Title	THE JAPANESE LABOR MARKET AFTER THE OIL CRISIS: A Factual Report (I)
Sub Title	
Author	島田, 晴雄(SHIMADA, HARUO)
Publisher	Keio Economic Society, Keio University
Publication year	1977
Jtitle	Keio economic studies Vol.14, No.1 (1977.) ,p.49- 65
JaLC DOI	
Abstract	
Notes	
Genre	Journal Article
URL	https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=AA00260492-19770001-0049

THE JAPANESE LABOR MARKET AFTER THE OIL CRISIS: A Factual Report† (I)††

HARUO SHIMADA

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† The earlier version of this paper was presented at the experts' meeting of the Organization for Economic Cooperation and Development (OECD) on Structural Determinants of Employment and Unemployment, March 7–11, 1977, Paris.

†† This is the first half of the paper. The latter half will be published in the subsequent issue of this journal.

I. INTRODUCTION

This paper focuses on several issues of employment and unemployment that have called keen attention of employers, workers, policy makers and analysts during the three year process of drastic changes and adjustments following the oil crisis which swamped the entire Japanese economy at the end of 1973.

This process of adjustment is considered in Japan a major epoch or perhaps the greatest epoch in terms of its implications for the working, structure and institutions of the labor market experienced ever since the World War II. The paper tries to exposit some of the problems that emerged in the process, efforts to analyze them, and policy actions taken by the parties concerned to cope with them.

In the next section, some of the immediate impacts of the oil crisis will be reviewed and references will be made to assessments of future course of economic growth and labor market conditions. Section III will examine more closely the process and content of employment reductions, an important aspect of the adjustment employers and workers were obliged to accept. In Section IV, changes in unemployment will be examined and issues related to unemployment and structure of labor force will be discussed. Section V deals with a question of securing employment for aged workers under the expected trends of rapid aging of population and of much slower economic growth than in the past. This policy issue relates to a complex problem of viability and rationality of the conventional employment system under the prospective new circumstances.

II. IMMEDIATE IMPACTS OF THE OIL CRISIS AND THE EFFECTS OF UNCERTAINTY ABOUT THE LONG-TERM PROSPECT OF FUTURE GROWTH

II.1. *Introduction*

The oil crisis which broke out at the end of 1973 in Japan following the shocking announcement of the OPEC in September of the same year gave far reaching impacts on the behavior of Japanese labor market. In terms of their effects the impacts may be classified into two types: one which is more immediate in nature and the other which, being compounded with a variety of already growing factors, played the role of a catalist to accelerate people's expectation, if not the substance, for a long-term structural change. Since these two effects are closely related and over-lapped in many respects as background factors influencing the changes in labor market conditions, it seems necessary to review both of them in turn.

II.2. *Immediate Impacts of the Oil Crisis*

Among the immediate impacts, we should first note the drastic acceleration of prices, especially of the items composing the wholesale price index. The data for these price indices and other relevant variables are listed on quarterly basis for the period since the end of 1973 up to the third quarter of 1976 in Table 1.

The wholesale price recorded for a few months in 1974 a rise of more than 30 per cent compared to the same months of the previous year, and about the same time the

TABLE 1. SELECTED QUARTERLY INDICATORS OF ECONOMIC CONDITIONS

		Wholesale Prices		Consumer Prices		Production Index		Capacity Utilization Ratio	Overtime Hours Worked per Month	Job Openings to Applicants Ratio	Regular Employment Index	Unemployment Rate
		Index	Annual Change %	Index	Annual Changes %	Mining and Industry	mfg.	mfg.	mfg.		mfg.	%
1973	I	107.7	9.3	116.1	7.1	122.1	121.2	102.2	16.8	1.63	98.9	1.54
	II	111.3	12.4	122.2	10.5	126.4	126.8	101.6	16.9	1.76	98.8	1.31
	III	117.1	17.3	125.8	12.8	128.6	128.0	100.7	16.5	1.86	99.1	1.25
	IV	127.3	24.0	131.5	16.4	131.9	129.7	100.1	17.1	1.83	99.5	1.18
1974	I	145.9	35.5	144.5	24.5	130.3	128.2	96.8	14.0	1.54	99.3	1.24
	II	150.8	35.5	151.3	23.8	126.8	126.4	94.0	12.7	1.35	99.2	1.28
	III	155.2	32.5	157.0	24.8	122.0	123.5	90.7	11.3	1.09	98.6	1.40
	IV	157.0	23.3	163.9	24.6	114.7	116.2	84.2	10.6	0.84	97.4	1.59
1975	I	156.1	7.0	166.4	15.2	105.0	108.2	77.5	8.3	0.72	95.0	1.71
	II	155.8	3.3	172.1	13.7	109.2	113.1	81.1	8.3	0.65	93.1	1.82
	III	156.7	1.0	173.6	10.6	111.4	117.8	83.5	9.4	0.55	92.9	1.97
	IV	158.5	1.0	178.3	8.5	112.3	120.1	83.2	10.6	0.53	92.2	2.06
1976	I	161.6	3.5	182.4	8.9	118.8	127.2	86.8	10.7	0.63	91.9	2.02
	II	164.2	5.4	188.3	9.3	125.2	132.3	89.0	11.9	0.66	90.9	2.05
	III	167.3	6.8	190.2	9.6	126.6	131.7	87.7	12.6	0.66	90.4	2.05
	IV	168.6	6.4									

Notes: (1) All the indices are standardized as setting the average value of 1970 = 100.
(2) "Annual Changes" implies the percentage change compared to the same quarter of the previous year.
(3) "Mfg." stands for manufacturing sector.

consumer price index rose by nearly 25 per cent. To overcome this crisis like inflationary situation, severe austerity policies were taken both in the form of fiscal and monetary means.

With these policy actions, inflationary pressures finally began to be moderated around the end of 1974. But the level of production had begun to decline much earlier and much faster, and therefore reduced the demand for labor. While the capacity utilization ratio, index of hours worked, and the number of new recruits dropped sharply, curiously enough the index of employment of regular workers maintained its level stubbornly for several months until it finally began to decline substantially in early 1975. But once it started to drop, the pace of reduction has been steady. In fact, quite contrary to the upturn of economic conditions, however mild it may be, from spring of 1975, the level of employment as expressed by an index for regular workers in manufacturing sector kept decreasing until now.

II.3. *Uncertain Prospect for Future Economic Growth and Its Impacts on Employment Behavior*

And it is in this questionable disparity where one might see another type of the oil shock of different effect, namely more long-lasting and structural, if one might wish to call it. In short, the effect of this type was such that to symbolically finalize the compound effects of already growing forces such as increasingly severer restraints of resources of energy and raw materials, constraints imposed from the consideration of environmental protection, scarcer supplies of young labor force, and slowing down of the speed of technological progress etc. On the top of accumulated effects of all this, that had already been increasingly apparent since early in the 1970's, the accute difficulty brought about by the oil crisis finally seems to have made the public believe that the age of high economic growth is over and Japan will now enter the so-called "new era of slow growth."

While considerable uncertainties are necessarily associated with the question of how slow and along what sort of path the economy is expected to grow, it seems that efforts are being made centering around the circle of economic policy planners and economists to persuade the public that around 6 per cent as expressed in terms of average annual rate of growth for the coming decade is appropriate and desirable.[1]

The annual growth of 6 per cent in real GNP would be regarded still as remarkably high as a growth rate in the light of international comparison. But after having been used to the pace of growth as fast as 10 per cent per annum in real terms for more than a decade, this substantial slowing down of the speed, if it is true, would seem to need substantial re-organization of the structure and institutions that have been fostered within the economy during the high growth period. And it is not surprising if this caution appears particularly relevant to the minds of employers, especially in view of the recent performance of the economy that fails even from the beginning to go along with the desired track of 6 per cent growth for 10 years.[2]

One of the serious symptoms is the distruptive decrease in the level of private investments, particularly for productive facilities in industrial sector. For two years

TABLE 2. PERCENTAGE CHANGES IN GNE COMPONENTS FROM 4TH QUARTER OF 1973 TO 2ND QUARTER OF 1976: AN INTERNATIONAL COMPARISON

Components of GNE	Japan	U.S.	West Germany
Private Consumption	9.2 (5.5)	5.6	3.5
Private Investments			
Dwellings	− 1.0 (7.75)	−15.4	− 9.6
Productive Facilities	−26.0 (7.0)	−13.2	1.4
Government Expenditure			
Purchase of Goods and Services	14.2 (4.0)		11.1
		4.6	
Fixed Capital Formation	16.5 (7.25)		
Gross National Expenditures	6.1 (6.25)	1.4	1.5

Source: Quoted from "Comparative Analysis of Economic Conditions: Japan, U.S., West Germany." *Nihon Keizai Shimbun* (Japan Economic News Paper) Nov. 27, 1976, morning issue.

Notes: (1) All items are in real terms and adjusted for seasonal fluctuations.
(2) Figures in parentheses are average annual rates of change intended to be achieved in the "*Economic Plan, 1975 – 1980.*"

of consecutive decline since the last quarter of 1973, the level of investment for productive facilities had droped by 28 per cent in real terms while the subsequent recovery in 1976 has been inmaterial. This depth of decline is two to three times greater than the ones ever experienced in Post World War II recessions, and also by far the deeper than the cutbacks experienced by the U.S. and West Germany during the recent recession as seen in Table 2.

A widely accepted view among economists is that this hesitant attitude of firms was not only caused by the immediate impacts of the oil shortage but also and more critically by the discouraging conditions against investments, as noted earlier, that have become increasingly apparent since around 1970. During the adjustment process following the oil crisis, the firms barely managed to survive the impact at the expense of sacrificing corporate profits. But in an effort to restore a new equilibrium, many firms appear to be embarking on new structural policies; namely, reducing burdens as much as possible both in terms of finance and labor. To say more specifically, reducing the proportion of borrowed capital on the one hand and reducing labor costs by reducing employees and also resorting to other means of employment reductions on the other. Under these circumstances, employers naturally could have only limited incentives for new investments, if any. In view of their worries for the future and pessimistic attitudes, it is not suprising that the level of employment of regular workers in industrial sector has been lowering consecutively showing hardly any signs of recovery up to now.

Obviously, it is imperative under such circumstances that the government takes determined actions to stimulate and increase the aggregate demand through fiscal and monetary policies. Although such policies have been taken, their effects so far seem less than would be desired. Being frustrated with such outcomes,

managements demand naggingly the government for much larger governmental investments and lower interest rates, unions for higher wages for 1977 shuntō or spring wage negotiations and opponent parties for a large scale reduction in personal income tax as much as 1000 billion yen in fiscal year 1977. But the fear that these policies might of accelerate inflation on the one hand and aggravate excessive reliance on national bonds on the other make the simultaneous realization of all this extremely difficult. In the meantime, the deterioration in employment of this depth and perhaps even greater depth in the near future certainly would seem to make a major epoch in trends in the labor market during the post-war period.

Notes to Section II

[1] A representative example of assessments for a long term prospect of economic growth may be found in the report prepared by a task force of experts organized as a sub-committee of the Economic Advisory Council. Included in the task force are the experts Messrs. M. Sakisaka, T. Uchida, T. Ishiguro, S. Nishikawa, M. Makino and T. Yoshida.

The aim of the report (Keizai Shingikai 1975), disclosed in July 1975, is to assess the potential growth capability of the Japanese economy during the period 1975–1985. In its conclusion, the report presents two alternative growth paths: one based on a set of relatively optimistic assumpions of constraints and the other on severer assumptions. The former is of the average annual rate of 6.5 per cent with slightly less than 7 per cent during the first 5 years and slightly more than 6 per cent during the last 5 years. The latter is of the average annual rate of 5.5 per cent with 6 per cent during the first half of the decade and 5 per cent during the latter half.

To arrive at this conclusion, the report analyzes the growth potential in two steps. In the first step, the future supply capacity is calculated using various aggregate production functions of basically Cobb-Douglas type. As data of inputs, expected future supply of labor and capital stock were used; to estimate the future labor supply such factors as predicted demographic structure, participation rates, working hours and quality index were incorporated, and to arrive at the estimates of future capital stock such factors as capital vintage structure and various alternative cases for investment behavior were taken into consideration. The range of alternative growth rates derived in this way were then qualified in the second step allowing for constraints of basic resources and environmental protection.

It should be born in mind that the assessment is based on a number of contingencies and alternative assumptions and on a methodology which is not entirely undebatable. Quite naturally, therefore, the results may be best understood in the form of a rather wide range of possible outcomes. The two conclusive cases quoted earlier are in effect a couple of relatively plausible cases that were chosen more or less arbitrarily.

Another piece of such efforts was reported in September 1975 by a task force oriented for studying employment policies organized under the auspicies of the Ministry of Labour.

Members of the task force are the experts Messrs. K. Baba, S. Namiki, M. Umemura, Y. Shishido, S. Jinushi, K. Tsuji, T. Nakamura, H. Nishioka and S. Nishikawa.

The report (Koyō Seisaku Chōsa Kenkyukai 1975) attempts to assess the demand for and supply of labor for the period 1975 through 1985 on alternative rates of economic growth. Conclusive implications of the report are that the average annual growth of 7 per cent for 10 years will yield some excess demand in the labor market, while 5 per cent will create a sizable amount of unemployment. It is suggested therefore that the growth path around the average annual rate of 6 per cent for 10 years is appropriate and desirable from the view point of the labor market.

[2] An outline of the government's 5 year economic plan for period 1975 through 1980 (Keizai Kikaku Chō 1976), and recent changes in selected components of GNE are presented below.

TABLE 3. EXPECTED RATES OF ANNUAL PERCENTAGE CHANGES OF SELECTED ECONOMIC INDICATORS IN THE 5 YEAR ECONOMIC PLAN FOR 1975–1980

	Average Annual Rate, 1975–1980	References	
		Average Annual Rate, 1966–1975	Average Annual Rate, 1966–1972
Labor Force	1 or less	1.0	1.2
GNP (real)	6 or more	8.3	10.8
GNP (nominal)	13 or more	16.3	16.4
Government's Capital Formation (real)	7 approx.	9.5	13.3
Consumer Prices	6 or more	8.5	5.5
Wholesale Prices	5 approx.	5.8	1.8

Source: Keizai Kikaku Chō (1976).

TABLE 4. ANNUAL PERCENTAGE RATES OF CHANGE IN COMPONENTS OF GNE (in Real Terms)

	1973	1974	1975	1976		
				I	II	III
GNE	6.4	−0.3	3.4	6.8	6.9	6.0
Private Consumption	5.9	3.1	5.7	5.7	4.5	4.1
Government Purchase	6.7	5.5	6.8	7.2	5.2	3.1
Private Capital Formation						
Dwellings	12.5	−14.4	13.4	19.6	9.9	9.2
Others	14.4	−14.5	−9.3	−1.5	0.4	2.7
Gov. Capital Formation	−7.7	2.2	7.6	4.1	9.7	8.1
Inventories	84.5	−20.9	−50.2	16.5	12.1	4.2
National Surplus	−79.4	538.2	50.0	69.8	62.0	42.7

Source: Economic Planning Agency, *Annual Report on National Income Statistics.*

Notes: (1) The item "others" of private capital formation is composed mostly of productive facilities in private sector.
(2) The correct expression of "National Surplus" is Surplus of the Nation on Current Account.
(3) Figures for each of the three quarters of 1976 are the rates augmented on annual basis.

III. ANATOMY OF EMPLOYMENT REDUCTIONS AND EMPLOYMENT BEHAVIOR OF FIRMS

III.1. *Introduction*

In the previous section, the behavior of employment statistics since the end of 1973 was briefly mentioned. This section will examine the content of changes, or to say more specifically reductions, in employment more closely. The depth of

TABLE 5. MONTHLY DATA OF EMPLOYMENT HOURS WORKED, LABOR INPUT AND PRODUCTION OF MANUFACTURING INDUSTRIES

		Employment Index (A)	Index of Hours Worked (B)	Labor Input Index (C)	Production Index (D)
1973	1	105.6	110.2	116.4	120.2
	2	105.7	109.9	116.2	120.5
	3	106.0	109.2	115.8	122.8
	4	105.6	109.0	115.1	124.6
	5	105.7	108.5	114.7	127.3
	6	105.9	109.4	115.9	128.6
	7	106.0	107.7	114.2	127.1
	8	106.1	107.3	113.8	128.1
	9	106.1	107.4	114.0	128.7
	10	106.3	107.4	114.2	130.7
	11	106.6	106.6	113.6	130.9
	12	106.6	106.4	113.4	127.6
1974	1	106.5	103.7	110.4	128.5
	2	106.6	105.9	112.9	129.1
	3	106.7	104.7	111.7	127.1
	4	107.0	103.9	111.2	125.7
	5	106.7	104.0	111.0	128.4
	6	106.3	103.8	110.3	125.0
	7	106.0	103.3	109.5	125.9
	8	105.5	102.0	107.6	122.2
	9	105.3	102.2	107.6	122.4
	10	104.7	100.8	105.5	119.6
	11	104.0	102.1	106.2	116.2
	12	103.4	100.5	103.9	112.8
1975	1	102.7	99.0	101.7	108.9
	2	102.0	98.9	101.0	107.6
	3	101.1	98.3	99.4	108.2
	4	100.4	98.7	99.1	112.5
	5	100.2	99.9	100.1	111.8
	6	99.9	99.9	99.8	114.9
	7	99.5	100.3	99.8	116.3
	8	99.5	101.0	100.5	116.7
	9	99.1	100.7	99.8	120.4
	10	98.8	101.4	100.2	119.6
	11	98.6	100.8	99.4	119.6
	12	98.4	100.7	99.1	121.1
1976	1	98.5	102.5	101.0	122.7
	2	98.2	102.7	100.9	127.7
	3	98.0	106.1	104.0	131.1
	4	97.5	105.2	102.6	134.5

TABLE 5. (Continued)

		Employment Index (A)	Index of Hours Worked (B)	Labor Input Index (C)	Production Index (D)
1976	5	97.3	103.5	100.7	130.2
	6	97.0	102.2	99.1	132.6
	7	96.9	104.5	101.3	134.1
	8	96.8	104.4	101.1	130.8
	9	96.5	102.0	98.4	130.1
	10	96.4	103.7	100.0	128.1
	11	96.4	102.7	99.0	

Sources: Data compiled by the Ministry of Labour and the Ministry of International Trade and Industry.

Notes: (1) All the data are for manufacturing sector only, and adjusted for seasonal fluctuations.
(2) Indices of (A) and (B) are standardized as setting the average level of 1975 = 100, and Index of (D) is based on 1970 = 100. Index (C) is simply a product of (A) and (B) divided by 100.
(3) Employment Index (A) is based only on regularly employed workers.

employment reductions has been so great, perhaps the greatest after the World War II, that questions arise as to whether the reductions alter not only the distribution of employment among different firms and sectors but also the working of employment systems and labor market institutions themselves. At the minimum, this epochal decline in employment would serve as the first serious test since the 1950's of the viability of the conventional Japanese employment system. With these questions in mind, I will examine in what follows the content of employment reductions.

III.2. *Employment Reductions and Redundant Labor Force Within the Firm*

Let us first take a look at more closely how fast and how deeply employment has been reduced using monthly data. Table 5 presents a set of seasonally adjusted statistical series for this purpose: employment index of regular workers, monthly hours worked per worker, production index all for manufacturing industries. In addition, an index of labor input is included for reference purposes that is a product of employment index and hours worked.

To the extent that the proportion of employment in manufacturing industries is about one third of the entire economy and that it is relatively more sensitive to fluctuations in economic demand conditions, its observed trends may not be interpreted immediately as representing the employment behavior of the total economy. Nevertheless, it is useful for our purposes to see how employment reductions were carried out in this important industrial sector.

The changes in the level of employment, observable from this table, may be summarized in three phases: (1) the first period, from the end of 1973 to fall of 1974, during which the employment index of regular workers maintained its level quite persistently in spite of the fact that production has dropped sharply. Monthly hours

worked, on the other hand, were cut down markedly during this period, (2) from 1974 winter up to early spring of 1975, the employment index dropped sharply while hours worked ceased to decline, and the level of production reached a bottom, (3) from late spring of 1975 up to the present (the end of 1976), employment has kept delining though at a slower pace whereas hours worked has increased again and repeated minor fluctuations.

The composite index of labor input, therefor, exhibits a substantial decline due mainly to the decrease in hours worked during 1974 and has been remaining at a low level since 1975 due to the mild but persistent reduction in the number of regular employees. Note that this index of labor input does not represent the total labor input of manufacturing firms since it excludes a sizeable number of employees employed on temporary basis. To the extent that temporary workers were the first group to be dismissed, as will be seen later, the observed trend in labor input understates the *de facto* employment reductions.

Although the observed data clearly show that Japanese firms cut down labor costs by reducing labor input not only in terms of hours worked but also the number of workers, it is also true that reductions of regular workers have been minimized at least for the first several months of declining production. It was during this period when employers began to make nagging claims that they were employing redundant labor force within the firm being obliged by the unsurmountable norm of life-time employment.

Associated with their claim were several implications: (1) employers are forced unduly to bear the burden of economic adjustment processes in the form of maintaining idle labor force on the payroll, (2) this burden hurts and weakens the vigor and viability of the firm, (3) this employment practice conceals a potentially large amount of unemployment, or prevents the idle labor force from appearing in the labor market as explicit unemployment, and (4) these claims were made particularly loudly perhaps with intentions to influence the wage negotiations scheduled in spring of 1975 and 1976.

Responding to their claims, a number of quantitative assessments were made by research sections of employers associations, banks and the government, the results of which were that the ratio of surplus labor force to the total employed ranged between 5 to 15 per cent or roughly 0.5 to 1.5 million workers in the case of manufacturing sector.[1]

While the assertion of employers was that the norm of life-long employment deprives them of options of employment reductions, the fact observed in the second phase, or around the beginning of 1975, proved that they indeeed did resort to the option of reducing the number of employees. The spell of life-time employment was found to be in fact not a prohibitive constraint imposed on employers as it was being claimed.

III.3. Flexibility in Employment: Some International Comparisons of Employment Reductions

To evaluate the employment behavior of Japanese firms more objectively, it

TABLE 6. ELASTICITIES OF EMPLOYMENT TO PRODUCTION

	Employment Elasticity					Labor Input Elasticity				
	Japan	U.S.A.	U.K.	West Germany	France	Japan	U.S.A.	U.K.	West Germany	France
From Nov. 1973										
To June 1974	0.09	0.43	—	—	—	0.32	3.00	—	—	—
Sep. 1974	0.13	0.26	0.04	0.19	—	0.69	1.23	0.58	0.33	—
Dec. 1974	0.19	0.79	0.16	0.32	0.07	0.59	1.14	0.46	0.52	0.60
Mar. 1975	0.25	0.87	0.34	0.36	0.18	0.85	1.14	0.81	0.91	0.64
June 1975	0.38	0.85	0.43	—	0.23	0.66	1.07	0.82	—	0.66
Sep. 1975	0.49	0.97	0.58	—	—	0.86	1.20	0.91	—	—
Dec. 1975	0.51	—	—	—	—	0.89	—	—	—	—

Source: Quoted from Shimada (1976).

TABLE 7. ELASTICITIES OF EMPLOYMENT TO PRODUCTION (MANUFACTURING INDUSTRIES)

		Labor Input			Employment				Hours Worked		
					Japan						
		Japan	U.S.A.	West Germany	A	B	U.S.A.	West Germany	Japan	U.S.A.	West Germany
1974	II	2.16	4.17	3.44	0.13	0.58	0.33	2.11	1.65	2.83	1.17
	III	1.29	7.00	1.58	0.10	0.31	−0.50	0.84	0.98	6.50	0.37
	IV	0.68	1.52	1.22	0.17	0.27	0.73	0.67	0.42	0.50	0.39
1975	I	0.66	1.21	1.54	0.23	0.34	0.73	0.71	0.35	0.30	0.53
	II	0.89	1.07	0.95	0.44	0.59	0.75	0.60	0.33	0.15	0.29

Source: Rōdōshō, Tōkei Jōhōbu (1975).
Note: Japanese employment figures in column A are based on all employees and B on production workers.

would be instrumental to compare them in an international perspective. Table 6 compares elasticities of employment reductions replative to reductions in production.

Elasticities in Table 6, though not completely comparable beause of missing data, suggest that although Japanese firms tend to lag behind in terms of timing the depth of employment adjustment is not so much different from European firms, and in terms of labor input (taking hours worked into account together with the number of employed) Japanese firms look indeed not really different from European counterparts. In terms of both measures, it is American firms that stand out as an exception.

However, to the extent that these elasticities were computed using an arbitrarily chosen point, November 1973, as a sole bench-mark and also some data include seasonal fluctuations the observed results would be useful only as a crude approximation. Another comparison presented in Table 7 tries to circumvent these

TABLE 8. ESTIMATES OF SPEED OF ADJUSTMENT (ADJUSTMENT COEFFICIENT)

	Employment	Labour Input
Japan	0.10	0.62
U.S.A.	0.37	0.63
U.K.	0.09	0.49

Source: Quoted from Shinozuka, E and Ishiwara, E (1976).
Nore: The adjustment coefficient is interpreted to mean that its reciprocal is the number of months the firm takes until it reaches the state of full adjustment.

difficulties by using the data of percentage changes relative to the same time of the previous year to compute elasticities.

The results are that the elasticities had been much lower for Japan than the U.S. and West Germany for about a year after the oil crisis, especially in terms of regular employment. But the elasticity of labor input has risen sharply in 1975 to a level comparable to other nations, perhaps reflecting the accelerated reductions in employment early in 1975.

Estimates of the speed of adjustment using a partial adjustment model of employment which takes into account not only production but also relative prices (unit labor cost and product prices) attempted by Shinozuka and Ishiwara are presented in Table 8.[2]

The estimates indicate that while Japan is much slower than the U.S. and more or less equivalent to the U.K. in terms of adjustment of the number of employed, the Japanese firms were just as quick as their U.S. counterparts in adjusting labor input and considerably faster than the U.K. counterparts. The result of this more comprehensive and rigorous analysis reveals, in short, that the Japanese firms are no less flexible than Western counterparts in their employment behavior and considerably more flexible in adjusting working hours.

III.4. *The Process and Content of Employment Reductions*

The analyses introduced thus far are based on the aggregate data. To the extent that the impact data are aggregate, the results may not be interpreted to represent adequately the employment behavior of individual firms. The industry average may not trace the locus of behavior of any individual firms. Even if it did, in so far as the observed data fail to incorporate a variety of instruments to reduce labor costs that the firm has at its disposal the firm's behavior assessed in this way may only reflect part of its complex processes.

It is known that firms have used a host of alternative and supplementary measures to reduce labor costs during the process of recent employment reductions: reducing over time hours, stopping or reducing recruitment of new regular employess, transfer of employees within the firm across different workshops often of completely different skill requirements, work sharing, re-organization of the firm including shutting down the old or opening the new activities, sending employees to

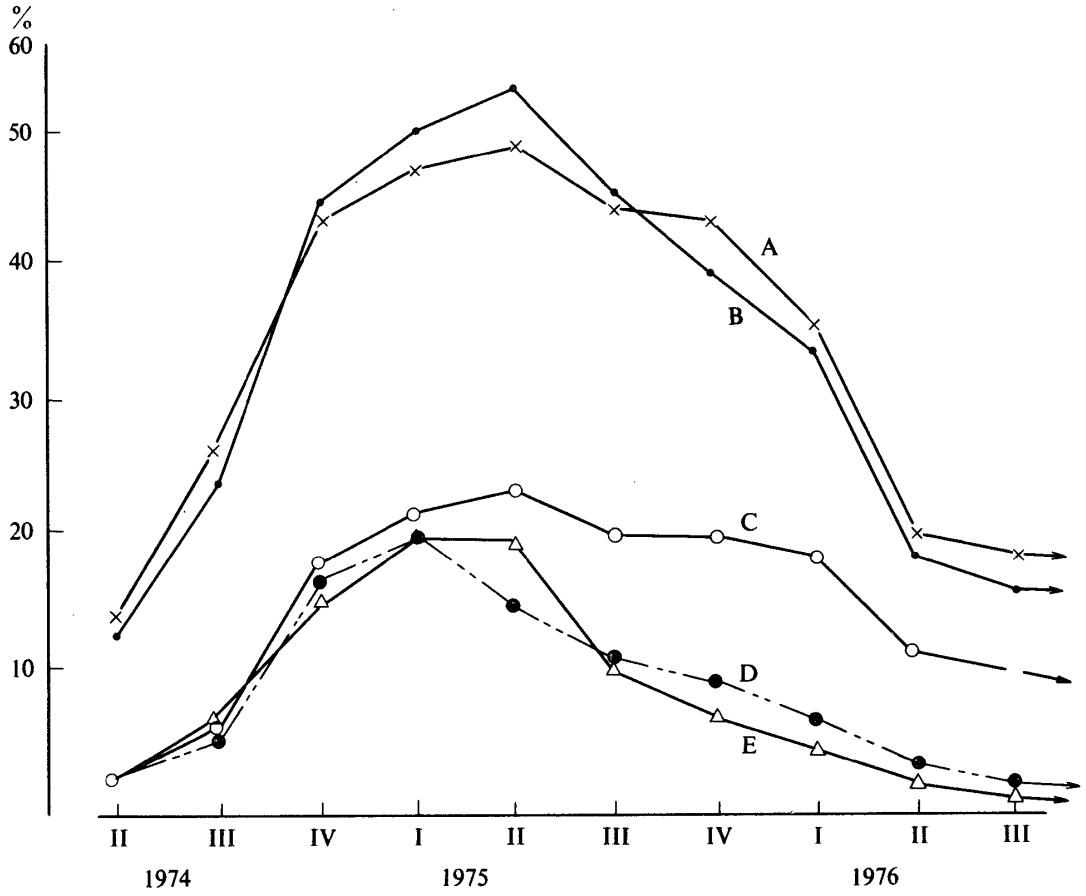

Fig. 1. Percentage of Firms in Manufacturing Industries Classified by the Method They Used to Reduce Employment.

Sources: The Ministry of Labour *Rōdōkeizai Dōkō Chōsa* (Survey of Trends in Labor Economy).

Notes: (1) Five methods examined here are:
A. reducing or stopping recruiting mid-way workers,
B. restraining over-time hours,
C. transfer of employees within the firm or to subsidiaries,
D. banning contract renewal or dismissal of temporary workers,
E. temporary lay off of regular employees.
(2) Arabic figures stand for quarters.

subsidiaries, stopping contract renewal of temporary and seasonal employees, temporary layoffs, soliciting early retirement, dismissals etc.

Figure 1 depicts how widely these instruments were used among firms in manufacturing industries during the last few years. Among the most widely used methods were cutting over-time hours and reducing recruitment of mid-way workers. The next popular method is transfer of employees, the method that seems to be of more long-term nature than others. Banning of contract renewal or discharging temporary workers and temporary layoffs of regular employees appear to be more transitory in nature than other means. The proportion of firms resorted to one or some of these options of employment reductions rose rapidly during 1974

TABLE 9. THE RATIO OF FIRMS RESORTED TO VARIOUS METHODS OF EMPLOYMENT REDUCTIONS, MACHINERY INDUSTRIES

(in percentage)

	Large Firm			Small Firm		
	1974	1975	1976	1974	1975	1976
Restricting Over-Time Hours	61.3	90.3	80.6	39.2	74.3	55.4
Not Fulfilling Vacancies	35.5	67.7	71.0	23.0	60.8	55.4
Reducing New Recruits	35.5	77.4	80.6	21.6	52.7	67.6
Transfer within Plant	48.4	64.5	64.5	35.1	64.9	52.7
Transfer to Other Plant	51.6	77.4	74.2	23.0	45.9	50.0
Transfer to Subsidiaries	48.4	61.3	58.1	16.2	23.0	14.9
Temporary Lay off of Regular Workers	38.7	38.7	6.5	10.8	36.5	6.8
Dismissal of Temporary Workers	2.9	41.9	29.0	21.6	48.6	14.9
Soliciting Early Retirement	6.5	0.0	0.0	8.1	14.9	6.8
Selective Designated Dismissals	0.0	0.0	0.0	2.7	1.4	1.4

Source: Unpublished interim result of the Survey on Intra Firm Labor Mobility headed by Prof. S. Matsushima and sponsored by the Ministry of International Trade and Industry.

Notes: Large firms are those listed as members of the Tokyo primary stock market and with their capital of 100 billion yen or more.
Small firms are those listed as members of the Tokyo Secondary stock market and their capital is presumably less then 100 billion yen.
Sample size of large firms is 31 and small firms is 74.

and reached the peak in spring of 1975, confirming the trends in aggregate employment examined earlier. To be noted however is the point that much of the effects of these measures is unaccounted for in the aggregate indices.

Let us examine more closely to see whether there exist any differences between large and small firms using a limited sample of firsm obtained from machinery industries. Table 9 presents part of the survey results. An examination of the table will reveal an interesting contrast. Large firms appear to be more active and quicker in applying various means of employment reductions than small firsms. Among the options used more frequently by large firms are sending employees to subsidiaries, sending workers temporarily to other plants, cutting down of new recruits, not fulfilling vacancies, restricting over-time hours. On the contrary, small firms resorted more heavily than large firms to such methods as designated selective dismissals, soliciting early retirement, discharge of temporary workers.

It may not be too far-fetched to infer from this result that the kinds of options used by large firms are less provocative against unions, more security oriented of employment of incumbent workers, although perhaps the steps to be taken are more complex and cumbersome in terms of organizational procedures. In contrast with small firms, large firms seem to try as much as possible to avoid dismissals. And in this respect, large firms are also better equipped in that they can use subsidiaries or related corporations as a cushion, which small firms do not have. At the same time, one should also be aware of the fact that it is in large firms where most of Japanese

enterprise unions exist, and in contrast, unions are organized only sparsely in small firms.

There have existed in Japanese firms virtually no mutually endorsed formal rules of employment reductions between the management and the union such as American rules of layoffs, and yet the employer has to reduce employees without stimulating too much the enterprise union which is particularly sensitive to employment issues. This is a highly demanding and difficult task. In the seemingly chaotic and complex processes of adjustment, the employers particularly of large firms, are obliged to try very hard to find out feasible and acceptable routes and options for employment reductions.

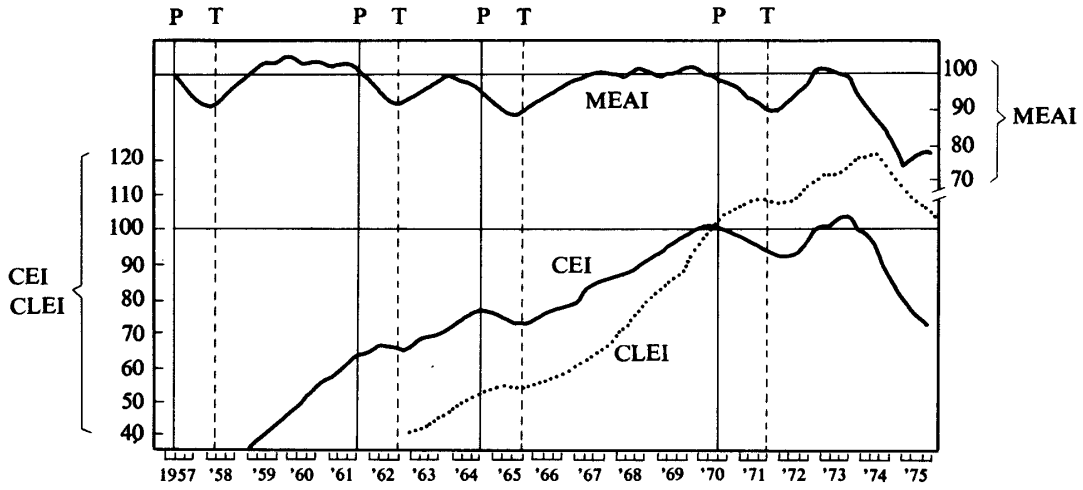

Fig. 2. Movements of Composite Indices of Employment
Source: Ministry of Labour, *Analysis of Labor Economy 1975 (White Paper on Labor)*. p. 68

TABLE 10. RECENT CHANGES IN COMPOSITE INDICES OF EMPLOYMENT ADJUSTMENT

	MEAI		GEI		CLEI	
	1975	1976	1975	1976	1975	1976
Jan.	73.7	81.8	83.1	74.4	112.1	101.3
Feb.	72.8	83.1	81.4	75.3	110.8	101.8
Mar.	73.0	84.2	80.6	76.5	108.3	101.7
Apr.	74.9	84.7	79.3	75.4	106.4	97.9
May	74.7	83.3	77.8	74.3	105.9	97.0
June	75.5	85.8	76.3	74.3	106.0	97.1
July	76.7	85.9	75.4	74.5	105.4	96.6
Aug.	77.3	85.1	74.7	74.6	104.8	97.0
Sep.	77.5	84.2	74.2	74.0	103.6	96.7
Oct.	76.8	—	73.1	—	102.2	—
Nov.	78.0	—	72.7	—	101.4	—
Dec.	79.2	—	72.8	—	100.8	—

Source: Rōdōshō, *White Paper on Labor*, 1976, and other unpublished data.

As employment reductions proceeded greater in depth, firms tend to exhaust measures other than reducing employees, and once the reduction of employees begins it spreads from relatively marginal types of workers to core labor force. Three compsite indices constructed by the Ministry of Labour are indicative of such changes in the content of employment adjustment. Indices are: (1) the marginal employment adjustment index (in short, MEAI) which is composed of appropriately weighted such factors as accession rates, separation rates, overtime hours, job openings for new school leavers, (2) the general employment index (GEI) which consists of regular employment index of manufacturing sector, unemployment rate and job-openings applicants ratio, and (3) the core labor force employment index (CLEI) which comprises employment index of managerial, clerical and technical workers of manufacturing sector, unemployment rate of workers of age 40 and older, and employment index of heavy and chemical industries. The movements of these indices from the 1950's till recently are graphically presented in Figure 2, and most recent data are listed in Table 10.

As expected, the marginal employment index fluctuate quite sensitively with business cycles. It is important to note that the index of core labor force employment has been dropping consecutively since spring of 1974. This suggests that the core labor force that has been fostered and protected throughout the process of the past rapid economic growth is now being eroded partially, which is indicative of some structural change.

There are, however, no convincing signs to believe that the conventional system of employment itself is changing. The fact that a sizeable number of workers have been dismissed from industries is not incompatible with the conventional system itself. The employment guarantee for all workers, that looked as though a rule for some time, was simply a consequence of the phenomenal growth in the 1960s. The system, equipped with ample safety cushions and based on stratified structure of the labor market, still seems to survive the waves of new challenges.

To the extent that employment reductions have continued, the distribution of workers along the stratified structure of the labor market, say by the size of firm, may change. But it seems so far that the viability of the conventional employment system proves the test.

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Notes to Section III

[1] Some of the notable examples of assessments of the magnitude of redundant labor force employed within the firm are listed below. An official of the Japan Federation of Employers' Associations assesses that there existed 2.02 million redundant employees only within manufacturing industries at the end of 1975. Kansai Keizai Dōyūkai, an association of entrepreneurs in the west Japan district estimates that redundant employment was 1.41 million (redundancy rate 12.7%) for manufacturing industries and 0.76 million (11.1%) for wholesale and retail industries as of May 1975. Sanwa Bank calculates that redundant employment in manufacturing industries amounted to 1.07 million in the second quarter of 1975. *Nikkei Business*, a widely read business journal, estimates that the amount of surplus employment was 1.57 million (11.3%) for the entire economy and 0.86 million (11.9%) for manufacturing sector as of July 1975. The most sophisticated assessment was made by Economic Planning Agency of the Government that

says 0.6 million employees were redundant within manufacturing industries in June 1975 and the corresponding redundancy rate was 5.8 per cent. For further details, see appendix 3. of the Ministry of Labour, *White Paper* On Labour (Rōdōshō 1976) pp. 213–216.

[2] The skelton of their model is as follows: It is postulated that the desired level of employment L^* may not be attained instantly but usually takes time of adjustment that proceeds at a certain speed λ or

$$L/L_{-1}=(L^*/L_{-1})^{\lambda} \tag{1}$$

where L is the current level of employment and lower suffix denotes time period. The desired level of employment L^* on the other hand is assumed to be determined by the following relation, which is derivable from a Cobb-Douglas type production function.

$$L^*=a\cdot Q^{b}\cdot(w/p)^{-c} \tag{2}$$

where Q is the planued output and w/p is the relative prices of labor and product. Substituting (2) into (1), we get the following equation that is used for estimation of parameters,

$$L=a^{\lambda}\cdot Q^{b\lambda}\cdot(w/p)^{-c\lambda}\cdot L_{-1}^{1-\lambda} \tag{3}$$

From the computed parameters, one could easily calculate the adjustment coefficient λ or the coefficient which expresses the speed of adjustment. The same model may be used to analyze the demand behavior of labor input $H\cdot L$ in place of L by taking hours worked H into consideration.

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