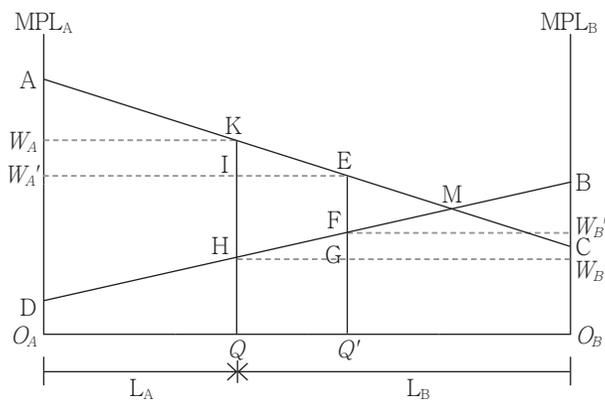
### III. An Analysis of the International Labor Mobility

#### 1. Theoretical Approach on the Effect of the International Labor Mobility

In this section, we would like to analyze the effects of migrant workers on domestic labor markets theoretically.

In Figure 3, we show that in the simple 2-country model, international labor mobility could be mutually beneficial in terms of GNP, and the mobility tends to decrease the wage gap between the two countries.

*Figure 3. International Labor Mobility and its Economic Impact*



Source : partially modified from *Economics of international labor mobility* (2008).

In Figure 4, we show an unskilled migrant worker's wage level under quota system. Given the quota system, considering the labor shortage in the domestic labor market, their wages have an upward pressure, and the demand side has an incentive to secure more foreign workers given the fixed wages.

In Figure 5, we combine native workers with migrant workers and find out the impacts on wages and employment in the domestic labor market.

Figure 3 shows two-country labor mobility model. Countries A and B have initial labor endowments of  $L_A$  and  $L_B$  respectively. It is assumed that workers are identical and migration costs are so small that only market wages and policy decisions matter in migration. Capital is assumed to be fixed in the two countries, so additional workers lead to decreased marginal productivity along the curves. We assume that labor markets in the two countries are competitive. The vertical axis on the left shows the marginal productivity of labor in country A and Y axis on the right marginal productivity of labor in country B. Country A's marginal labor productivity curve is shown as the line AC and country B's as the line BD. Given the labor endowment in each country and without inter-country labor mobility, country A's wage is set as  $W_A$  and country B's as  $W_B$ , due to competitive labor market. The level of GNP (and GDP) in each country in autarky can be shown as area  $AKQO_A$  for country A and area  $BHQO_B$  for country B.

Now, international labor mobility is assumed to be allowed between country A and country B. Then workers move from a lower-productivity country (B), thus lower-income country, to a higher-productivity country (A). Let's assume that the size of

the labor mobility is exogenously determined by the policy and its allowed size is  $QQ'$  in this case.

Without the government intervention, the labor markets would be equalized at point M, and therefore marginal productivity and wages would be equalized between the two countries.

Given the government intervention (quota of  $QQ'$ ), the economic impact of each country can be summarized as follows: The size of labor  $QQ'$  moves from country B to country A, country A's wage level drops from  $W_A$  to  $W_A'$  and country B's increases from  $W_B$  to  $W_B'$ . Country A's GDP would be shown as area  $AEQ'O_A$ , increased by the size of  $KEQQ'$ . Country B's GDP drops from  $BHQQ_B$  to  $BFQ'O_B$ , due to the labor drain. These results might appear as if labor mobility would be advantageous to country A at the expense of country B's GNP.

However, these results would be changed to be mutually beneficial if GNP is considered (or if overseas remittance is considered). Due to international labor mobility, GNP in country A increases by  $IEK$ , when the full remittance by the overseas workers from country B is assumed. So, country A still enjoys benefits even after full remittance. GNP in country B increases by the size of  $IEFH$ . This result of mutual benefits could be interpreted in the following way: even after full remittance, country A still enjoys some benefits because country A borrowed some labor at wages lower than its productivity; country B enjoys benefits because some of its workers could be allocated to higher-productivity jobs in country A, and then its workers send back their wages.

If country A's labor market is segmented by workers' nation-

ality, country A could scoop some of the wages workers from country B would have received without the segmentation. However, this dual labor market can be sustained only if workers between the two countries can be fully separated and cannot be substituted in the labor market. If workers in both countries are homogeneous, this dual market is very difficult to sustain because employers would prefer workers with low-wages and similar productivity, and hence pushing up wages of workers from country B and pulling down wages of workers from country A.

Even if workers from both countries are not homogeneous, a limited substitutability between the two groups of workers can have an impact on domestic workers.

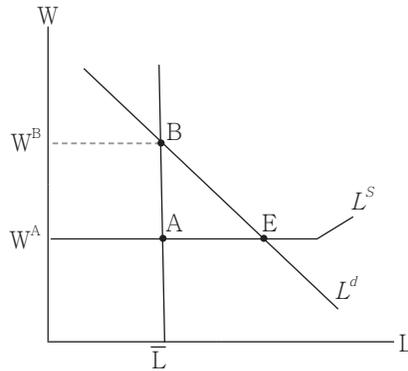
The impact of the international mobility of skilled workers can be analyzed similarly. However, it is less likely to have such segmentation of workers as low-skilled workers.

The next part is low-skilled foreign workers' wages and labor supply under the quota system. Under the quota system, foreign labor is fixed by the government policy. Even their wage level is rather fixed by the initial labor contract.

More specifically, under the quota system, the size of low-skilled immigrant workers is decided by the committee for foreign workforce policies. When it decides the yearly quota of foreign workforce, the committee considers both job opportunities of domestic workers and industrial labor shortages. And it also considers economic perspectives, and the size of illegal foreign residents.

Given the size of foreign labor supply, a simple domestic labor market model on foreign workers is suggested in Figure 4.

*Figure 4. Labor Market of Low-skilled Foreign Workers with Labor Quota*



Given a fixed amount of foreign labor ( $L$ ), the wage is set close to the minimum wage level ( $W^A$ ) because of their low skills and other disadvantages in the labor market. However, if firms have a problem finding workers at the minimum wage level, especially in small manufacturing firms, firms would have labor shortage, which would lead to competition among firms to hire foreign workers. This would lead to pushing the wage level higher than the minimum wage level,  $W^A$ . Firms would either offer other amenities or raise wages to secure workers. In the end, the wage level would be at some place between point A and point B unless other restrictions are implemented.

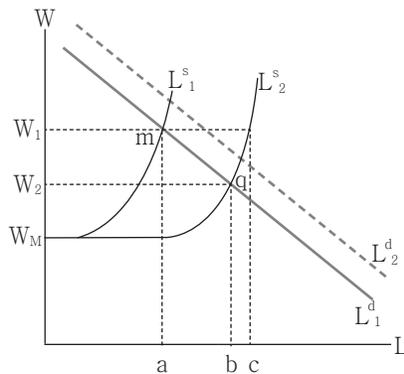
Although foreign labor supply is decided by the government, illegal foreign workers might be another factor in foreign labor supply. If illegal foreign workers increase, this means foreign labor supply in the domestic labor market increases. In Figure 4, this can be expressed as pushing the vertical foreign labor supply

rightward. This increase in labor supply would alleviate the upward pressure on the wages. In the end, the increase in illegal foreign workers would prompt the coordinate of labor supply and wage level inside the area of triangle ABE.

Now consider a simple labor market model to show the effects on the low-skilled domestic labor market together with low-skilled domestic workers. Native low-skilled labor supply is shown as the labor supply curve  $L^S_1$  in Figure 5. The initial labor market equilibrium is at point m, where its wage level is  $W_1$  and the labor quantity supplied is a. When foreign labor is introduced with quota of  $c-a$ , labor supply curve makes a parallel shift rightward from  $L^S_1$  to  $L^S_2$ . Point c shows gross labor supply in the labor market when there is no substitution effect.

Figure 5 indicates that when foreign workers are introduced in the market, the new equilibrium is at point q, at which the

*Figure 5. Labor Market of Low-skilled Foreign Workers with Domestic Workers*



Note :  $W_M$  is the minimum level of wage.

equilibrium wage level ( $W_2$ ) is lower than  $W_1$  and the (gross) employed workers (b) is larger than a. Figure 5 also shows that if the foreign workers are assumed to be all employed, then there is some negative substitution effect on native workers, by the size of  $c-b$ . This is why the government is sensitive to the introduction of foreign workers to the domestic labor market. The government tries to select businesses, skills levels, and firm types, which could minimize the negative substitution effects. Another channel to decrease the negative effects could be through the new investment. Increased labor supply may put downward pressure on wages but raise return to capital.<sup>3)</sup> Higher return to capital could lead to increased investment, which is shown as shift from  $L_1^d$  to  $L_2^d$  in Figure 5. This shift can make the size of substitution effect on native workers less than  $c-b$ .

Literature on substitutability of foreign workers with native workers in Korea showed a rather negative sign depending on businesses.<sup>4)</sup> And it also showed that evidence on the effect on wage is mixed<sup>5)</sup>: conflicting studies have separately found both a small increase and a small reduction in average wages as a result of foreign workers. But there is better evidence that its effects are unequal: the lowest-paid workers, who face the fiercest competition from foreign workers, find their wages held down by the arrival of foreign workers, and higher earners are more likely to benefit from it.

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3) Though its equation is omitted in this paper, partial derivation on a simple CES production function can show this.

4) Lee & Park (2008), Yoo & Kim (2010), Choi (2011).

5) Choi (2011).

## 2. Current States of Foreign Workers in Korea

According to statistics of the Korea Immigration Office, foreign residents increased for the last decade as shown in Table 2. For the last 10 years, the number of registered foreigners more than doubled and foreign national Koreans increased more than 10 times.

Low-skilled foreign workers under the Employment Permit System have also been increasing as Figure 7 shows. These quantities are heavily dependent on the employment permit

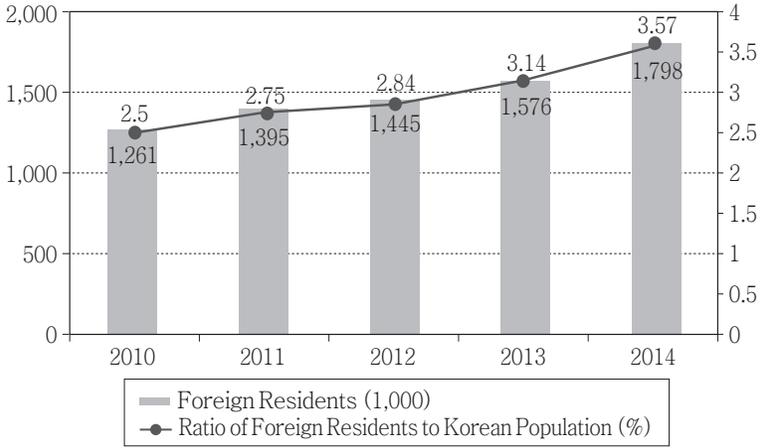
*Table 2. Foreign Residents in Korea*

Unit : persons

	Total	Registered Foreigners	Temporary Foreign Residents	Foreign National Koreans
2003	678,687	437,954	218,426	22,307
2004	750,873	468,875	259,464	22,534
2005	747,467	485,144	236,958	25,365
2006	910,149	631,219	249,542	29,388
2007	1,066,273	765,746	266,011	34,516
2008	1,158,866	854,007	263,402	41,457
2009	1,168,477	870,636	247,590	50,251
2010	1,261,415	918,917	258,673	83,825
2011	1,395,077	982,461	277,596	135,020
2012	1,445,103	932,983	324,504	187,616
2013	1,576,034	985,923	356,842	233,269
2014	1,797,618	1,091,531	419,673	286,414

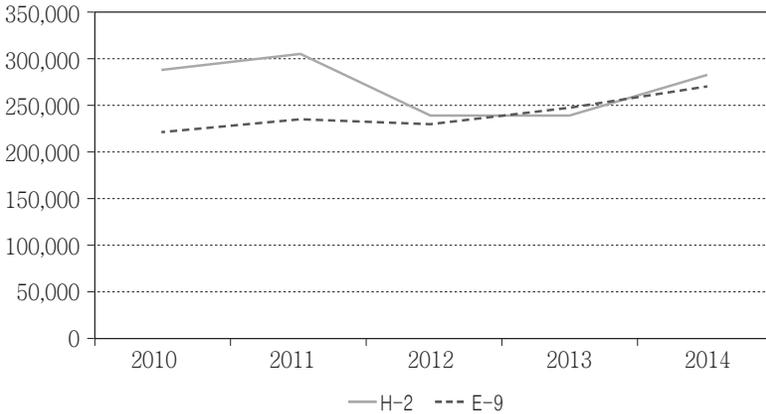
Source : Korean Immigration Service Annual Reports.

Figure 6. Foreign Residents in Korea



Source : Korea Immigration Service Annual Report 2014.

Figure 7. Low-skilled Foreign Residents with Visa Types of E-9, H-2.



Source : Korea Immigration Service Annual Report 2014.

quota. The E-9 visa holders increased continuously for the last 4 years due to increase in the quota. The H-2 issuance has only the limit of the maximum since 2010, so it may have some fluctuations depending on the economic situation in sending countries and the Korean economy. As a consequence, H-2 holders had a dip in 2012 and then rebounded.

While the low-skilled foreign residents numbered more than 550,000 in 2014, skilled or professional foreign residents (visa type E-1 to E-7) made up less than 10% of the low-skilled people.

**Table 3. Skilled or Professional Foreign Residents by Visa Type**  
(As of 12.31.2014)

Visa Type	E-1	E-2	E-3	E-4	E-5	E-6	E-7	Total
Persons	2,664	17,949	3,195	186	645	5,162	19,109	48,910

Source : Korea Immigration Service Annual Report 2014.

**Table 4. Employment Permit Quotas (E-9) by Industry**

	2010	2011	2012	2013	2014
Manufacturing	28,100	40,000	49,000	52,000	42,200
Services	100	150	150	100	150
Construction	1,600	1,600	1,600	1,600	2,350
Agriculture & Farming	3,100	4,500	4,500	6,000	6,000
Fishing	1,100	1,750	1,750	2,300	2,300
Total	34,000	48,000	57,000	62,000	53,000

Source : <http://www.eps.go.kr>

Note : In the year 2015, total quota of E-9 is 55,000.

Table 4 is the yearly change in the employment quota by industry. Table 4 shows only the quota of E-9 visa type because since 2010, the number of foreign national Koreans (H-2 visa) has been changed to be managed by the gross maximum number and the foreign national Koreans can freely move across businesses.

A relatively small quota size in the services is largely due to foreign national Koreans, who can work in broader businesses of the service sector.

The quota for foreign national Koreans (H-2 visa holders) has been fixed at 303,000, since it was changed to manage the total number of foreign national Korean residents in 2010.

## IV. Policy Implications

11 years have passed since Korea officially introduced foreign labor forces into its labor market as legal workers. The Employment Permit System, a quota system for foreign labor force in Korea, is composed of 2 parts: general employment and special employment. While general employment is for low-skill foreigners in general, the special employment absorbed the previous visitor employment of foreign national Koreans. General employment is based on the yearly quota and special employment on quota of total residents of foreign national Korean.

The Employment Permit System has expanded and changed itself. The general employment quota has expanded from 25,000 in 2004 to 53,000 in 2014. The special employment has changed itself from the quota like the general employment, to one based on total residents. The quota for the special employment was 303,000 people in 2014.

The current permit system is far from perfect. It may need some improvements. Based on chapter II and chapter III, the analysis can infer some implications.

First, two different foreign worker introduction processes in the Employment Permit System may have an offsetting effect. While the government can have the industrial quotas on E-9 visa holders, it does not have one over H-2 visa holders, which may neutralize the effort on the industrial quotas. And this may make

the government lose control over the foreign worker's labor supply.

Second, statistics on the labor shortage may need to be improved. Figure 4 shows that the domestic employers have an incentive to hire more workers with lower wages. Given the system, domestic employers may overemphasize their labor shortage. Therefore the total quota and industrial quotas may be affected by the biased report of the labor shortage.

Third, although theoretical, results from Figure 3 and 5 show possible decrease in wage, especially among low-skilled domestic workers. And Figure 5 shows possible replacement of domestic workers when foreign workers are introduced. Introduction of foreign workers may be good for production and beneficial to well-paid workers. However, it may cost low-skilled native workers with lower wages and fewer jobs. Therefore, the government should be more careful in selecting industries and in setting up employment quota. And it should closely monitor possible negative impacts on the domestic labor market.

Fourth, the current quota system is heavily based on the short-term labor market situation. It may need to reflect a long-run forecast to encompass a long-run industrial trend and changes in Korean population.

Fifth, the principle of short-term migration is losing its ground as the government allows foreign workers to reside for a longer period. The initial 3-year staying period for foreign workers has been extended to 4 years and 10 months, and reemployment makes the period twice as long. Foreign workers can work in Korea longer than 9 years at its longest period, which is not a

short term at all. The government may need to decide whether it would stick to the principle or not.

Sixth, while the government has a unified employment system to introduce low-skilled foreign workers, it does not have a more systematic way to introduce high-skilled, professional foreign workers. As more emphasis is on high-skilled foreign professionals for economic growth, it is necessary to introduce a more systematic and unified way to manage them.

Finally, the government tends to divide foreign labor forces into 2 groups for their policy purpose: high-skilled professionals and low-skilled workers. This division may come from the idea that these two groups are less competitive with native Korean workers. However, this simple division may mean middle-skilled foreign workers can be mixed in one of the two groups - especially in the professional group- and hence lessen the intended effects. The government may need to clarify the policy targets by more sophisticated classification of foreign workers and decide whether it would encompass those mid-range foreign workers.

In this paper, we have not considered social costs in cultural, social integration, and inclusion of these costs may provide a new and possibly different perspective on the introduction of foreign workers.

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