INDES WORKING PAPERS

THE MIGRANT WORKERS IN JAPAN FROM LATIN AMERICA AND ASIA: CAUSES AND CONSEQUENCES

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I. Introduction

The world has been increasingly interconnected both economically and politically ever since the end of the World War II. In addition to the increase in the movement of goods (international trade) and the movement of money (foreign investment), we have observed increased amount of movement of labor (international migration) in various parts of the world. For example, European countries, notably Germany and France, have accepted a large number of migrant workers from neighboring countries for many years. In the United States, huge number of migrant workers, both legal and illegal, have been flowing from various countries in Latin America and the Caribbean. While Japan had been a fairly closed country to foreigners for many years, the influx of migrant workers emerged in the mid-1980s when an economic boom brought about serious labor shortage created an economic boom. Initially, most of these foreign workers are illegal migrant workers from neighboring Asian countries. However, since the revision of the Japanese immigration law in 1990, there has been a dramatic influx of the Latin American of Japanese origin (*Nikkei*) because these people are now allowed to do whatever activities in Japan, including an unskilled work that is prohibited to foreigners in principle. The number of these Latin American migrants is estimated to be around 150,000 to 200,000.

Faced with such an increasing number of foreign workers, there have been lively (political) debates in Japan on the possible impact of migration on Japan as well as on sending developing countries. Some are generally in favor of migration, and argue that the movement of workers from labor-abundant countries (developing countries) to labor-scarce countries (advanced countries) would enhance the economic welfare in both countries by realizing more efficient allocation of labor, and that, faced with the aging population in Japan, the admission of foreign workers is the only alternative to cope with expected labor shortage in the near future. Others are strongly against the admission of (unskilled) migrant workers, arguing that it would give a dampening effect on wages of the Japanese workers and that the large-scale admission of foreigners would create social problems such as the increase in crimes. However, arguments of both sides often goes emotional and are based on anecdotal evidences arising from their personal experiences. Therefore, objective studies of the social and economic effects of international migration are keenly needed for policy makers as well as ordinary citizens in both receiving and sending counties of migrant workers. In addition to Japan, international migration is often one of the

most important political issues in other part of the world, such as the United States and countries in Latin America.

In view of the above, the purpose of this paper is to analyze, both theoretically and empirically, the economic and social impact of international migration both on receiving countries and sending countries, taking the workers coming from Asia and Latin America to Japan as an example. This paper focuses on *temporary guest workers* that come to work in Japan for a few years and remit most of their incomes to their home countries, because it is this type of migrant worker that has been rapidly increasing in Japan. Further, the emphasis of the discussion is placed on the situation from mid-1980s to mid-1990s, because there were very few guest workers in Japan before mid-1980s and because the increasing trend of guest workers are temporarily suspended by the recent severe economic situation in Japan.

In section II, salient features of migrant workers in Japan will be examined first, in order to give some background facts of the issue. As will be discussed in detail below, there are two groups of migrant workers, who have dramatically increased since the mid-1980s: (i) illegal unskilled workers from neighboring Asian countries and (ii) legal unskilled workers from Latin American countries. After the overview of the basic data, the reasons of the sharp increase of migrant workers in Japan during this period will be discussed.

In Section III, theoretical discussions of international migration will be presented. While the orthodox economic theory is generally in favor of migration because, according to their theory, international migration implies the movement of workers from labor-abundant (capital-scarce) countries to labor-scarce (capital-abundant) countries, the new theory, which incorporates various reality such as the existence of trade barriers and non-traded goods, provides ambiguous picture of the impact of international migration, because it gives both positive effects and negative effects, as will be discussed in greater detail in Section III. In addition to the economic impact, social impact of migration is also examined. Unlike international trade (movement of goods) and international investment (movement of money), migration means the international movement of human being as a whole, who performs various

social activities as well as economic activities, and therefore, the examination of social effects of migration is also very important.

In Section IV, some estimates of the magnitude of economic and social effects of migration will be provided. Contrary to the argument of the orthodox economic theory, the two estimates given in Section IV suggest that international migration might give adverse effects, both economically and socially.

Section V summarizes the major findings of the paper.

II.   Major characteristics of Migrant Workers in Japan
Three Categories of Migrant Workers
Legal Skilled Workers

Table 1 summarizes the number of migrant workers by visa categories in Japan. The number of legal and skilled workers is very small at 67,983, or about 0.1 percent of total labor force in Japan. Even when unskilled workers, mostly from Latin America, and working students are included, the number of legal migrant workers is 267,269, or just 0.41 percent of total labor force. This is partly due to the strict Japanese immigration law, which severely restricts jobs that foreign workers can take in Japan. Therefore, most legal foreign workers, except for the Latin Americans of Japanese origin called *Nikkei* (see below for the detailed discussions of *Nikkei*), are professional workers, such as professors, researchers, lawyers, accountants etc.

The share of legal foreign workers in total labor force in Japan is far smaller than those in European countries. Figure 1 shows the share of migrant workers in the total labor force in Japan and several European countries. While the share of foreign workers in total labor force is around seven percent in France and Germany (and as high as seventeen percent in Switzerland), the corresponding figure for Japan is less than one percent.
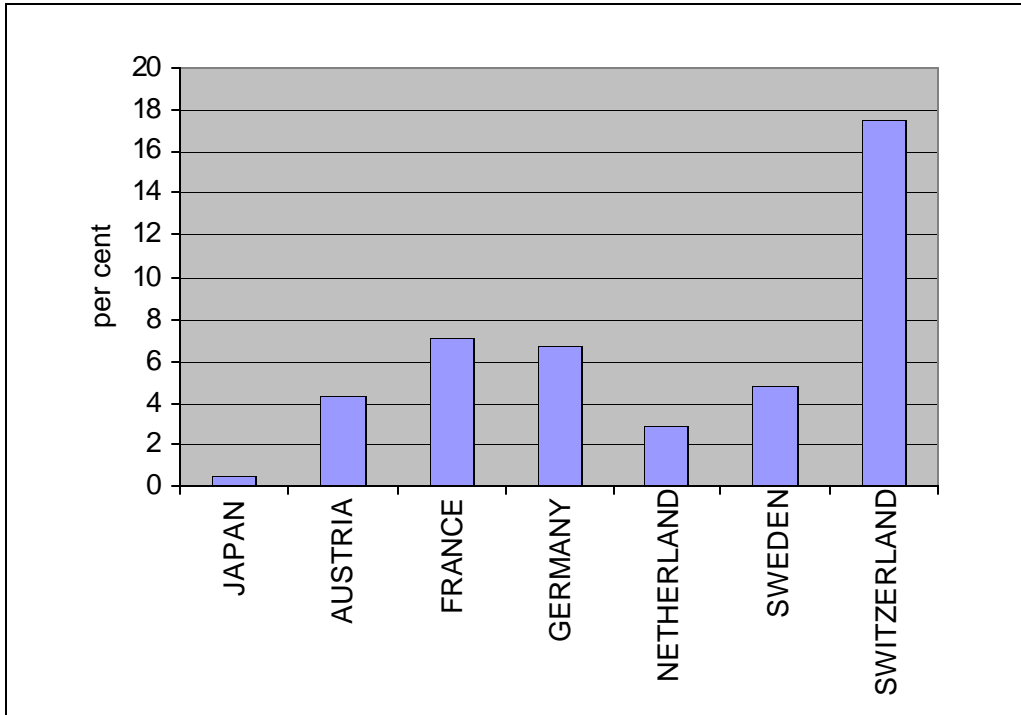
Table 1. Foreign Workers in Japan (1991)

Legal foreign workers	267,269
Skilled workers	(67,983)
Latin American of Japanese origin	(148,700)
Working students	(50,586)
Illegal foreign workers	216,399
Total	483,668
Total Labor Force In Japan	65,050,000

Source: Japanese Ministry of Labor.

While illegal migrant workers has been rapidly increasing since mid-1980s (see below), there are almost no increasing trend of the number of legal and skilled foreign workers. Figure 2 shows the number of foreign entrants with working visas since 1976. At the first glance, we may have an impression that the number of new entrants of legal foreign workers shows quadruple increase from 30 thousand in 1980 to 114 thousand in 1991. However, careful examination reveals that only "entertainers" have increased and there are no increasing trends in other skilled workers, at least as far as the situations before the revision of immigration law in 1990 are concerned. The number of entrants of "other skilled workers" is 11 thousand in 1989, which is about the same as the number in 1976. Although "entertainers" visas are supposed to be issued to real entertainers such as actors, actresses, singers etc., it is often pointed out that many (or most?) of the "entertainers" are disguised unskilled workers, who come to Japan to work in notorious sectors.
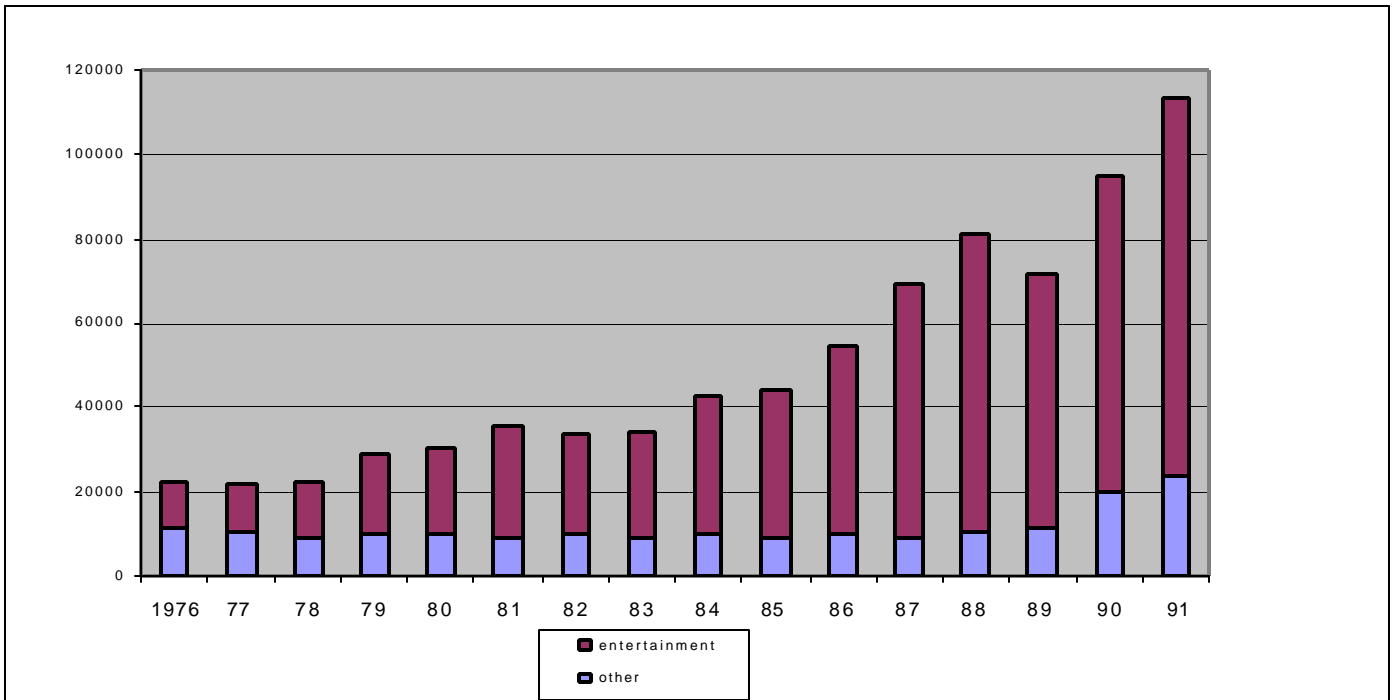
FIGURE 1

THE SHARE OF MIGRANT WORKERS
IN TOTAL LABOR FORCE

Source: OECD, the Japanese Ministry of Justice.

FIGURE 2

NEW ENTRY OF FOREIGN WORKERS

Source: The Japanese Ministry of Justice.

While the number of real skilled and professional migrant workers in Japan is small and there are no conspicuously increasing trend in recent years, there are two groups of migrant workers that show a dramatic increasing trend: (i) illegal unskilled workers from neighboring Asian countries and (ii) legal Latin American workers of Japanese origin, who are often called *Nikkei* (or *Nikkeijin*) workers. In what follows, these two groups of migrant workers will be discussed in detail.

Illegal Unskilled Workers

Although the number of migrant workers (both legal and illegal) in Japan is less than half a million, or less than one percent of her labor force (see Table 1), the rate of increase in the number of illegal foreign workers has been dramatic since the mid-1980s. As Figure 3 shows, the number of illegal foreign workers apprehended by the authorities has sharply increased from 2,339 in 1983 to 64,341 in 1993. Although the number declined a little after that due to the severe recession of the Japanese economy, the number of illegal migrant workers are far greater than the level before mid-1980s. Needless to say, these numbers represent only a small part of the total illegal foreign workers in Japan. According to the Ministry of Justice, the total number of illegal foreign workers in Japan is estimated at 200, 000 - 300, 000.

Just as most illegal aliens in the United States come from Mexico and other neighboring countries in Latin America and the Caribbean, most illegal foreign workers in Japan come from neighboring Asian countries (See Table 2). Since the wage rate in their home countries is extremely low, even a discriminatory low wage by the Japanese standard means a lot to these workers.

The recent influx of Asian workers is markedly different from earlier migrations. Until the middle of the 1980s, most of the illegal foreign workers were women who worked as bar hostesses (so-called "*Japayuki San* (Miss Japan-going)"). In 1983-84, for example, more than 90 percent of the illegal foreign workers were female. But, the number of male workers dramatically increased to about 70-80 percent of the total illegal immigrants by 1990. (See Figure 3)

As seen in Table 3, in 1994, about 40 percent of the illegal male workers were construction workers, and a little over a quarter were factory workers. Most of the illegal male aliens are doing work for which there is a high demand due to the boom in the Japanese economy, but work that few Japanese want to do because of unfavorable working conditions. It should be noted that about two-thirds of the illegal migrants are working in the nontraded goods sector, such as construction and service industries.

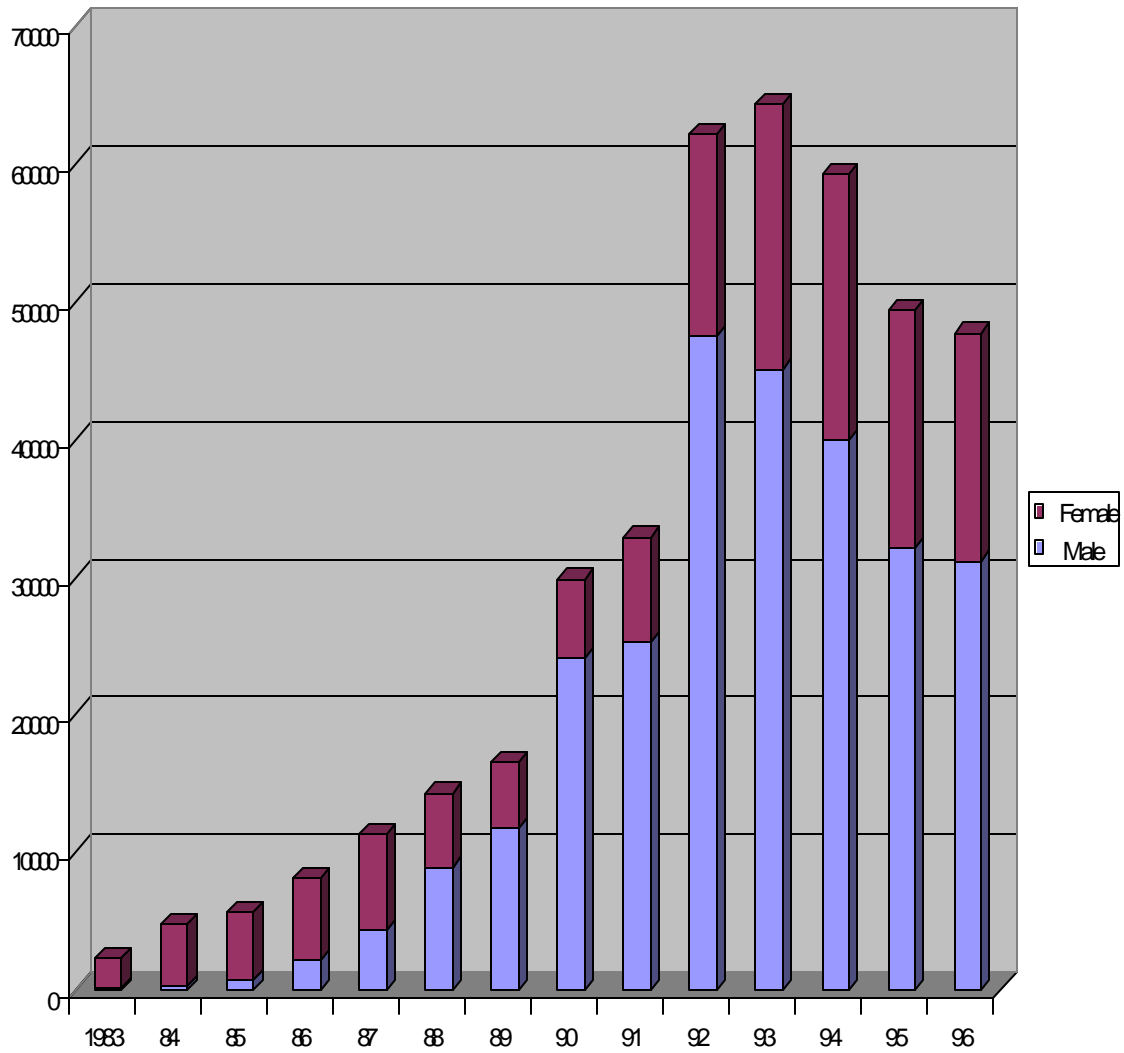**Table 2. Illegal Foreign Workers by Country of Origin (1994)**

	Number			Share (%)		
	Total	Male	Female	Total	Male	Female
Total	59,352	40,029	19,323	100.00	100.00	100.00
Korea	10,730	6,694	4,036	18.08	16.72	20.89
Thailand	10,654	4,600	6,054	17.95	11.49	31.33
Malaysia	8,576	6,308	2,268	14.45	15.76	11.74
China	8,000	6,025	1,975	13.48	15.05	10.22
Iran	5,628	5,530	98	9.48	13.81	0.51
Philippines	5,260	2,414	2,846	8.86	6.03	14.73
Peru	2,623	1,798	825	4.42	4.49	4.27
Pakistan	1,531	1,526	5	2.58	3.81	0.03
Bangladesh	918	908	10	1.55	2.27	0.05
Myanmar	899	688	211	1.51	1.72	1.09
Other	4,533	3,538	995	7.64	8.84	5.15

Note: [1] Including Taiwan and Hong Kong.

Source: Japanese Ministry of Justice.

FIGURE 3

ILLEGAL FOREIGN WORKERS APPREHENDED

Source: Japanese Ministry of Justice.

Table 3. Illegal Foreign Workers by Activities (1994)

		Number	Share(%)
Male	Total	40,029	100.0
	Construction worker[*]	15,691	39.2
	Factory worker	10,654	26.6
	Unskilled help[*]	3,656	9.1
	Bartender[*]	1,865	4.7
	Cook[*]	1,787	4.5
	Dish washer[*]	1,407	3.5
	Other service[*]	1,051	2.6
	Mover[*]	480	1.2
	Other	3,438	8.6
	(Nontraded)[1]	25,938	64.8
Female	Total	19,323	100.0
	Bar hostess[*]	7,413	38.4
	Factory worker	3,139	16.2
	Waitress[*]	2,242	11.6
	Dish washer[*]	1,530	7.9
	Prostitute[*]	1,176	6.1
	Unskilled help[*]	800	4.1
	Other service[*]	687	3.6
	Cook[*]	626	3.2
	Other	1,710	8.8
	(Nontraded)[1]	14,474	74.9

Note: [1] summation of items with an asterisk.
Source: The Japanese Ministry of Justice.

Legal Unskilled Workers -- Latin American of Japanese Origin (Nikkei)

The impact of the revision of the Japanese immigration law in 1990

In addition to the illegal foreign workers discussed above, there has been a dramatic increase in the number of Latin American workers of Japanese origin (*Nikkei*) since late 1980s. The influx of these workers is mainly due to the revised immigration law in Japan, which was enacted in 1989 and was put into effect in June 1990. While the Japanese immigration law does not allow foreigners to take an unskilled job in principle, the revised law made it possible for "a foreign citizen whose parent or grandparent was a Japanese citizen" to do whatever activities (including unskilled work) in Japan. Further, these people are allowed to stay in Japan for three years (instead of three months for visitors). The revision of the immigration law resulted in the dramatic increase of workers from Latin American countries such as Brazil, Argentina, Peru, and Bolivia, to which many Japanese citizens had emigrated

long time ago. Since the wage rate in Japan is much higher (and Japanese society is much safer) than that in Latin America, a host of Latin American people of the Japanese origin (*Nikkei*) were attracted to Japan. According to the newspaper reports, some people fell into huge debt to pay for their travel cost, and other people without Japanese origin were arrested for forgery of their birth certificate or using other person's identification. Figure 4 shows the number of these *Nikkei* workers coming from Latin America to Japan since 1988. While the number of *Nikkei* workers in Japan was only eight thousand at the end of 1988, the year before the revised immigration law was enacted, after that the number of *Nikkei* workers doubled every year to become around 150,000 in June 1991. As Table 4 shows, about 80 percent of these peoples are from Brazil, and remainders are from Peru, Argentina, Bolivia, and Paraguay, to which countries many Japanese emigrated long time ago.

Table 4. Guest Workers from Latin America

Country	Workers in Japan	People with Japanese origin	Ratio %
Brazil	120,000	1,280,000	9.4
Peru	18,000	80,000	22.5
Argentina	8,500	30,000	28.3
Bolivia	1,500	6,000	25.0
Paraguay	700	7,000	10.0
Total	148,700	1,403,000	10.6

Source: The Japanese Ministry of Labor.

Single male in car parts factory.

Then, what are salient features of these *Nikkei* workers coming from Latin America to Japan? The Ministry of Labor in Japan published a result of the survey on *Nikkei* workers in Japan, and the following discussion is mainly based on this survey result.

According to the survey, most of them are young male: About two thirds of them are male, and the majority of them are under thirty years old. About two thirds are coming to Japan by himself, and only thirteen percent of them bring their entire family to Japan.

Almost all (more than ninety percent) of these males are working as production workers in manufacturing sector. About one third of them are employed in transport equipment production sector (most of them are car parts factory). This constitutes a striking contrast with illegal unskilled workers from Asia, who are employed mainly in the nontraded good sectors such as construction and services.

Conditions of Nikkei workers in Japan

What are the working conditions of these *Nikkei* workers in Japan? When we compare hourly wage of the *Nikkei* workers with that of the Japanese counterpart, there are no big difference between the two. Since they are legally employed, employers tend to pay them by regular hourly wages. However, the annual income of these *Nikkei* workers is much smaller than that of Japanese workers, because most of the *Nikkei* workers are employed on daily basis and paid by hourly wage. Note that, in terms of wage structure, blue-collar production workers in Japan are similar to white-collar workers in the United States. Most of the blue-collar production workers in Japan receive monthly salary (instead of hourly wages). Further, these salaried workers in Japan receive bonus payments twice a year, and enjoy various fringe benefits. The bonus payment in Japan constitutes a substantial part of their annual income, and the amount of average bonus is equal to five months salary. Therefore, even though hourly wage rate of *Nikkei* workers is similar to that of the Japanese counterpart, their annual income is much smaller than Japanese workers because most of *Nikkei* workers do not receive bonus payment and fringe benefit.

FIGURE 4

MIGRANT WORKERS OF JAPANESE ORIGIN
(*NIKKEI* WORKERS)
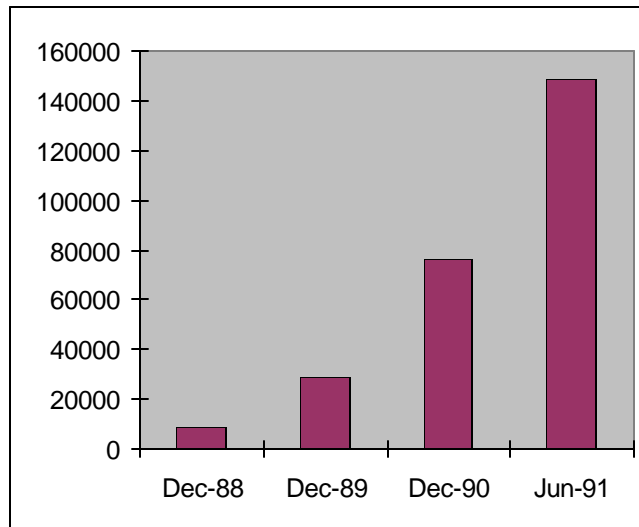
Source: The Japanese Ministry of Foreign Affairs.

Further, the *Nikkei* workers are often exploited by brokers or mediators. According to the survey result, less than half of *Nikkei* workers are directly employed by the firm where they actually work. More than half of *Nikkei* workers are employed by mediator agencies and are sent by them to the factories. Hence, the amount of income of *Nikkei* workers is usually smaller than what the factories are paying for their work. In some cases, exploitation by gangsters was also reported. For example, in October 1989, a president of a mediator agency was arrested for illegal exploitation. According to the newspaper report, he employed 2,000 Brazilians and sent them to several factories. He pocketed about 30-40 percent of their wages and was benefited by three billion yen (or about 30 million dollars).

Further, the above survey reveals that most of the *Nikkei* workers are working without medical insurance and unemployment insurance. In Japan, almost hundred percent of workers (and their family) are covered by very generous government sponsored medical insurance program. Workers contribute to the medical insurance program according to their income. And, the deductibles are nominal. No matter how high the actual medical cost is, the payment out of the patient pocket does not exceed about five hundred dollars a month and the balance is paid by the insurance program. Very poor people can enjoy the same benefit as the others without contributing anything.

However, according to the above survey, only twenty-three percent of the *Nikkei* workers are covered by the generous medical insurance program, probably because both employers and *Nikkei* workers themselves do not want to pay their contribution to the program. But, in case of illness or accident, these *Nikkei* workers have to pay 100 percent of their medical expenses from their pocket.

Thus, conditions of these *Nikkei* workers are generally lower than those of the Japanese workers, although the income of these *Nikkei* workers in Japan is probably higher than what they would get in

their home country.1

Impact on the home country in Latin America

What is the impact of emigration of these *Nikkei* workers on families left out in their home country and on the society of home country as a whole? Needless to say, the major purpose of these *Nikkei* workers to come to Japan is to make money and remit their income to the home country. According to the survey, more than ninety percent of the *Nikkei* workers say that the major purpose of coming to Japan is to make money and go back to their home country within a few years. For that purpose, they have to pay (a large amount) of travel cost to come to Japan, because only one percent of the firms in Japan say that they pay travel cost for the *Nikkei* workers. It is reported that the entire families of these *Nikkei* workers incur huge debt to pay for the travel and settling-in cost. Then, do they succeed in pursuing the initial objective, i.e., to send a big money to their home country? The answer to this question is ambiguous. While twenty eight percent of *Nikkei* workers remit more than fifty percent of their income to their home country, twenty two percent of them say that they do not remit at all.

In addition, the impact of their emigration on the *Nikkei* society in the home country is enormous, because the share of the number of *Nikkei* workers who emigrated to Japan in the total number of *Nikkei* population in their home countries is very high. Table 4 shows the number of *Nikkei* workers emigrated to Japan and the number of people with Japanese origin in their home countries (Brazil, Peru, Argentina, Bolivia, and Paraguay). The emigration ratio (the share of emigrated *Nikkei* workers in total *Nikkei* population) is more than ten percent for five countries as a whole, and the ratio exceeds a quarter for Argentina and Bolivia (in other words, in these two countries, one in every four *Nikkei* goes to Japan to work!).

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1 It should be also noted that in order to come to work in Japan, the Nikkei workers have to bear (huge) costs of transportation and relocation.

Moreover, the adverse impact of their emigration on their home country is all the more serious because highly educated people tend to emigrate for higher wage in Japan. As Table 5 shows, more than forty percent of them are college graduate or above, and more than ninety percent of them are high school graduate or above. Although the *Nikkei* workers are in most cases employed as unskilled workers in Japan, highly educated people emigrate to Japan because the wage rate of unskilled workers in Japan is higher than that of skilled workers in their home country. However, such emigration of highly educated people causes a serious shortage of skilled and professional workers, such as doctors and teachers, in their home country.

Table 5. Education Level of Latin American Migrants of Japanese Origin (%)

College or above	42.1
Professional school	21.5
High school	29.4
Elementary school	7.1

Source: Kaigai *Nikkeijin* Kyokai.

Reasons for the Sharp Increase -- Push and Pull

Why did many unskilled foreign workers suddenly come to Japan after the middle of the 1980s? While it is clear that the most important reason for the increase in the *Nikkei* workers from Latin America is the revision of the Japanese immigration law in 19902, the reasons for the influx of illegal foreign workers from neighboring Asian countries are not so obvious.

One of the most important reasons is that a push-force in neighboring Asian countries coincided with a

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2 As discussed above, after the revision of the immigration law, these *Nikkei* workers can legally take unskilled work, while such unskilled work is still prohibited to other foreign workers.

pull-force in the Japanese economy in the 1980s, as discussed in detail below. The inflow of Asian migrant workers is often attributed to the huge wage gap between Japan and neighboring Asian countries. Indeed, there is a huge income gap between Japan and Asian sending countries. It is often the case that the per capita income in Japan is 50 to 100 times higher than those in sending Asian countries. It should be noted, however, that the huge income differential had existed for many years. Although the sharp appreciation of the Japanese yen after September 1985 amplified the gap to some extent, the wage level of Japan had been high enough to constitute a potential incentive for Asian workers to migrate to Japan for many years. Therefore, the huge wage differential cannot explain the *surge* in the flow of Asian workers since the mid-1980s.

Probably, one of the most important reasons on the supply side for the sharp increase is that the destination of Asian migrant workers has shifted from the Middle East to Japan. In the 1970s, an increasing number of Asians had been recruited to work at construction sites in the oil producing Middle Eastern countries. When the price of crude oil quadrupled after the First Oil Crisis in 1973, a construction boom occurred in the oil-rich countries because their oil revenue dramatically increased. But the population size of these countries in the Middle East is relatively small. Therefore, these rich countries recruited a large number of temporary immigrants mostly from southern Europe and Asia. As a result, the number of migrant workers from eight Asian countries (Bangladesh, India, Indonesia, Pakistan, Sri Lanka, the Philippines, Thailand, and South Korea) to the Middle East grew from a little more than 100 thousand in 1976 to more than 1.2 million in 1982. But, as the price of crude oil went down in the 1980s, the construction boom in the Middle East subsided, and some 400 thousand Asian migrant workers lost their jobs and had to return to their home countries.

The return of these workers was a serious blow to the Asian sending countries, because remittance from them was an important source of foreign exchange receipt. In Pakistan and Bangladesh, for example, remittance from migrant workers was almost as large as the total value of their exports. Moreover, the dependence of the migrant workers from these Asian countries on the Middle East for their destination was extremely heavy. Therefore, the decline in labor demand in the Middle East created a large pool of Asian workers who lost jobs in the Middle East and were eager to find new jobs in some other

countries. Probably, to these unemployed workers, one of their rich neighbors, Japan, must have looked like a new land of opportunity.

The increase in the supply pressure coincided with the increased demand of Japanese businesses for the migrant workers. Due to the strong performance of the Japanese economy, the labor market in Japan became very tight since the mid-1980s. The labor shortage was especially keen in the construction and service industries. Moreover, an important source of the domestic supply of marginal workers (i.e., a group of seasonal workers called "*dekasegi*") has shrunk, and therefore, the demand for migrant workers to fill the gap in this marginal labor market increased.

The performance of the Japanese economy after the middle of the 1980s was dramatic: the annual growth rates of the real GNP in 1988, 1989, and 1990 were 6.2%, 4.7%, and 5.6%, respectively; those of industrial production in 1988, 1989, and 1990 were 9.5%, 6.1%, and 4.6%, respectively. Consequently, the labor market became very tight, and the job-opening/job-seeker ratio (one of the most commonly used indicators of the labor market condition in Japan) sharply increased. While the ratio nose-dived in 1975 (the First Oil Recession) and stayed at around 0.6 (i.e., only six jobs were available for every 10 job seekers), it began to increase after 1987. In 1988, the ratio exceeded one for the first time since 1974, and it went as high as 1.40 in 1990[3].

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3 The job-opening/job-seeker ratio in 1998 is mere 0.53.

A typical practice of Japanese firms in boom years has been to increase the number of marginal workers, such as seasonal and temporary workers, because firms had at least a moral obligation to keep their *regular* employees on the payroll even in a recession. However, the construction industry is losing an important source of its supply of domestic nonregular workers. Until the end of the 1970s, the labor shortage in the construction industry in boom years had been largely filled by seasonal workers, *dekasegi*, who were mostly farmers in the northern part of Japan who came to metropolitan areas like Tokyo and Osaka to take temporary jobs in an attempt to supplement their farm incomes in the farmers' slack season. In the early 1970s, the number of *dekasegi* amounted to about 600,000. But, because of increased job opportunities in their home towns, that number has been steadily diminishing: only 142,200 *dekasegi* were reported in 1993. The decline in the supply of *dekasegi*, along with the recent construction boom, created a serious labor shortage in the construction industry. The strong demand for marginal workers in the Japanese construction industry attracted an increasing number of foreign workers whose supply pressure had been increased by the decreasing demand in the Middle East.

Faced with the strong push-force and pull-force, illegal mediators between Japanese employers and Asian migrants (like the "coyote" figure for Mexican illegal aliens in the United States) have become prevalent. Although the details of their illegal activities are unknown, involvement of gangsters was often reported. According to an estimate by the Japanese Ministry of Justice, in 1990 about 70 percent of illegal migrant workers entered Japan with the help of such illegal mediators.

III.   The Impact of Migration – Some Theoretical Consideration

The Economic Effect of Migration on the Host Country

Conventional Wisdom – What Does the Textbook Economics Say?

Economic theorists usually consider that the overall effect of international migration is favorable to both home and host countries, because it involves the movement of labor from a labor abundant (and capital scarce) country to a labor scarce (and capital abundant) country, and therefore, it will increase productivity (and economic welfare) in both countries. For example, when some workers move from Mexico (a labor abundant country) to the United States (a labor scarce country), the U.S. employers

who have been suffering from unfilled vacancy can gain from hiring these workers and the Mexican workers can usually earn more than what they could earn in Mexico. If these workers remit some part of their income earned in the U.S. to their home country, people left behind in Mexico are also benefited from the migration of their fellow Mexicans indirectly. Of course, there could be some conflict of interests among various economic agents in each country. For example, an inflow of Mexican workers may give dampening effect on U.S. wages, and thereby the income of American workers could decrease while income of employers in the U.S. increases even more. But, *overall* effect is usually positive in both countries. Thus, the movement of workers (or unemployed persons) from the home country to the host country would increase national incomes (and economic welfare) in both countries.

The economic reasoning for their argument of the economic gain can be summarized in Figure 5. In the figure, the horizontal axis plots the amount of labor supply, where the amounts of labor supply in country 1 (home country) and that in country 2 (host country) are measured from O_1 and O_2, respectively. Vertical axis plots marginal productivity of labor (MPL), which is equal to wage rate in the competitive equilibrium. MPL of labor in country 1 (country 2) is expressed by line NE (by line AT).

Suppose that at the initial stage before migration the labor endowment in country 1 (home country) is O_1H and that in country 2 (host country) is O_2H, and therefore labor supply in the two countries as a whole is O_1O_2. At this stage, the value of total production (i.e., national income) of the sending home country is the area of trapezoid $NGHO_1$, and the value of the national income of the receiving host country is the area of trapezoid $AFHO_2$. In this pre-migration situation, the wage rate in the host country is BO_2, which is higher than that in the home country (SO_1). Such wage gap between the two countries constitutes an incentive for the workers in country 1 to migrate to country 2.

Now, suppose that some workers in country 1 (the number of workers expressed by HK) migrate to country 2 in order to seek higher wage there. In this post-migration situation, the amount of labor that can be mobilized for the production in country 2 is increased to O_2K, and that in country 1 is decreased to O_1K, because the labor HK moves from country 1 to country 2. Now, the value of goods produced in country 2 (Gross Domestic Product, GDP) increases to the area of trapezoid $AIKO_2$. But, the area

of rectangular *DIKH* is paid as wage to the workers from country 1, and the net gain of income of host country's citizen is equal to the area of triangle *FDI*. While the GDP in country 1 is decreased to the area of trapezoid $NJKO_1$, the national income of the citizen of country 1 (the Gross National Product, GNP), which includes the income earned by the workers who are migrating to country 2, is increased to the area $NJIDHO_1$.4 So, the net gain to Country 1 is equal to the area of trapezoid *DIJG*. Needless to say, the national incomes in both countries keep increasing until the number of workers expressed by *HM* migrate to country 2.

Therefore, according to the traditional economic theory, international migration increases the national income (and economic welfare) of both sending and receiving countries. As shown in Figure 5, when *HK* of workers move from Country 1 to Country 2, the economic welfare of country 1 is increased by the area of triangle *FDI* and that of country 2 is increased by the area of trapezoid *DIJG*.5 Based on such reasoning, traditional economists often argue that international migration gives economic gains to both countries, although both countries may incur some social costs as discussed in Section III below.

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4 Note the difference between the gross domestic product (GDP) and the gross national product (GNP). GDP of Country 1 is defined as the total value of the product produced in Country 1, which does not include the value of the product produced by the migrant workers from Country 1 to Country 2 even if they are still the citizens of Country 1. On the other hand, GNP includes the income of these migrant workers as long as they remain the citizens of Country 1.

5 Note that this argument is based on the full-employment assumption. If the emigrant workers were totally unemployed before migration, total income of these migrant workers is a net gain to Country 1.

FIGURE 5

ECONOMIC EFFECT OF MIGRATION

(MPL,W)

A

F

B

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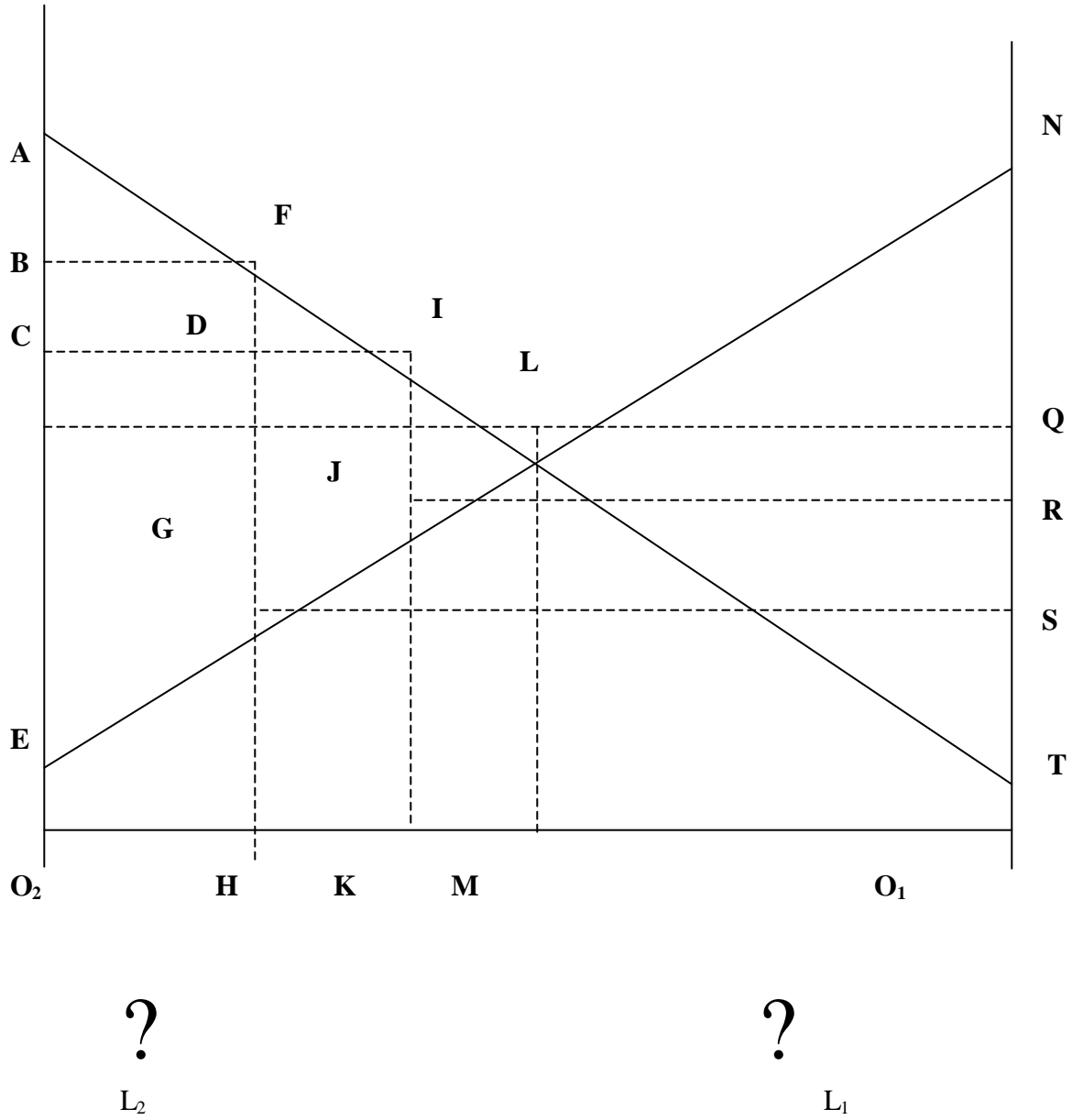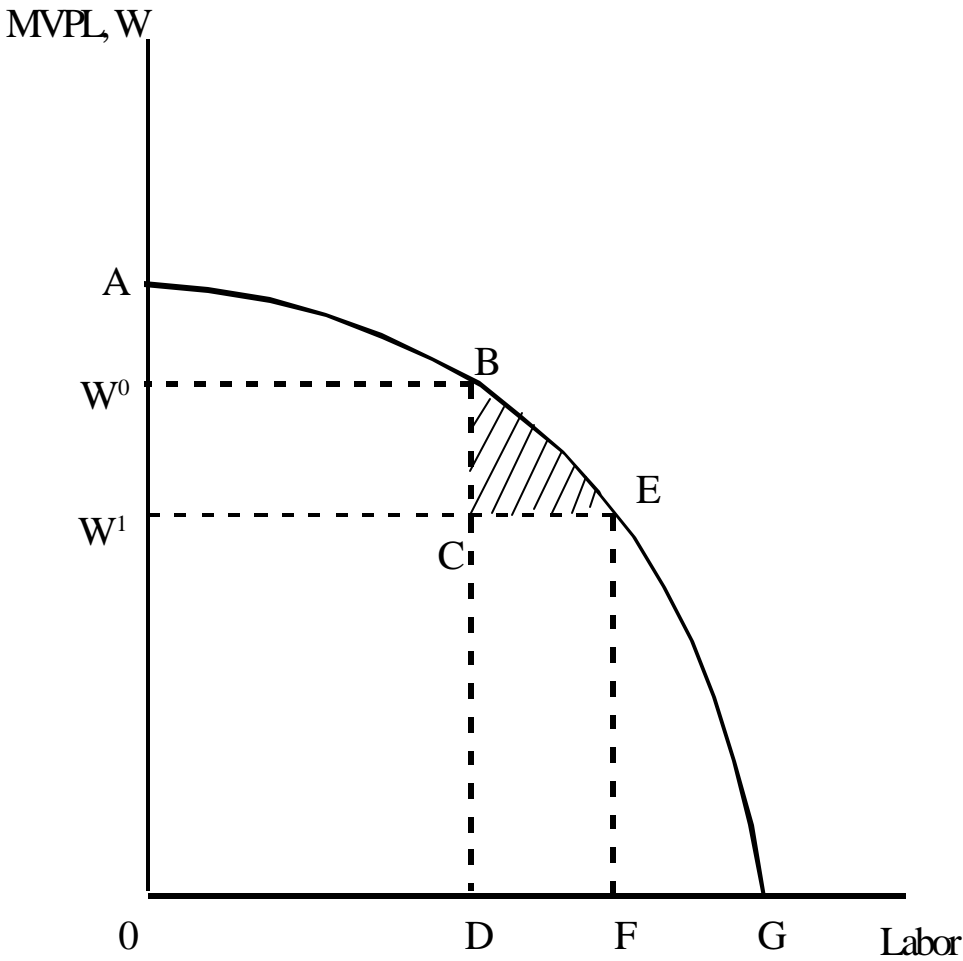O₂   H   K   M   O₁

?

?

L₂

L₁

FIGURE 6

CHEAPER FOREIGN LABOR EFFECT

Economic Effects under the New Framework

However, if we incorporate other realities such as the existence of trade restrictions and non-traded goods in the economy, the above simple argument collapses. The effect of immigration is not so simple as the above argument implies. Using a rigorous mathematical model, which incorporates additional realities, Goto (1998)6 shows that the economic effect of immigration can be divided into a few sub-effects as follows:

(Effect of Immigration) = **(Cheaper Foreign Labor Effect)**

+ (Trade Barrier Effect)

+ (Nontradable-Good Effect)

Although the formal proof is a little complicated, underlying logic behind the above sub-effects is straightforward.7

Cheaper foreign labor effect

It is often the case that the wage rate in the host country becomes lower as more and more foreign workers are admitted. In other word, as the number of admitted migrant workers increases, the incremental cost of hiring them becomes cheaper and cheaper because the increase in the number of foreign workers tends to give a dampening effect on the level of prevailing wage in the host country. So, the host country as a whole can be benefited from cheaper foreign labor. Needless to say, there would be conflict of interests between employers and workers in the host country, because workers, including native workers, would incur loss from the decline in wage rate.

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6 See Appendix 1 for the specification of this model.

7 For those who are interested in more rigorous argument and proofs, see Junichi Goto (1998), "The Impact of Migrant Workers on the Japanese Economy: Trickle vs. Flood," *Japan and the World Economy*, vol. 10, pp. 63-83.

Figure 6 demonstrates an intuitive reasoning for this effect. In the figure, *ABEG* shows the marginal value product of labor (*MVPL*) curve. Since wage rate is equated with the *MVPL* in equilibrium, the equilibrium before the admission of foreign labor is *B*, where total domestic labor (*OD*) is employed with the wage rate of W^0. In this case, total labor income is W^0ODB and total capital income is AW^0B. If the foreign labor of *DF* is admitted to the country, the new equilibrium point moves to *E*, and the wage rate decreases to W^1. In this case, capital income increases to AW^1E, and total labor income accrued to the native workers and the income accrued to migrant workers become W^1ODC and *CDFE*, respectively. Thus, total income of domestic factors (capital and labor) is increased by the hatched area *BCE*. Note that the magnitude of the (positive) cheaper foreign labor effect increases, *ceteris paribus*, as the scale of the admission of migrant workers becomes larger.
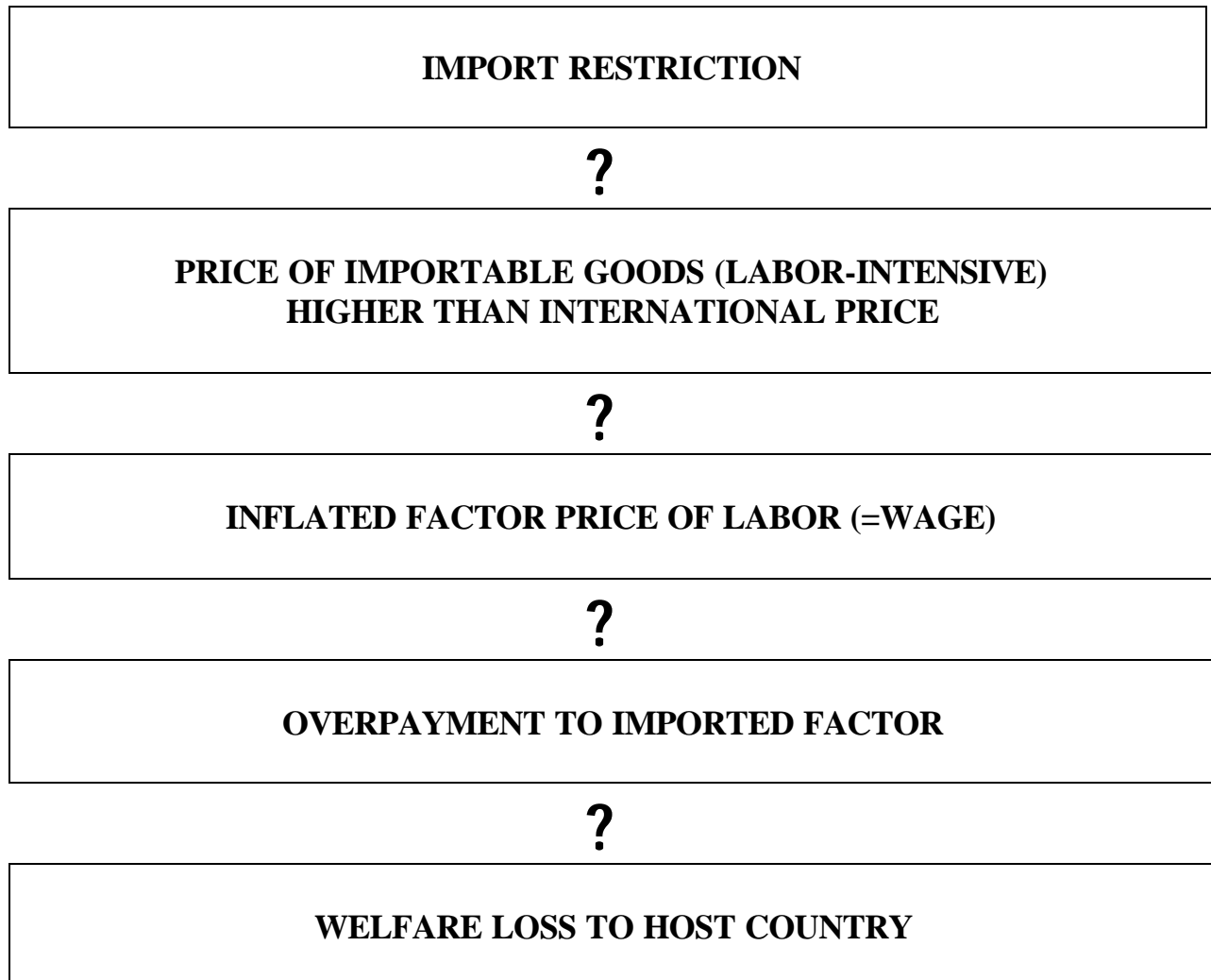
Trade Barrier Effect

This effect is pointed out by Brecher and Diaz-Alejandro (1977) in the context of international capital movement, but similar reasoning holds for international movement of labor. Although the mechanism of this effect is a little complicated, intuitive discussion goes as follow. Suppose that Country 2 is imposing tariffs on labor-intensive importable goods, such as textiles and clothing. In this situation, the domestic price of the labor-intensive goods is higher than that of the goods in the international market due to the tariff, and therefore, the price of factor intensively used for the production of the labor-intensive goods (i.e., wage rate) is inflated and higher than that under the free trade. When the admitted migrant workers are paid by this inflated wage rate, they are in some sense overpaid, and therefore the host country would incur economic loss. Figure 7 summarizes the mechanism of this effect.8

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8 Note that the argument here assumes that both native and migrant workers are paid according to their labor productivity, and therefore, there are no genuine wage discriminations. In reality, however, it is often reported that migrant workers are paid less than native workers. In the event that such wage discrimination exists, the magnitude of the negative trade barrier becomes smaller (If the wage discrimination is severe, the effect can be positive to the host country.

FIGURE 7

MECHANISM OF BRECHER=DIAZ-ALEJANDRO EFFECT

IMPORT RESTRICTION

?

PRICE OF IMPORTABLE GOODS (LABOR-INTENSIVE) HIGHER THAN INTERNATIONAL PRICE

?

INFLATED FACTOR PRICE OF LABOR (=WAGE)

?

OVERPAYMENT TO IMPORTED FACTOR

?

WELFARE LOSS TO HOST COUNTRY

Nontradable-Good Effect

In the real world, the share of nontraded goods such as construction and services in the total production is very high, although less attention has been paid to these goods by traditional economists. For example, the share of non-traded goods in total consumption in Japan is about 54 percent. When we take into the account the existence of nontraded goods sector, additional insights into economic effects of immigration can be obtained. In fact, two-thirds of the unskilled immigrant are employed in the nontraded goods sector in Japan, and the number of immigrants working in such sector in the United States and Europe is also large. Due to the employment of immigrants, the price of nontraded goods is generally lower than otherwise. In other words, thanks to immigrant workers, native consumer can enjoy less expensive nontraded goods, e.g., cheaper maid service or street cleaning (*positive consumption effect*). On the other hand, the income of native workers in the nontradable goods sector would be lowered by hiring cheaper immigrants in that sector (*negative income effect*).

Overall Economic Effect under the New Framework

Since some sub-effects are positive and others are negative, the next important question is whether the net effect of the above sub-effects is positive or negative. As shown in Goto (1998), the net economic effect of migration has systematic relationship to the level of admitted migrant workers (L_f) and the magnitude of trade barriers (t). After some tedious algebra, it can be shown that the following two propositions hold:

- The welfare declines by the initial inflow of migrant workers, but after a certain number of foreign workers are admitted the economic welfare turns to increase;

- The smaller the degree of trade barrier (t), the smaller the value of the threshold number L_f^I, at which the welfare level turns to be increased by the further admission of foreign workers. In other words, the less severe the trade barriers are, the more likely it is that the admission of a certain number of migrant workers can be welfare-improving.

Figure 8 summarizes the above two propositions. In the figure, the welfare level of host country (U) is

plotted on the vertical axis, while the number of admitted foreign workers is plotted on the horizontal axis. Curve I plot the welfare level as a function of admitted migrant workers when the magnitude of trade barriers is t_1 (higher t). The admission of migrant workers decreases the welfare level of the host country first, but when the number of admitted foreign workers reaches $L_f^{1,1}$, the welfare level begins to increase, and exceeds the initial level when the number of admitted foreign workers exceeds $L_f^{2,1}$. In other words, the admission of a small number (or *trickle*) of migrant workers produces a negative effect on the host country while a large number (or *flood*) produces a positive impact on the host country. This finding implies that when migrant workers are admitted, the admission quota should be large if it is to produce a positive welfare impact in the host country. Curve II plots the welfare level when the magnitude of trade barriers decreases to t_2 due to, for example, a successful implementation of the Uruguay Round agreement. The curve shifts upward and leftward, and therefore the trough of the curve also shifts leftward and upward. In other words, a smaller number of migrant workers can be welfare-improving.

Although proofs of the above propositions require a cumbersome manipulation of the equilibrium conditions of the model, a rough argument is that when the level of the admission of migrant workers are relatively small the negative "trade barrier effect" dominates, while the positive "cheaper foreign labor effect" becomes dominant as the number of migrant workers increases, and that the magnitude of the negative trade barrier effect is larger when trade barrier is stronger.9

The above analysis has the following policy implication for Japan: (1) while small scale admission of foreign workers has a negative economic impact on the Japanese economy, a large-scale admission is beneficial; (2) the liberalization of trade barriers increases Japan's chance to benefit from the admission of foreign labor, and therefore the admission should be accompanied by trade liberalization.

The Social Effect of Migration on the Host Country

Diversification and Internationalization

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9 For more rigorous argument, see Goto (1998).

Since international migration involves the international movement of human beings as a whole, it brings about various social effects in addition to the economic effects discussed above. For example, suppose that a Japanese university in Tokyo hires a Brazilian mathematical professor. Although the job description of the Brazilian professor is probably to teach and make research into mathematics, his contribution to the university, and perhaps to the Japanese society, is much more than that. His colleagues in the university in Japan can learn from him the economic and social situation in Latin America as well as mathematics, and listening to the Brazilian fellow professor will widen their perspective. These interactions between Japanese and Brazilian would enhance mutual understanding between the two countries. In economic jargon, such an effect is called (positive) externality.

Possible Burden on the Fiscal Expenditure in the Host Country

Since migrant workers pay taxes and receive various social services from the government of the host country, they give various effects on public finance in the host country. On the one hand, the existence of these migrant workers increases the revenue of the government, because they pay income taxes, consumption tax, and property taxes etc, and if they are enrolled in the social security system in the host country, they contribute to the social security system, too.   On the other hand, it increases the expenditure of the government, because they receive various social services from the government of the host country, e.g., education for their children, medical services, and pension if they are enrolled in.

Recently, the Japanese government published an estimate of fiscal cost and benefit to the host government (both central and local government) for three different stages of admission of migrant workers. While the host government is benefited from migrant workers in Stage I (only single youth is admitted) because their tax payment exceeds social services they receive, in Stage II (with spouse) and Stage III (with spouse and two children), the fiscal cost for the social expenditure far exceeds tax revenues. When half a million migrant workers are admitted, the net cost to the government in Stage III exceeds one trillion yen (or about 8 billion dollars). More detailed discussion of this estimate is provided in Section IV.

Possible Increase in Crime

It is sometimes argued that the admission of migrant workers may increase crimes in the host country. Since Japan is a relatively homogeneous society and enjoys very low crime rate, some Japanese often argue that the migrant workers may bring about crimes into the safe country. Their logic behind such fear is very simplistic and goes something like the following: most large U.S. cities like Los Angels and New York are filled with migrant workers and crime situation there is extremely serious, and therefore, there must be some correlation (and causality) between migration and crime. Therefore, the increase in migrant workers in Japan would make Japan more dangerous country.

However, in my view, such claim is not substantiated at all. There is no scientific evidence that connects high crime rate with migrant workers. On the contrary, some studies suggest that, as far as the first generation is concerned, migrant workers commit fewer crimes than natives in the host country. That is probably because newly migrated workers have higher motivation toward success in the new country, and because the effective penalty for committing a crime is far severer to migrant workers than to the native workers (i.e., only migrant workers face possible deportation from rich host country to poor home country!)

Continuation of "3-D" jobs

In many cases, migrant workers are employed in the job whose working conditions are less favorable than other jobs. In Japan, such jobs are often referred to as "3-D job", i.e., "dangerous", "dirty", and "demanding" jobs. Since nobody prefers such 3-D jobs to other jobs, employers of 3-D jobs are often experiencing unfilled vacancies. The existence of such unfilled vacancies would encourage employers to make working conditions there more favorable (e.g., better wage, safer workplace etc.) However, if such 3-D vacancies are easily filled by migrant workers, the incentive for employers to achieve better working conditions would disappear. In other words, due to the hiring of migrant workers, who are willing to take jobs under the 3-D working condition because even the 3-D jobs there are better than regular jobs in their home country, the 3-D jobs in the host country may persist even in the long run.

Therefore, except for an unlikely arrangement between the receiving country and sending country that immigrant workers take unfavorable 3-D jobs *forever*, the continuation of the 3-D jobs may be counted as a negative impact on the receiving country.

The Effect of Emigration on the Sending Country

What is the impact of emigration on the sending country? In what follows, the benefits and costs of *emigration* will be briefly discussed to supplement the above analysis. I will concentrate on four effects of emigration: (a) remittance and income creation; (b) alleviation of domestic unemployment; (c) transfer of knowledge and skills; and (d) brain drain.

Remittance and Income Creation

Needless to say, most migrant workers emigrate in an attempt to make more money in foreign countries than they can make in their home countries. It is often argued that such higher income benefits not only individual migrant workers but also their sending countries as a whole. Since poor sending countries are often suffering from prolonged balance of payment problems, the remittance from emigrant workers is an important source of foreign exchange receipt to these countries. In fact, the sizes of remittances for some of Asian developing countries are remarkable. Table 6 shows the ratio of remittances to total exports in selected Asian sending countries in mid-1980s, when many workers from these countries destined to the Middle East. For example, in 1983, when the number of Asian emigrations to the Middle East was the highest, the ratio of remittances to total export earnings of Bangladesh and Pakistan were as high as 73 percent and 94 percent, respectively. While the ratio has declined after that due to the return of emigrant workers from the Middle East, the remittance was still a very important source of foreign exchange earnings in these countries. But, as OECD (1987) pointed out, the flow of remittances is often unstable. When the host country is in recession, migrant workers are often the first to be fired, and therefore, in recession years, when sending countries particularly need foreign exchange receipts, the remittances tend to decrease. Further, it is often the case that, as more and more migrant workers decide to stay in the host country longer than initially expected and decide to invite

families to join them, the remittances begin to decline. Moreover, the remittance may not necessarily help sending countries improve their balance of payment. As Stahl (1982) reported, the marginal propensity to consumption (especially consumption of imported luxury goods) out of remittance income is very high.

Table 6. The Ratio of Remittances to Exports Earnings (%)

	1980	1983	1986	1988
Bangladesh	26.6	73.0	61.4	57.1
India	36.3	27.2	25.0	21.4
Pakistan	67.5	94.3	79.7	44.6
Philippines	3.6	3.6	3.4	5.5
Sri Lanka	14.6	27.9	28.0	24.1
Thailand	5.9	13.4	12.2	n.a.

Source: The World Bank and the United Nations Statistics.

Alleviation of Domestic Unemployment

Can emigration of labor alleviate serious unemployment problems in sending countries? In many Asian sending countries, there exists enormous unemployment (and underemployment) problem in rural agricultural sector and urban informal sector. Some argues that Japan should admit migrant workers from Asian LDCs in order to relieve unemployment problems in these countries. But, it seems rather questionable whether emigration to Japan relieves unemployment problems in Asian LDCs to a greater extent. As Todaro (1986) rigorously showed using his three sector model, while labor emigration may contribute to the relief of *overall* domestic unemployment, this favorable effect may be offset by a costly rise in urban unemployment caused by increased rural-urban migration. In other words, urban unemployment gets worse because more and more rural population move to an urban sector in the hope of further immigrating to Japan. Furthermore, the number of unemployment in Asian sending countries is too large to be relieved by the emigration to Japan. Probably, for a relief of unemployment, a creation of employment opportunities in these sending countries through foreign direct investment and/or increase

of exports would be more important than emigration.10

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10 This is especially pertinent for Japan where, unlike Australia, Canada, and the U.S., the geographical size of the country is small and the country is already over-populated.

Transfer of Knowledge and Skills

As well known, technology transfer has been one of the most important issues in economic development. In similar vein, it is often argued that emigration contributes to economic development and modernization of sending LDCs through the introduction of new knowledge and skills brought back by returned migrant workers. But, a survey by the Philippine Government (see Table 7) suggests that this alleged benefit is questionable. According to the survey, two-thirds of the migrant workers, which include both skilled and unskilled, said that they acquired no skills. Mere 13.6 per cent of migrants said that they acquired skills through employment in the host country. In view of this, it seems unlikely that unskilled migrant workers in Japan acquire skills through their employment. Provably, a formal training program would be much more useful than migration, in order to introduce new skills and knowledge to developing countries.

Brain Drain

Economists have long pointed out that emigration causes "brain drain" from sending LDCs. Since good skilled labor emigrates in the hope of receiving higher pay in the developed country, sending LDCs often suffer from the lack of essential professional workers, such as doctors and nurses. It should be noted that even unskilled migrant workers in Japan often have very high level of education. Since the wage rate for an unskilled worker like a construction worker in Japan is often much higher than the wage rate for a skilled worker like doctor or nurse in LDCs, people of higher education also come to Japan to take an unskilled job. As shown in Table 5 above, more than 90 percent of these migrants workers have high school education (42 percent have college education), although almost all of them are taking unskilled jobs in Japan. In other words, the persons who would work as an skilled workers like teachers and doctors in their home country come to work in Japan as unskilled workers, simply because the wage rate of unskilled workers in Japan is generally higher than that of skilled workers in their home country. Although it may economically benefit the migrant workers themselves, it is clearly a misallocation of labor, ant gives a substantial loss to the persons left behind in the sending country in Latin America.

Table 7. Acquisition of Skills by Emigrant Workers (%)	
Acquired through employment in the host country	13.6
Acquired through official training	13.3
No skill acquired	67.8
Acquired through books	4.4
Other	1.0
Total	100.0

Source: The Government of the Philippines.

IV.   Effect of Legalization of Unskilled Migrant Workers -- Some Estimates

So far, I have presented a theoretical discussions of the impact of migrant workers in Japan after examining the salient features of the migrant workers in Japan and the possible reasons for the sharp increase after mid-1980s. Faced with the sharp increase of unskilled workers who were illegal in principle, there emerged heated debate in Japan whether Japan should amend the immigration law to legally accept unskilled workers. At the end of the paper, let us briefly review the empirical studies of possible effects of legalization of unskilled workers in Japan.

Economic Effect

Using a rigorous mathematical model, which incorporate additional realities such as the existence of trade barriers and nontraded goods sector, Goto (1998) estimated the economic impact of legalization of unskilled migrant workers on Japan.

Table 8 summarizes the result of the simulation for selected endogenous variables. The first column ("before") shows predicted values of selected endogenous variables in the base year (i.e., with no admitted unskilled foreign workers). The second column ("after") shows predicted values of the same

endogenous variables under the hypothetical situation in which 650,000 (about one percent of the Japanese labor force) of foreign unskilled workers were legally admitted to the nontradable sector.

While main interest here is an estimate for the effect of 650,000 foreign workers (about one percent of the Japanese labor force) because it is the number often used when the future policy toward migrant workers is discussed in Japan, I report two additional cases for the purpose of a sensitivity analysis of my simulation. The sensitivity analysis is reported in Table 9. In addition to the case of 650,000 migrant workers, I did simulation for additional two cases: (i) the low case where the number of admitted migrants is 325,000 (or one-half of 650,000); and (ii) the high case where it is 1,300,000 (or double of 650,000). As Table 9 shows, the essence of the following argument is quite insensitive to the number of admitted migrant workers within these ranges. In fact, in Table 9 the magnitude of the impact of the admission seems to be almost proportional to the number of admitted migrant workers. In what follows, I will discuss the case of 650,000 migrants (or one percent of the Japanese labor force), simply because "one percent of the labor force" is the number that is often proposed by proponents for the legalization of unskilled migrant workers in Japan.

Table 8. Economic Impact of Foreign Workers (650,000 Workers)

	Before	After	Difference
Social utility [1]	31,508	31,408	-100
National income[2] (¥ bil.)	275,122	272,970	-2,152
Capital income (¥ bil.)	82,078	82,756	678
Labor income[3] (¥ bil.)	189,295	186,578	-2,712
Labor income per capita (¥ thous.)	4,855	4,786	-69
Labor share[4] (%)	69.75	69.27	-0.48

Note: [1] ordinal utility.
      [2] Tariff revenue is included.
      [3] The income of foreign workers is excluded.
      [4] = labor income / (capital income + labor income).
Source: Goto (1998).

Table 9. Economic Impact of Foreign Workers (A Sensitivity Analysis)
Number of Migrants Workers (Thousand)

	325 (650)2)	650	1300 (650*2)
Social utility[1]	-62	-100	-153
National income[2] (¥ billion)	-1,084	-2,152	-4,160
Capital income (¥ billion)	335	678	1,357

Labor income[3] (¥ billion)	-1,362	-2,717	-5,296
Labor income per capita (¥ thous.)	-35	-70	-136
Labor share[4] (%)	-0.24	-0.48	-0.95

Note: [1] ordinal utility.
        [2] Tariff revenue is included.
        [3] The income of foreign workers is excluded.
        [4] = labor income / (capital income + labor income).
Source: Goto (1998).

Adverse effect on workers due to the decline in wage rate

The Japanese workers would be adversely affected by the admission of foreign unskilled workers. When the foreign workers are admitted, labor becomes more abundant relative to capital than before, and therefore, the wage rate is decreased. Since the number of the Japanese workers is assumed to be fixed in the model, the labor income of the Japanese workers is also reduced after the admission of foreign unskilled workers.

According to our calibration, shown in Table 8, the annual income of each Japanese worker would be reduced by 69,000 yen (about $575) to become 4,786,000 yen (about $39,880) if 650,000 foreign unskilled workers were legally admitted to Japan. The losses to the Japanese workers as a whole amount to 2.7 trillion yen (more than $23 billion) every year. The amount of the loss is about 1.5 percent of the labor income.

Note that, even when foreign workers were admitted to the nontradable sector alone, the Japanese workers in all sectors would incur a loss through the reduction of their own wages. Of course, in the very short run, workers in the nontradable sector alone would suffer. But, as time goes by, the impact would spread to the rest of the economy through the sectoral movement of labor. Hence, the Japanese workers in the traded goods sector, as well as the nontraded good sector may well be against the admission of foreign unskilled workers, because their income would decline after the admission.

Favorable effect on capital holders (or employers)

In contrast to the workers, the Japanese employers, who are considered to be representing the interest

of capital holders, would gain because their income increases after the admission of foreign workers. According to our estimate, the capital income would increase by 678 billion yen (or about $5.7 billion) when 650,000 foreign unskilled workers were legally admitted to Japan.

Note that the above gain to the Japanese capital holder exists even if the migrant worker receives the wage equivalent to that of the Japanese worker. In reality, however, it is often reported that foreign workers receive substantially lower wage than the Japanese counterpart. If such wage discrimination were allowed, gains to the Japanese employers would be larger than the figure in Table 8.

The employer in the Japanese industry is very eager to push the government to legalize foreign unskilled workers, because capital income would be increased by the admission. However, note that the magnitude of the gain to capital holders (678 billion yen) is much smaller than that of the loss to the workers (2.7 trillion yen).

Adverse Effect on Consumers

Contrary to the popular belief often held by the Japanese economist, our simulation suggests that the Japanese consumers would lose if foreign unskilled workers were legally admitted to Japan. As Table 8 shows, since the social utility declines after the admission of foreign unskilled workers, Japanese consumers are worse off. But, the magnitude of the loss cannot be intuitively understood by looking at the change in the value of the social utility in Table 8, because the utility is ordinal (rather than cardinal) number. In view of this, I will compare the values of national income, which constitutes the budget constraint to the utility maximization problem of consumers, in the two situations.

According to our estimate, the Japanese national income (in 1986 prices) would be reduced by 2.2 trillion yen (or about 18 billion dollars) to become 273.0 trillion yen (or about 2.3 trillion dollars) if 650,000 foreign unskilled workers were legally admitted. The magnitude of the decline (2.2 trillion yen) is equivalent to 0.8 percent of the Japanese national income. Of course, the decline in *real* GNP is smaller than 0.8 percent because the price of nontraded goods also declines after migrant workers are

admitted. In other words, while the income of the Japanese consumer declines, he can purchase cheaper houses or services. But, it should be noted that the Japanese GNP declines even *in real terms* if migrant workers are admitted, as is indicated in Table 8 from the fact that utility is also declined.

Incidentally, note that the decline in the national income (2.2 trillion yen) is larger than the decline in labor income less the increase in capital income (2.0 trillion yen), because the change in the national income includes the third factor (i.e., the change in the tariff revenue distributed to consumers in the lump sum fashion).

Thus, contrary to the widely accepted verbal folklore that the admission of foreign workers would give a positive economic impact (although it may give negative social impact), our estimate suggests that Japan would suffer a substantial economic loss, if foreign unskilled workers were legally admitted, as long as the scale of admission is relatively small (e.g., around one percent of the Japanese labor force)11.

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11 Note that here I estimate the impact of legal admission of foreign workers, where there are no wage discrimination against them. If migrant workers are paid less than native workers, the economic loss to the receiving country can be smaller than the simulation result shows.

Overall Welfare Effect -- Trickle vs. Flood

However, the admission of guest workers can give a favorable economic impact on the host country, if the scale of admission is large. In view of this, the next question to ask is how much foreign workers must be admitted if Japan is to derive a favorable economic impact from the admission of migrant workers. In order to answer the question, the simulation is repeated for different number of admitted foreign workers, using the model and parameter values discussed above.   Figure 8 is also the result of the numerous simulations. In the figure, the value of welfare (U) is plotted for various values of admitted migrant workers (L_f). According to the simulations, Japanese welfare continues to decline until L_f reaches 1.66 million (or about three percent of the Japanese labor force), and it is not until L_f reaches 3.43 million (or about five percent of the Japanese labor force) that the welfare recovers to the initial level without migrant workers (See Curve I in the figure). As discussed above, when the legalization of unskilled foreign labor is discussed in Japan, the proposed number is about one percent of the labor force (about 650,000). But, such a small scale admission is very likely to have a negative impact on the Japanese economy.

Table 10 shows that, if Japan adopts more liberal trade policy, a small scale admission of foreign workers can be welfare-improving. While the base calibration reported in Table 8 uses $t=0.1329$, the simulation is repeated for the reduced values of t in order to incorporate the impact of trade liberalization which would be brought about, for example, by a successful implementation of the Uruguay Round agreement. As Table 10 shows, if Japan succeeds in reducing trade barriers by half (i.e., $t=0.066$), Japanese welfare turns to increase when 0.79 million foreign workers, which is a little more than one percent of the Japanese labor force, are admitted. When 1.61 million foreign workers (about three percent of the Japanese labor force) are admitted, the Japanese welfare level is even higher than in the case of no admission of foreign workers.

FIGURE 8

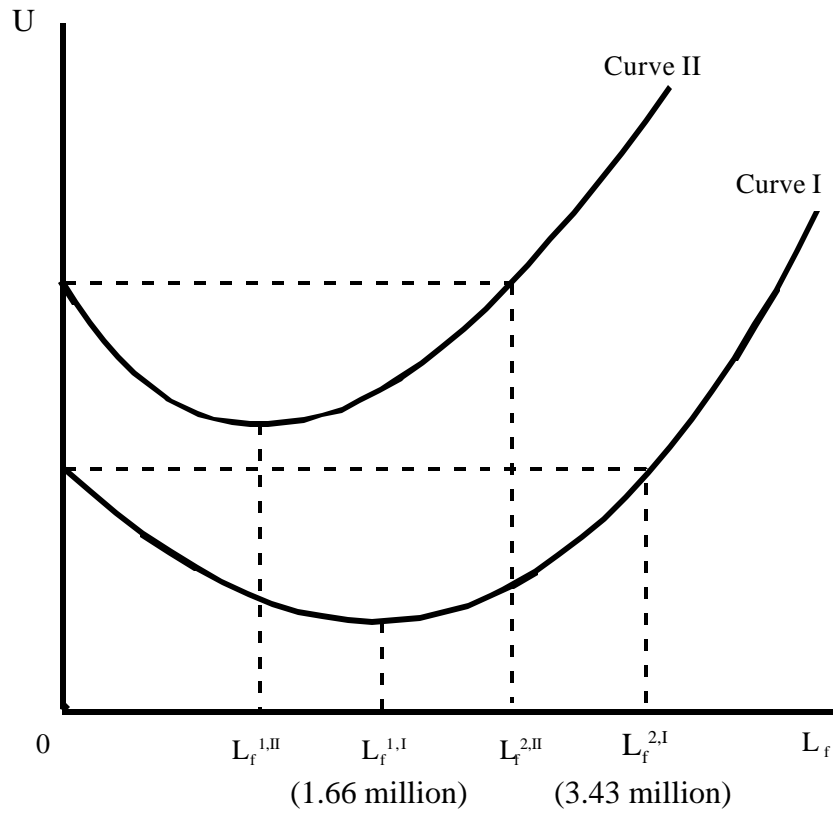**MIGRANT WORKERS AND HOST COUNTRY'S WELFARE**

Table 10. Trade Barriers and Welfare Effect of Migrant Workers

T	L_f^1	L_f^2
(percent)	(thousand)	(thousand)
13.3[1]	1,660	3,430
10.0	1,220	2,500
6.6[2]	790	1,610
4.4[3]	520	1,050

Note: [1] Base estimate.
            [2] One-half of the base value.
            [3] One-third of the base value.
Source: Goto (1998).

Social Effect

In addition to the economic effects discussed above, migrant workers give various social and fiscal effects, such as diversification and internationalization, possible increase in crime, continuation of unfavorable jobs, and burden on the fiscal expenditure12.

Recently, the Japanese government published an estimate of fiscal cost and benefit to the host government. Since migrant workers pay taxes and receive various social services from the government of the host country, they give various effects on public finance in the host country. Needless to say, their work increases the revenue of the government, because they pay income taxes, property taxes, and sales taxes etc, and if they are enrolled in the social security system in the host country, they contribute to the social security system, too.   On the other hand, they receive various social services from the government of the host country, e.g., education of their children, medical services, and pension if they are enrolled in.

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12 For theoretical discussion of each social effect, see my Class Note 1 "The Impact of Migration -- A Theoretical Framework".

Table 11 is the summary of the estimate by the Japanese government of fiscal cost and benefit to the host government (both central and local government) for three different stages of admission of migrant workers. While the host government is benefited from migrant workers in Stage I (only single youth is admitted) because their tax payment exceeds social services they receive, in Stage II (with spouse) and Stage III (with spouse and two children), the fiscal cost for the social expenditure far exceeds tax revenues. When half a million migrant workers are admitted, the net cost to the government in stage 3 exceeds one trillion yen (or about 8 billion dollars).

Table 11. Social Cost of Migrant Workers (billion yen)

	Stage 1	Stage 2	Stage 3
Receipt			
Central government	181.1	93.1	77.5
Local government	0.0	38.3	28.2
Social security Total	145.5	180.2	193.2
	326.6	311.6	298.9
Expenditure			
Central government	12.8	77.8	353.8
Local government	15.5	486.1	901.5
Social security Total	52.3	89.1	158.1
	80.6	653.0	1,413.4
Net			
Central government	168.3	15.3	-276.3
Local government	-15.5	-447.8	-873.3
Social security	93.2	91.1	35.1
Total	246.0	-341.4	-1,114.5

Note:
   Stage 1 : Single.
   Stage 2 : Married.
   Stage 3 : Married, two children.
Source: Japanese Ministry of Labor.

V.   Concluding Remarks

In this paper, I discussed the impact, both economic and social, of migration on host country as well as sending home country. At the end of the paper, let us summarize the main points discussed in the paper.

As discussed using Figure 5, traditional economists are generally in favor of international migration

because it involves the movement of labor from labor-abundant country to labor-scarce country. However, the new analysis incorporating various realities such as trade barriers and nontraded goods reveals that the international migration gives much more complex effects to the host country. The complex effect can be divided into some sub-effect as follows:

- cheaper foreign labor effect (positive)
- trade barrier effect (negative)
- nontradable good effect (positive consumption effect and negative income effect).

Moreover, we found that the overall effect has a systematic relationship with the scale of admissions and the magnitude of trade barriers. If the host country is to be benefited from the admission of foreign workers, the scale of admission should be large and, more importantly, the admission should be accompanied by the trade liberalization.

In addition to the economic effect, the admission of migration workers gives various social effects as follows.

- diversification and internalization (positive)
- burden on the fiscal expenditure (negative)
- possible increase in crime (allegedly negative)
- continuation of unfavorable "3-D" jobs (negative)

Obviously, international migration has impact on sending countries as well as host countries. The following four effects of emigration on sending countries are often pointed out.

- income creation through remittance (positive, with reservation)
- relief to domestic unemployment (positive, with reservation)
- transfer of knowledge and skills (positive, with reservation)
- brain drain (negative)

After presenting a theoretical framework for the analysis of the impact of migration, I presented

summaries of empirical estimates of the magnitude of such impact, both economic and social, on Japan.

In this paper, I presented a framework for the better understanding of the impact of international migration on sending counties as well as on host countries. While I have discussed various effects of migration, I tried to avoid any judgement on whether migration is good or bad. Neither I did say which of the above sub-effects are more important than others, because it differs from country to country. More (empirical) studies are needed to make a value judgement of the impact of international migration on a particular country.

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SPECIFICATION OF THE MODEL

The theoretical analysis in Section III- (1) and Estimation in Section IV- (1) are based on the following model developed in Goto (1998)

In the model, consumers are characterized by the following Cobb-Douglas social utility function.

$$U = C_1^a \, C_2^\beta \, C_3^?, \quad a + \beta + ? = 1 \tag{1}$$

where C_1, C_2, and C_3 are the amount of consumption of exportables (good 1), importables (good 2), and non-tradable (good 3), respectively, and U is social utility. Consumers maximize the social utility function (1) subject to the budget constraint (2).

$$P_1 \, C_1 + (1+t) \, C_2 + P_3 \, C_3 = Y \tag{2}$$

where P_1 and P_3 are the prices of exportables and non-tradables, respectively, and Y is the national income. The world price of importables, which is considered to be the numeraire goods here, is set to unity. And t is the rate of domestic price markup of importables due to trade barriers. In order to avoid further complication, it is assumed that the world prices of tradables are given to the economy (i.e., the "small country" assumption). From the above utility maximization problem, the following three demand functions are obtained.

$$C_1 = a \, Y / P_1 \tag{3}$$

$$C_2 = \beta \, Y / (1+t) \tag{4}$$

$$C_3 = ? \, Y / P_3 \tag{5}$$

The producers in the three sectors are characterized by the following Cobb-Douglas production function.

$$Q_1 = K_1^a \, l_1^{1-a} \tag{6}$$

$$Q_2 = K_2^b \, l_2^{1-b} \tag{7}$$

$$Q_3 = K_3^c \, l_3^{1-c} \tag{8}$$

where $a > b > c$

Q_i, l_i and K_i are, respectively, production, labor input and capital input in the production sector of the i-

th good (i =1,2,3).[13] Note that capital is assumed to be fixed to each sector in the equilibrium after foreign workers are admitted, although it was mobile before the initial long run equilibrium was reached.

Producers maximize the following profit function:

$$p_i = P_i\, Q_i - (r_i\, K_i + wl_i) \tag{9}$$

where p_i and r_i are, respectively, the profit and rental rate of the i-th production sector, and w is wage rate. Solving the profit maximization problem, the following equilibrium conditions are obtained.

$$aK_1^{a-1}\, l_1^{1-a}\, P_1 = r_1 \tag{10}$$

$$(1-a)K_1^{a}\, l_1^{-a}\, P_1 = w \tag{11}$$

$$bK_2^{b-1}\, l_2^{1-b}(1+t) = r_2 \tag{12}$$

$$(1-b)K_2^{b}\, l_2^{-b}(1+t) = w \tag{13}$$

$$cK_3^{c-1}\, l_3^{1-c}\, P_3 = r_3 \tag{14}$$

$$(1-c)K_3^{c}\, l_3^{-c}\, P_3 = w \tag{15}$$

Note that equations (10) to (15) show that factor prices are equal to their marginal value product in equilibrium.

Domestic labor supply is assumed to be given, i.e., there is no wage leisure trade-off. Therefore, the sum of labor input in the three sectors is equal to the sum of the domestic labor supply (L) plus the number of admitted foreign workers (L_f).

$$l_1 + l_2 + l_3 = L + L_f \tag{16}$$

The domestic supply of non-tradables must be equal to their domestic demand because, by definition, no international trade is allowed for them. Therefore, equation (17) holds in equilibrium.

$$C_3 = Q_3 \tag{17}$$

Since the tariff revenue accrued to the government is assumed to be distributed to domestic consumers in a lump-sum fashion, and since there is no profit in equilibrium, the national income (GNP rather than GDP), which does not include the income accrued to migrant workers, consists of factor payments and tariff revenue.

$$r_1K_1 + r_2K_2 + r_3K_3 + wL + t(C_2\text{-}Q_2) = Y \tag{18}$$

By substitution, equation (18) can be expressed by (19).

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13 I am assuming here that labor is homogeneous in order to avoid too much complication of the model.   In the real world, many different kinds of workers, i.e., some are skilled and others are unskilled, etc.

$$P_1Q_1 + (1+t)Q_2 + P_3Q_3 - WL_f + t(C_2 - Q_2) = Y \qquad (19)$$

The system of above sixteen independent equations ((1), (3), (4), (5), (6), (7), (8), (10), (11), (12), (13), (14), (15), (16), (17), (19)) determines the equilibrium values of sixteen endogenous variables $(C_1, C_2, C_3, Q_1, Q_2, Q_3, l_1, l_2, l_3, r_1, r_2, r_3, w, Y, P_3, U)$. In order to evaluate the impact of admitted foreign workers, the values of endogenous variables in two equilibria, i.e., an equilibrium when L_f is zero (before admission of foreign workers) and an equilibrium when L_f has some positive value (after admission), are compared.

APPENDIX 2

PARAMETER VALUES USED IN THE SIMULATION

The impact of the *legal* admission of foreign unskilled workers on the Japanese economy is calibrated using the formal model developed above. Parameter values (a, ß, ?, a, b, c, t, K_1, K_2, K_3, L, P_1) for the simulation are identified as follows:

First, capital stock in the three industries (K_i) and domestic labor supply (L) must be identified. Fortunately, the actual data exist for these parameters. Second, a, b, and c in the production function (6)-(8) must be determined. Since it is very difficult to directly estimate these values, an indirect method is taken. Namely, the actual situation in the base year (in 1986) is assumed to be in the long run equilibrium generated by the model, and the values of a, b, and c are calculated using actual (observed) values of endogenous variables (r_i, w, and l_i). Further, note that, since production functions are of Cobb-Douglas functional form, a, b, and c turn out to be the same as the capital share in each sector. In order to determine the values of r_i and w, the data in the National Product Account in 1986 were used. Note that, as explained in the above, the economy in the base year is assumed to be in the long-run equilibrium, where capital, as well as labor, completed the necessary adjustment among the three sectors. In other words, the rental rates in the three sectors are equated with each other through sectoral movement of capital when the long-run equilibrium is achieved. Therefore, in order to simplify the notation, I denote here the rental rate in each sector in the base year as "r" without subscript i, and sum of the capital stock in the three sectors as "K.≅ The income accrued to capital holders (rK) is the same as the national income (excluding tariff revenue) subtracted by the income accrued to workers (wL). The value of r was obtained by dividing capital income (rK) by the amount of capital stock (K), which had been already determined. Similarly, the value of w was obtained by dividing labor income (wL) by the amount of labor supply (L). From such calculations, r=0.1938 and w=4,690 were obtained. From the values of r, w, K_i, and l_i, I obtained a=0.4242, b=0.3785, and c=0.2234. Third, the values of P_1 and t must be determined. By using equations (6) and observed values of Q_1, K_1, l_1, r_1, and w, and noting that there is no profit in equilibrium, I obtained $P_1 = 2.40$. In order to obtain the value of t, data on the average tariff rate and the tariff equivalency of the NTBs are needed. The tariff rate of 0.03595 is obtained by using the National Income Account published by the Japanese Government. For the tariff-

equivalency of nontariff barriers in Japan (0.0936), an estimate by Laid and Yeates (1990) was used after adjusting for the Tokyo Round trade liberalization. From these, t=0.1329 was obtained. Forth, the values of a, ß, and ? in social utility function (1) must be identified. Since the utility function is Cobb-Douglas, a is equal to the expenditure share of exportables, and similar arguments can be made for ß and ?. From this relationship, a=0.2077, ß=0.2529, and ?=0.5394 were obtained. In other words, more than half of the income is spent on nontradables. In view of the large expenditure share of nontradables in total consumption, the inclusion of the third sector in the model seems to be all the more important.