A Comparison of Turning Points in the Economies of Korea and Japan*

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I. Introduction

This study aims to examine the similarities and dissimilarities of the features of the turning points in Korea and Japan. According to the studies of Prof. Minami (1973) and myself (1982), both countries have experienced their turning points around 1960 in Japan and around 1975 in Korea, respectively.

It is evident that there are too large gaps between the economic structures and labor market situations for both countries to be directly compared. The

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size of GNP, the levels of per capita GNP, and wages are quite different each other. However, it is not impossible to find some similarities on the pattern, direction, and speed of economic growth.

We limit our concern only to the issues of different features of the labor markets at pre and post turning points for both countries. If it is possible, we would like to know how some different features of the turning points for two countries will affect the labor markets in the future. We should confess that this short essay is only a rough sketch on the issues.

II. The Applicability of Turning Point Theory to Both Countries

The turning point theory can not be applied to any economy in the world. In order to have some relevance for applying the theory, an economy should meet a couple of prerequisites. The economy should be in labor surplus condition, have dualism, and be in relative real wage constancy in

Table 1. The Percentage of Population and Persons Employed in Agriculture in Korea (in 1,000 persons)

	Total Population (A)	Agricultural Population (B)	B/A	Persons Employed Total(C)	Persons Employed in Agriculture (D)	D/C
1942	16,877	12,233	72.5			
1949	20,167	14,416	71.5			
1955	21,502	13,300	61.9			
1960	24,954	14,559	58.3			
1963	27,262	15,266	56.0	7,662	4,837	63.1
1966	29,127	15,781	54.2	8,423	4,876	57.9
1970	31,435	14,422	45.9	9,745	4,916	50.4
1975	34,679	13,244	38.2	11,830	5,425	45.9
1980	37,419	10,836	29.0	13,706	4,658	34.0
1982	39,331	9,688	24.6	14,424	4,623	32.1
1983	39,958	9,475	23.7	14,515	4,314	29.7

Source: Bank of Korea, *Yearbook of Korean Economy*, 1948.
National Agricultural Cooperative Federation, *20 Year of Korean Agricultural Policies*, 1965.
Economic Planning Board, *Major Statistics of Korean Economy*, 1984.

quite long period. Therefore, we may need to examine whether Korea and Japan met such general prerequisites.

Both countries share their densely populated characteristics for long time. Paddy rice production supported population of large numbers. Relatively narrow arable field with dense population implied higher underemployment or surplus labor in the rural areas.

The countries had typical agricultural economy before they started industrializations, i.e., the importances of agriculture in terms of either population or employed persons were very high. The percentage of population engaged in agriculture in Korea was 72.5% in 1942, but it declined to 58.3% in 1960, and 23.7% in 1983 (Table 1). The percentage of the employed in Korea showed similar declining trend, exhibiting, however, a little higher percentage points.

Similar phenomena can be found in the Japanese economic history. The gradual declining of agricultural sector of this country can be seen in Table 2.

For the issues of dualistic economic structures, both countries have had quite distinctive features. The Korean economy had long lived with dualistic structure. Modern sector with modern technology, high capital labor ratio, high productivity and wages has coexisted with traditional sector of urban as well as rural. Japanese cases of dualism were well analyzed by many economists. Especially, Ohkawa(1965 and 1972) and Minami(1973 and 1981) dealt lucidly with this problem in connection with

Table 2. The Percentage of the Persons Employed in Agriculture in Japan (%)

1920	53.6[1)]	1970	17.4
1930	49.3[1)]	1980	10.4
1940	43.4[1)]	1982	9.7
1950	48.3[1)]	1983	9.3
1960	30.2(32.8[1)])		

Note: 1) Figures are laor force.
Sources: Umemura(1971) (1920~1960).
Ministry of Labor, *Rodotokye Yoran* (Labor Statistics Digest), 1984.

turning point in Japan. It seems that the existences of dualistic economic structures of two countries before their respective turning points are beyond controversy.

Next, we have to ask whether the levels of real wages in both countries have long remained unchanged before the turning points. The Japanese cases of real wage movements for agriculture and for female workers were well presented by Minami (1973:133-168). According to his works, real wages of unskilled workers in Japan remained stable for decades. The Korean economy is in worse situation than Japan in data availability. We could only produce Figure-1 to show somewhat flat segment of real wage in Korea, although the real wage shown in Figure-1 is not for unskilled workers only. Considering the percentage of the persons employed in agriculture, together with the U.S. military government in 1945~48, the Korean War in 1950~53, and the reconstruction period after the War, we may be safe to conclude that the Korean economy too have had relatively stable real wages before the turning point.

Other than these, we would like to add the fact that the marginal productivities of labor in the agricultural sectors in two countries were lower

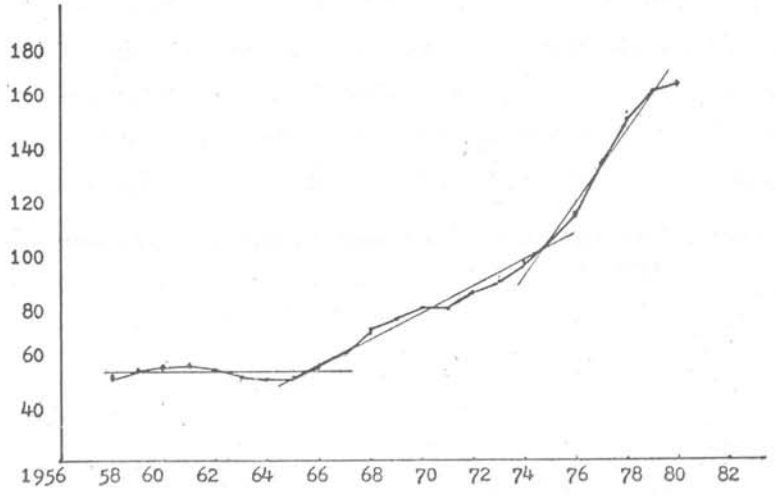

Fig. 1. Real Wage of Production Workers in Manufacturing (Korea)
(Index, 1975=100)

than those of respective agricultural real wages before the turning points. Minami(1973) showed that the real wages in prewar period were twice higher than compared to the levels of MP_L. But these two became almost the same after 1955. I also showed that the real wages were much higher than MP_L before the Korean economy experienced the turning point (Bai, 1982).

All the above evidences seem to strongly support the applicability of the turning point theory to these two countries.

III. Features of Turning Points in Two Countries

In this chapter we will compare the features of labor markets in both countries by examining the processes of turning point identifications. Minami's work (1973) will be referred to the Japanese case, and my own study (Bai, 1982) will be analyzed for the Korean one.

1. The Treatment of Urban Informal Sector

Although one may argue that this is not directly related to the turning point identification, urban traditional sector (or urban informal sector), we believe, is too important to be ignored. Population or labor force which can be classified as this in both countries were not seriously surveyed, but they must be very large.

In the Japanese case, people who belong to this category were enormous, and, as migration continued, they became more important pool of surplus labor than rural underemployment. Sumiya even pointed out that the living conditions of labor force in urban traditional sector (*zatsugyo* class) have given stronger impact directly to the working conditions for small firms, and indirectly to those for large firms than the living standards of rural families (Sumiya, 1967:82). This urban traditional sector was not properly dealt with in the turning point studies in Japan because most studies used 2 sector model, i.e., capitalistic vs. noncapitalistic sectors, or traditional vs. modern sectors. One of the problems arising from this treatment is that all

Table 3. Number of Persons Employed in Agriculture, Modern, and Urban Informal Sector (Unit : 1,000 persons, %)

	Total	Agr., Forestry, & Fisheries Sector	Modern Sector			Rural-Based Non-Agr. Activities (persons engaged in 1-9 persons establishments (Rural="Gun")	Residual (Mostly Urban Informal Sector)
			Total	Persons Employed in the Establishments of 10 persons or more (Non-Agr.)	Civil Service and Public School Teachers		
	(1)	(2)	(3)=(4)+(5)	(4)	(5)	(6)	(7)
1960	7,028 (100.0)	4,632 (65.9)	(496) (7.1)	(247)	249	811 (11.5)	1,089 (15.5)
1961	(7,233) (100.0)	(4,699) (65.0)	(544) (7.5)	(309)	235	(834) (11.5)	1,156 (16.0)
62	(7,445) (100.0)	(4,768) (64.0)	(654) (8.8)	(387)	267	(858) (11.5)	1,165 (15.6)
63	7,662 (100.0)	4,837 (63.1)	773 (10.1)	485	288	(883) (11.5)	1,169 (15.3)
64	7,799 (100.0)	4,825 (61.9)	(800) (10.3)	(505)	295	(909) (11.7)	1,265 (16.2)
65	8,206 (100.0)	4,810 (58.6)	(832) (10.1)	(527)	305	(935) (11.4)	1,629 (19.9)
66	8,423 (100.0)	4,876 (57.9)	882 (10.5)	549	333	962 (11.4)	1,703 (20.2)
67	8,717 (100.0)	4,811 (55.2)	(941) (10.8)	(581)	360	(987) (11.3)	1,978 (22.7)
68	9,155 (100.0)	4,801 (52.4)	997 (10.9)	615	382	(1,014) (11.1)	2,343 (25.6)
69	9,414 (100.0)	4,825 (51.3)	1,213 (12.9)	815	398	(1,040) (11.0)	2,336 (24.8)
70	9,745 (100.0)	4,916 (50.4)	1,494 (15.3)	1,077	414	1,068 (11.0)	2,267 (23.3)
71	10,066 (100.0)	4,876 (48.4)	1,676 (16.7)	1,239	437	(1,085) (10.8)	2,429 (24.1)
72	10,599 (100.0)	5,346 (50.6)	1,649 (15.6)	1,210	439	(1,102) (10.4)	2,462 (23.3)
73	11,139 (100.0)	5,569 (50.0)	1,923 (17.3)	1,471	452	(1,119) (10.0)	2,528 (22.7)

	Total	Agr., Forestry, & Fisheries Sector	Modern Sector			Rural-Based Non-Agr. Activities (persons engaged in 1~9 persons establishments (Rural="Gun")	Residual (Mostly Urban Informal Sector)
			Total	Persons Employed in the Establishments of 10 persons or more (Non-Agr.)	Civil Service and Public School Teachers		
	(1)	(2)	(3)=(4)+(5)	(4)	(5)	(6)	(7)
1974	11,586 (100.0)	5,584 (48.2)	2,056 (17.7)	1,590	466	(1,136) (9.8)	2,810(24.3)
75	11,830 (100.0)	5,425 (45.9)	1,982 (16.8)	1,503	479	1,154 (9.8)	3,269(27.6)
76	12,556 (100.0)	5,601 (44.6)	2,511 (20.0)	2,008	503	(1,160) (9.2)	3,284(26.2)
77	12,929 (100.0)	5,405 (41.8)	3,188 (24.7)	2,669	519	(1,167) (9.0)	3,169 (4.5)
78	13,490 (100.0)	5,181 (38.4)	3,434 (25.5)	2,893	541	(1,173) (8.7)	3,702(27.4)
79	13,664 (100.0)	4,887 (35.8)	3,680 (26.9)	3,116	564	(1,180) (8.6)	3,917(28.7)
80	13,706 (100.0)	4,658 (34.0)	3,496 (25.5)	2,900	596	1,186 (8.7)	4,366(31.9)
81	14,048 (100.0)	4,806 (34.2)	3,563 (25.4)	2,897	666	(1,192) (8.5)	4,487(31.9)
82	14,424 (100.0)	4,623 (32.1)	3,764 (26.1)	3,116	648	(1,199) (8.3)	4,833(33.5)
83	14,515 (100.0)	4,314 (29.7)	3,980 (27.4)	3,329	651	(1,206) (8.3)	5,015(34.6)

Sources: (1) and (2): Economic Planning Board (EPB), *Annual Report on Economically Active Population Survey*, various issues.
(4) Ministry of Labour, *Survey Report on Establishment Labour Conditions*, various issues.
(5) EPB, *Korea Statistical Yearbook*, various issues.
(6) EPB, *Population and Housing Census Report*, Vol. 2, 15 Percent Sample Survey, 3-1 Economic Activity, various issues.

Note: 1) Estimated figures by extrapolation method are shown in parentheses.
2) Figures shown in column (6) are estimated by the assumptions that, firstly, half of the non-agricultural employees in "Gun" (rural) area are working at establishments with less than 10 persons, and, secondly, all of non-agricultural employers, the self-employed, and family workers are working at the same establishment as stated above.
3) Column (7) is the residual of [col. (1)−((2)+(3)+(6))].

who moved from rural to urban areas are assumed to be employed in modern sector, which simply is not possible.

In the Korean study, we basically followed two sector model, but the traditional sector was divided into rural and urban ones. This we did because, as shown in Table 3, the portion of urban traditional sector in Korea was too large to be ignored. Persons employed in the urban traditional sector are defined as ones who are working in the establishments with less than 10 employees and in self-employed including family workers in urban areas. The number of the employed in this sector has increased very rapidly, resulting in 34.6% of total employed in 1983.

It is important to note that urban traditional sector becomes more important source of unskilled labor supply than agricultural sector as the economy approaches turning point. This was true for both countries and was one of the most impressive phenomena of structural changes in labor markets for them. In addition, we are inclined to believe that the relative weight of the Korean urban traditional sector was much higher than that of the Japan's at the time of their respective turning points. This was because, firstly, the Korean economy was much less developed at the point, and secondly, the economic condition of rural areas in Korea was relatively wor se than that in Japan.

2. Changes in Marginal Productivity of Labor and Real Wages in Agriculture

Changes in marginal productivity of labor and real wages in agriculture are very important to identify turning point in an economy. If the former cut the latter from below at a certain time point, that will demarcate at least the agricultural turning point of an economy.

Two figures shown in Figure 2 and 3 depict the changes in marginal productivity of labor and real wage for both conntries.

By comparing these two figures, one may argue the following two points. The first one is more or less theoretical. To calculate MP_L, the studies for

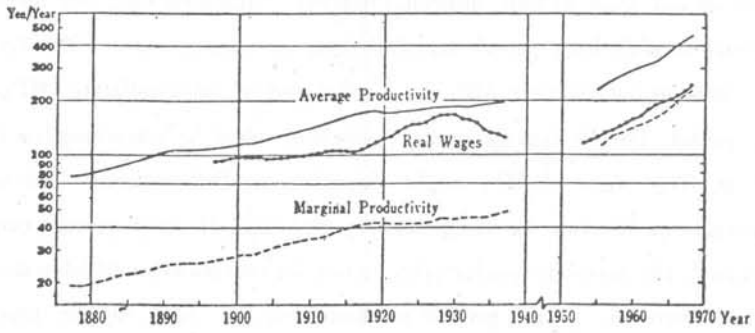

Fig. 2. Real Wages and Average and Marginal Productivities of Agricultural Labor (Japan)
Source: Minami (1973). p. 201.

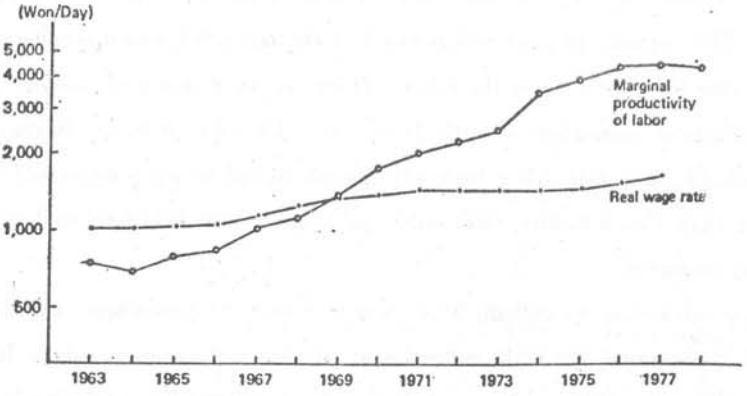

Fig. 3. Marginal Productivity of Labor and Real Wage Rate in Agriculture (3-Year Moving Average at 1975 Constant Prices) (Korea)
Note: 1975 constant price was calculated by averaging indices of prices paid to and prices by farm households.
Source: Bai (1982). p. 126

both countries adopted the method of $MP_L = AP_L \times \beta$, where AP_L means average productivity of labor and β product (output) elasticity of labor, respectively. AP_L can be easily found for both countries. But the problem is that β should be estimated by production function estimation of agriculture, and that it can affect the shape of MP_L by the way how it is estimated.

Professor Minami estimated β as 0.244 for prewar and 0.562 for postwar eras (see Table 9-5 (remarks) of Minami, 1973:200). These two estimates

per se do not seem to have problem. However, applying only one product elasticity to such long period as 1880～1937 may cause some difficulty. It may cause to overestimate MP_L for earlier and to underestimate MP_L for later period. This is because product elasticity must be increasing as time goes on. The shape of MP_L might have been a little steeper. The same deduction can be done for the postwar period too. If our argument can be supported, the marginal productivity curves for two periods will have steeper shapes. Therefore, there may be a chance for the MP_L for the postwar period to cross the real wage line.

The Korean case also has some difficulties with β. It was estimated as 0.351 (1962～68), 0.524 (1966～69), 0.806 (1970～74), and 1.112 (1975～79). The increase in β seems too rapid on the one hand, and it became more than one for 1975～79 on the other. There is no denying of course that technological innovation of agriculture in 1960s and 1970s in Korea was remarkable, but still it is a little bit difficult to follow for β to exceed one. Other than this difficulty, MP_L and real wage curves behaved well as the theory expected.

It is interesting to indicate that Figure-2 and -3 demonstrate the labor market situations for both countries at the time of turning points being quite different. The real wage of Japan was more rapidly increasing in the 1950s and 1960s than that of Korea for 1960s and 1970s. The Japan's relatively steeper real wage movement and the Korean relatively flatter one must depend on various reasons. But one may suggest that the different importance in urban traditional sectors for both countries play some role behind the scenes. More abundant labor supply from urban traditional sector in Korea might have given stronger downward impact on rural real wage and upward one on MP_L through AP_L than the case of Japan.

3. Changes in Wage Differentials

Changes in wage differentials in connection with turning point for both countries behaved quite satisfactorily. Wage differentials of various categories

narrowed around the point of time when major studies indicated the turning points of two countries.

Minami examined the Japanese wage differentials for (a) agricultural and manufacturing, (b) the lowest and highest wage industries, (c) female and male workers, (d) production and non-production workers,and (e) small and large scale establishments. He reached the following conclusion, i.e., (i) wage differentials decreased and increased in the upward and the downward phases, respectively, of the long swing, (ii) wage differentials came into being in the 1920's, (iii) wage differentials continued to decrease during the early 1960's, years of a downward phase of a long swing, in spite of the general pattern of changes seen in finding in (i) (Minami, 1973:177). It seems that the Japanese narrowing wage differentials exhibit fairly stable and trend phenomena which we usually can find in the most advanced countries. One could say that the Japanese labor market transformed from semi-industrialized to industrialized country type after early 1960.

For the Korean side, I found that (a) skilled wage differential widened even though the wage of the unskilled increased very rapidly, and that (b) occupational wage differential, wage differentials between modern unskilled, urban traditional, and agricultural workers, and wage differentials by firm size narrowed (Bai 1982:132~136).

By comparing the changes in wage differentials of two countries, we can add two observations on the Korean findings. First, the Korean behavior of skilled wage differential in the middle 1970s could be resembled that of Japan's in 1920s and 1930s. Unprecedented drive for heavy industrialization in the period strongly raised the demand for the skilled. Second, there are growing trends from educational aspects which contribute not only to decrease supply of the unskilled, but also to increase that of the skilled. In 1982, the advancement rate from primary to junior high school reached 98.0%, that from junior high to senior high 89.9%, high school to college 37.7%, so the number of the unskilled in terms of education will become increasingly scarce, In addition, the number of enrollment for college and

university drastically indreased from 88 thousand in 1978 to 175 thousand in 1981. Therefore we expect increased supply of the skilled in the near future. All these will evidently contribute to narrow the wage differentials in Korea.

4. Labor Supply Elasticity to the Modern Sector

Supply elasticity of unskilled labor to the modern sector of an economy is one of the most direct identification criteria of turning point. In the Japanese study, Minami adopted agricultural wage and out-migration from rural to urban areas for the estimation of the elasticity. He found it declining from late 1950s. I rather chose to use persons supplied to modern sector and wage rate of the sector to calculate the elasticity. It was revealed that the labor supply elasticity in Korea too declined from around 1972.

These two methods seems to be contradicting each other. However, considering limited availability of data, one can understand what both studies tried to capture by seemingly contradicting methods.

We may interpret them as followings:

Minami emphasized "unskilled only," and made a little strong assumption that people moved from rural to non-rural must be employed in modern sector. By doing so, he seems to have ignored two things. The one is the other way of supplying the unskilled from urban traditional to modern sector. The other is the possibility that people moved from rural areas can go to urban traditional sector.

I concerned very much about urban traditional sector, so rather chose to use the supply of modern sector, ignoring inevitable inclusion of the skilled workers in the supply.

We believe that Minami deserve credit because he tried to stick on his theoretical framework more strongly. What we want to emphasize, however, is that the importance or the size of the respective urban traditional sectors could lead to choose these seemingly contradicting methods.

IV. Features of Labor Markets after the Turning Points

1. Changes in the Numbers Employed in Agriculture, Forestry, and Fisheries

Before we get into the features of labor markets after the turning points for both countries, we would be better to pay attention to the very speedy urbanization process of the Korean economy. By Table-4 and -5, we can observe two interesting facts.

The one is that the portions of agricultural sector for both countries at the time of their respective turning points, i.e., around 1960 in Japan and around 1975 in Korea, were quite different. The percentages were 30.2% in the case of Japan, and 45.9% for Korea. This fact may imply, firstly, that the agricultural mechanization in Korea is far behind that of Japan,

Table 4. Persons Employed in Agriculture, Forestry, and Fisheries in Korea and Japan(in 1,000 persons)

	Korea		Japan	
	Total	Agr, Forestry, and Fisheries	Total	Agr., Forestry, and Fisheries
1955	—	—	40,900(100.0)	15,660(38.3)
1960[1)]	7,662(100.0)	4,837(63.1)	44,360(100.0)	13,400(30.2)
1975	11,830(100.0)	5,425(45.9)	52,230(100.0)	6,610(12.7)
1983	14,515(100.0)	4,314(29.7)	57,330(100.0)	5,310 (9.3)

Note: (1) The figures for Korea are for 1963.
Sources: (Korea) Economic Planning Board, *Major Statics on Korean Economy*
(Japan) Ministry of Labor, *Rodotokel Yoran* (Labor Statistics Digest), 1983, p.25

Table 5. Time Taken to Decline the Agricultural Employments for 50→30% and 60→30%

	50→30%	Time Taken to Decline	60→30%	Time Taken to Decline
Korea	1968(52.4%) 1682(32.1%)	14 years	1964(61.9%) 1982(32.1%)	18 years
Japan	1930(49.5%) 1960(30.1%)	30 years	1910(60.2%) 1960(30.1%)	50 years

Source: same as Table 4.

and secondly, that the strata of eligible workers in the rural areas to modern sector are quite thin. In addition, one can expect that somewhat earlier or premature materialization of the turning point in Korea may mean relatively looser labor market to be than Japan for the time being.

The other is that the Korean economy might have experienced "more compressed process "than Japanese economic growth. The time taken to achieve 20% (50→30%) point decline in agricultural employment was 14 years in Korea compared to 30 years in Japan. It took 18 years for 30% (60→30%) point decline in Korea where Japan needed 50 years for the same result.

2. The Problem of Structural Inflation

Once an economy experiences its turning point, the wages of agriculture and of small firms will be more rapidly rising than the productivities of these sectors. This is because the wage of the unskilled starts to spurt after the turning point. Therefore, one can expect structural inflation occurring after turning point for an economy.

Table 6 exhibits that, after the turning point, the rate of agricultural and marine foods price increase was much higher than that of all items except foodstuffs in Korea, when we campare two indexes with 1975=100.0. This must demonstrate structural inflation occurring in Korea.

For the Japanese case, Ohkawa (1974, pp.246-7) analyzed the relationship among productivity, wage, and prices of agriculture for the period of 1965

Table 6. Changes in Wholesale price Indexes for Agricultural and Marine Foods' and Others (1975=100.0)

	Agricultural & Marine Foods	All Items except Food-stuffs
1970	35.2	44.1
1975	100.0	100.0
1980	277.0	219.3
1983	366.5	275.9
1975~83 Ave. Growth Rate	17.6	13.5

Source: Bank of Korea, *Economic Statistics Yearbook 1983.*

~1965. He found that there is a strong positive correlation between the rates of increase in price (P_2) and that in wage minus productivity (w_2-g_2). He confirmed that the higher rate of increase in agricultural wage than that in productivity caused the price of agricultural products to rise.

3. Changes in Unemployment Features

Since the passage of turning point results in the labor shortage of an economy, we can expect the features of unemployment of an economy to be affected by it. The major components of unemployment will be changed from demand-deficit to frictional and/or structural types.

Table-7 depicts the case of Korea. The unemployment rates declined steadily, and, moreover, the remarkable decline of the employed working less than 18 hours a week demonstrates the change.

We suspect that stronger trend toward frictional and/or structural unemployment has been set in the Japanese economy too. We refrain us from

Table 7. Unemployment Rates and the Employed Working Less Than 18 Hours a Week (Korea)

	Unemployment Rates			The Employed Working Less Than 18 Hours
	Total	Non-Farm		
		Total	Male	
1963~66 Ave.	7.6	14.3	14.9	8.7
1967~70 Ave.	5.2	8.8	9.1	5.2
1971~74 Ave.	4.3	7.1	8.2	4.0
1975~78 Ave.	3.8	5.9	6.8	1.9
1979~82 Ave.	4.5	6.4	7.6	0.6

Source: Economic planning Board (Korea), *Economically Active Population Survey*, 1973 and 1982.

Table 8. Unemployment Rate (Japan)

	LaborForce (A)	The Employed (B)	Unemployment (C)	C/A	C/B
1953~59 Ave.	42,413	18,386	649	1.5	3.5
1960~66 Ave.	46,753	25,829	420	0.9	1.6

Source: Calculated from Umemura (1971, p.97)

going into this issue further except showing some information on the unemployment rate of pre-and post Japaese turning point period (Table-8).

V. Concluding Remarks

We can give three short concluding remarks out of the above comparison.

First, it is noted that the types, the sizes or the importance of the urban traditional sectors in both countries were different. The fact has been giving great impact on the analyses in the turning point identification for both countries, and will be influencing the economies somewhat differently in the future.

Second, the Japanese economy is well known for its compressed process of development. But in some respects, the Korean economy seems to have experienced even more compressed process of its development. A rigorous analysis should be done for this issue in the coming years.

Third, since the Korean economy achieved its too speedy growth, one may feel that the turning point in around 1975 could have been in a sense slightly prematured one. If this oberservation could be the case, it is possible to believe that there will be relatively loose labor shortage to come in the future.

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