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AN INTERNATIONAL COMPARISON ABOUT THE CHANGES IN PRICES AND WAGES

by

Ryōichi Suzuki

I.

Against the background of an inflationary air in the Japanese economy since around the close of the "Iwato boom", various opinions have been put forth on the question whether the recent rise in prices has been caused by "demand pull" or by "cost push". Outstanding apparent facts are these: With the economic growth employment opportunities have been increased; This has resulted in narrowed wage differentials, particularly in the form of wage rises in medium-small size enterprises and tertiary industries; This has brought about a transformation in the price structure, in which prices for those industries employing labor-intensive pattern of production have been relatively pushed up; On the other side, a rise in the nation's standard of living has caused changes in the structure of effective demands and price rises in some certain commodities. Preferably economists call such a series of facts "a shift of price structure toward the Western pattern." Indeed it may be the case in some sense. Then, we want to question, how is the Western pattern with respect to the wage structure?

According to B. Ohlin's theory, under a condition of liberalized foreign trade price structures of two countries become similar; in the less developed country wages rise and capital costs fall, bringing about a new equilibrium. This argument, however, is one from a view-point of static "long-run". There, the processes of adaptation up to the birth of new equilibrium are put aside from consideration, and also the effects of capital accumulation are not taken into account. So far, an inductive theory grasping these factors from a dynamic viewpoint is not yet completed, and we must concentrate our study on empirical analysis. In a former article* the writer observed the inter-relations between productivity, employment and wages, so to speak the economy of labor, in European countries and America. As many years have passed thereafter, this paper intends a further study for the ten ensuing years**, to present a reference material for outlooking the coming course of the Japanese economy.

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* "Chinginseisaku to Koyoseisaku" (Wage Policy and Employment Policy), in Toyokeizai Shimposha, ed., Chinginmondai to Chingin Seisaku (Wage Problems and Wage Policy), 1959.

** Up to about 1962, the most recent year data are available at the writing of this paper.

In the above said former analysis, covering the period from the immediate postwar time through 1954, we obtained following findings:

(1) Japan, Italy and India are suffering from surplus population, while postwar Britain and France are being worried by shortage of labor force, especially for the necessary export promotion. In America some degree of unemployment, say, frictional unemployment, is remaining. West Germany experienced a period of confusion in early postwar years due to the destruction by war, but the reconstruction in later years has brought her near to the pattern of Britain and France.

(2) Accordingly in Britain and France the employment problem has not come into the open; instead, the wage problem is presenting itself. Wages are determined mainly by the conditions on the part of labor supply.

(3) In Japan, Italy and India the expansion of economic scale is reflected mainly in the rising wage level, rather than in the employment level. This indicates a dissolution of latent unemployment.

(4) A wage policy of Keynesian type may be useful with respect to the conditions of demand and supply of labir in the 1930s, but the major concerns of trade unions in those countries where the postwar inflation had been undergone are the real wages.

(5) In less developed countries common laborers are abundant, while skilled workers are scanty. This is due to the unbalanced developments of industrial techniques and the wideness of qualitative differentials within labor. It is working as a factor impeding the attainment of full employment. Contrarily in America differentials in wages are tending to contract.

(6) The correlationship between labor productivity and real wages is unexpectedly closer in less developed countries than in advanced countries. Such phenomenon, contradicting the existence of unemployed labor, is due to a kind of "uncompetitive group" existing in labor market for the above mentioned reason. A rise in productivity is immediately reflected in wages, because, on the ground of low standard of national living, there is no room to utilize such rise in productivity for the sake of social security or the like. And, as for employment problem, the marginal productivity theory appears to be applicable as it is, because the demand function of labor works upon employment with big weight. In contrast, in developed countries the supply function of labor exerts more strength, and so the fruit of a rise in productivity can be directed to enriching social security expenditures and the like. This is, so to speak, the result of the high standard of living.

(7) In France and Britain the wage fund theory is affecting favorably for labor, while in less developed countries unfavorably. However, the share of labor in income distribution is lower in France, where labor is in shortage, than in Britain and America. Hence, we can see, the factor determining the share lies mainly on the side of demand for labor, and the conditions on the side of supply are only secondary.

(8) For a stable level of employment, however, the supply of labor must be more inelastic in relation to the demand.

(9) In France, in spite of the shortage of labor, the prolongation of

roundabout production has not been so positively pursued. This seems to have been one of the reasons why the labor's share has not grown higher.

(10) Böhm-Wicksell's new wage fund theory asserts that a prolonged roundabout production brings about an employment decline. Such phenomenon can be seen actually only in India. In Japan and Italy positive decreasing of employment is not recognized, owing to the parallel advance in capital accumulation.

(11) Reconstruction plannings of almost all countries are found to have been under-estimation in the light of performances. This was caused by the under-estimation on investment propensity and investment efficiency, which had been effected by the low production activity in the early phase of reconstruction as well as by the technical innovation thereafter.

(12) Alone in America business cycles are seen to some extent. Other countries have been faced with inflation, and a promotion of saving is required. Hayek's conclusions in his "Profits, Interest and Investment" are appropriate in less developed countries.

II.

The above was the conclusions we reached on the economic situations up to 1954. Now we must go into the analysis of the later period. We shall begin with the data of America, relying mostly on the statistical figures in the "Kaigai Keizai Tokei" (Economic Statistics of Foreign Countries) compiled by the Statistical Bureau, Bank of Japan. In Table 1, the first impression we have is that the growth of national income for the recent eight years has been very unstable, presenting an appearance of cyclical movement with periodic time of four years. It is far from one deserving a name of steady growth. Wholesale prices have risen by about 8 percent for the ten years 1953–62, but remained stable for the later five years 1958–62. Between the rises in wholesale prices and consumer prices no significant gap is seen. In 1958–62, however, consumer prices registered a gradual rise in contrast to stabilized wholesale prices. The relative share of earned income in distribution been on sustained increase; during the 1940s it was some 65 percent, but in 1957 it topped to 70 percent, being thereafter the same or a little higher. This does not contradict the above stated conclusion (7) in the preceding section.

The national income of America is distributed into industries as follows for 1961;

Agriculture, forestry & fishery	4.3%	Mining	1.2%
Manufacturing	28.4%	Construction	5.2%
Transportation & communication	8.3%	Commerce	16.3%
Administration & defence	13.2%	Others	23.2%

The tertiary industry is carrying a substantial weight, but obviously manufacturing makes the major axis sustaining economic growth. So we shall consider with respect to manufacturing the inter-dependencies between labor productivity, real wages and employment. Here the level of real wages is obtained by deflating nominal wages for "wholesale" prices. It is the ratio

Table 1. Relevant Economic Indicators for America.

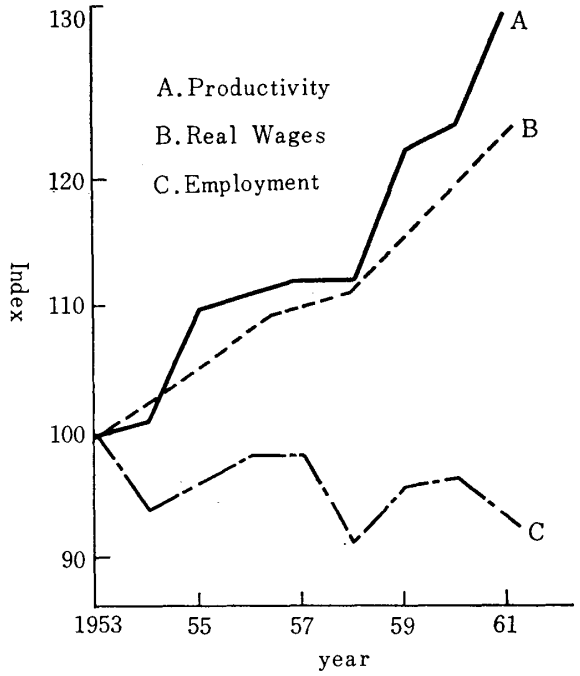
	Industrial Production Index	Employment Index	Hourly Wages (cents)	Wholesale Price Index	Consumer Price Index
1953	100	100	177	100.0	100.0
54	94	93	181	100.2	100.3
55	106	96	188	100.5	100.1
56	109	98	198	103.8	101.6
57	110	98	207	106.8	105.1
58	102	91	213	108.3	108.0
59	116	95	222	108.5	108.9
60	119	96	229	108.6	110.6
61	120	93	232	108.2	111.7
62	129	96	243	108.5	115.7

	Productivity Index	Real Wage Index	Nominal National Income (billion dollars)	Growth of National Income (%)	Share of Earned Income (%)
1953	100	100	305.6		68
54	101	102	301.8	− 1.24	69
55	110	105	330.2	9.40	69
56	111	108	350.8	6.25	69
57	112	110	366.9	4.60	70
58	112	111	367.4	0.	70
59	122	115	400.5	9.20	70
60	124	119	415.5	3.75	71
61	129	121	427.8	2.96	71
62	135	127	453.7	6.05	71

between prices of product and wages that primarily concerns the demand function of labor, which in the context of the while community may be presented as the ratio between wholesale prices and wages.

Chart 1 illustrates there correlation. In the ten years in question labor productivity (dividing index of manufacturing production by index of employment) showed a high rise of 35 percent. Also real wage index increased broadly in parallel but in slower pace, leaving time lags of one or two years. Employment was on a downward trend. It appears from these facts that, although changes in the industrial structure were somewhat interwoven in the rise in productivity, the rise was mainly achieved through a relation of high wages—need of employment decrease—advance of mechanization. It may have been the case at least in business' sense. In effect, a large increase in investment outlays has brought about the results as seen in Chart 1. This is a trend appreciably different from that before 1952.

Chart 1. Behaviors of Productivity, Real Wages and Employment in America



III.

Now we shall try a theoretical analysis of the effects of a change in labor productivity upon the levels of wage and employment. Let q denote volume of output, p price of product, l number of labor, w nominal wage. Suppose an increase in effective demand has caused an increase in the value of q. Since $q=\frac{q}{l}\cdot l$, $l\frac{d\frac{q}{l}}{dq}+\frac{q}{l}\frac{dl}{dl}=1$. If the elasticity of labor productivity with respect to output is shown by e_q, and similar elasticity of employment by e_l, we can write, similarly with the case of Keynes's elasticity of effective demand, $eq+e_l=1$. The former term presents the rate of rise in average productivity (and, if the form of production function remains unchanged, the marginal productivity of labor, hence, real wages) to be caused by the effect of demand increase upon q. The latter term shows the rate of contribution to increasing employment.

Let's observe Chart 2. First, we suppose an increase in effective demand has arisen without accompanying technical innovation and capital accumulation. In this case, we may consider only with regard to Curve I, i.e. the curve of marginal productivity of labor. The volume of employment at start is shown by OA, and the marginal productivity by AB. In order to increase q, employment must be enlarged to OC. In the new equilibrium the marginal productivity will be CD. The change in productivity here is expressed with;

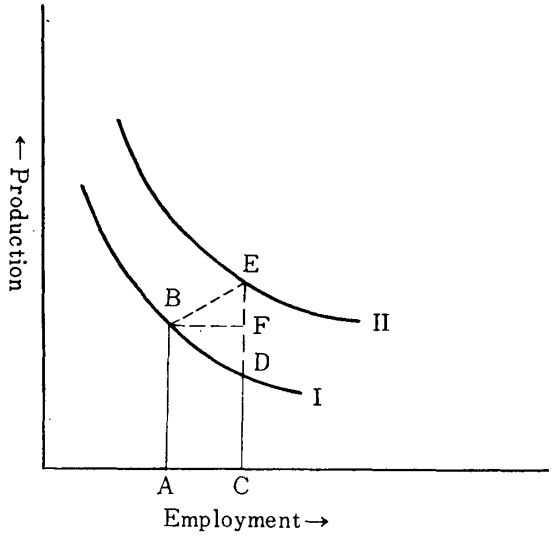
$$\frac{d\frac{q}{l}}{dq}=\frac{1}{l}\left(1-\frac{q}{l}\frac{dl}{dq}\right) \quad \cdots\cdots (1)$$

Since no shift in the marginal productivity curve is assumed, the second term in parenthesis of the right side is the reverse of k in Douglas' production function. In other words, so long as no technical innovation or capital accumulation occures, the changes in q and q/l point toward reverse directions. When, however, by technical innovation or capital accumulation the marginal productivity curve shifts to position II, the relations will be different. dq/dl in formula (1) represents CE in Chart 2, not CD. If O denotes the variable quantities at the base time-point and 1 denotes those after a shift in the marginal productivity curve, and if the proposition that marginal productivities of labor equals real wage respectively at base time-point and at any given time-point holds good, the height of AB equals w_0/p_0 and that of CE equals w_1/p_1. Then, dq/dl in formula (1) becomes $\frac{w_1}{p_1}-\frac{w_0}{p_0}$, and the whole of formula (1) can be rewritten as;

$$\frac{d\frac{q}{l}}{dq}=\frac{1}{l_0}\left[1-\left(\frac{w_1}{p_1}-\frac{w_0}{p_0}\right)\frac{q_0}{l_0}\right] \quad \cdots\cdots (2)$$

The sign of formula (2) depends on the degree of the shift in the marginal productivity curve and that of the increase in employment. As the shift in the marginal productivity curve is always arising more or less in dynamic process, simultaneous increases in both productivity and employment due to demand increase are possible. In the case of manufacturing in America 1953–61, however, the substitution effect between labor and capital seems to have been more influential than the increases in productivity and employment. Its reason may lie in the fact that steady rise in national income was not expected and signs of business fluctuation were recognized. While the growth rate of nominal national income for the ten years was 50 percent, money wage in manufacturing showed an increase of only 37 percent. Isn't this a result of prolonged roundabout production?

Chart 2.



Then, what a structural change is seen in American industry? Table 2 presents the changes in employment and wages by industrial (median grouping) sections, between September, 1959 and September, 1962. (U.S. Department of Labor, Monthly Labor Review). By the figures we have an impression that the structure of American industry is more unstable than it appears to be. In contrast to the increases in employment for primary metals, arms and rubber goods sections, decreases are seen for sections of miscellaneous manufacturing, oil & gas, machinery and wooden goods. Whether such changes are reflecting the prolongation of roundabout production or not, we cannot say from our date alone (because of, for instance, decreased employment for machinery section). Sections showing high rate rise in nominal wages are textile, machinery, transport equipment and tobacco manufacturing. In contrast the rates are low for wooden goods and rubber sections. We can find no direct correlationship between the level of wages and the

Table 2. Changes in Wages and Employment in America, by industrial sections

	1959 (Sept.)		1962 (Sept.)		Change	
	Wages (A) (dollars)	Employment (B) (1000 persons)	Wages (C) (dollars)	Employment (D) (1000 persons)	(C)/(A) (%)	(D)/(B) (%)
0. Arms manufact.	105.22	71.1	116.31	101.1	8.64	42.2
1. Wooden goods	82.01	628.4	82.01	566.2	0	−9.9
2. Stone & glass	92.06	467.7	101.50	480.5	9.15	2.74
3. Furniture & home appliances	75.58	323.9	81.54	322.7	6.96	−0.37
4. Primary metals	106.67	609.2	118.40	911.9	11.00	49.80
5. Metal goods	99.91	840.7	106.91	872.8	7.00	3.60
6. Machinery	101.02	1,169.5	112.74	1,020.7	16.00	−12.75
7. Electrical equipment & appliances	90.54	891.8	99.22	1,060.1	9.60	18.75
8. Transport equipment	108.13	1,203.9	124.49	1,136.2	15.10	−5.62
9. Precision instruments	93.89	230.2	99.72	230.9	6.20	0.03
10. Miscellaneous manufact.	76.95	416.0	78.01	336.0	13.60	−19.25
11. Food	86.53	1,167.9	93.18	1,319.6	7.68	13.00
12. Tobacco	63.65	98.0	71.34	99.9	12.05	1.94
13. Textiles	57.45	890.2	67.54	795.5	17.60	−10.5
14. Clothes	55.85	1,105.7	61.69	1 126.9	10.45	1.91
15. Paper	96.54	459.4	104.49	484.9	8.25	5.56
16. Printing & book binding	105.65	567.6	109.91	603.1	4.02	6.43
17. Chemicals	105.33	540.4	110.81	524.5	5.20	−2.94
18. Oil & coal	120.18	153.5	130.90	125.0	8.94	−18.50
19. Rubber	102.01	213.0	102.42	309.4	0.04	45.20
20. Leather	59.25	335.9	64.53	319.9	8.93	−3.62
21. Mining	107.71	478.0	112.88	514.0	4.80	7.54
22. Wholesale trade	91.53	2,668.0	97.51	2,666.0	6.54	0
23. Retail trade	67.82	8,377.0*	66.70	8,527.0*	1.68	1.79

Note: Wages are weekly wages; employment is production workers, except retail trade with all workers.

rate of wage increase. In textile, machinery, transport equipment and miscellaneous manufacturing the high rates of wage increase are conceived to have been the cause of decrease in employment. For tobacco and fabrics sections the rates of wage increase are relatively high and those of increase in employment are low. Contrarily an industry showing low rate of wage increase and high rate of employment rise is rubber manufacturing. This reverse correlation is disturbed by primary metals and wooden goods sections. For these two sections, however, a big change in effective demand is thinkable. Excepting these, generally the phenomenon of mechanization appears to have emerged being promoted by high wages.

IV.

Next, how is it about the correlation between productivity and wages by cross section analysis? In Table 3, production indices by industrial (median group) sections are respectively contrasted to employment indices computed from Table 2. As the grouping in production indices is relatively crude, in order to adjust for the difference between two indices we include electrical equipment and precision instruments into machinery, textiles and fabrics into clothes & textiles, and rubber into chemicals & oil. For employment index man-days index is employed, and wage index is the average weighted by 1961's employment. The correlation between indices of productivity rise and wage increase is figured in Chart 3. The picture as a whole is rather random. Equality between two indices is recognizable only for (1) metal ware manufacturing, (3) transport equipment and, to a lesser degree, for (7) paper manufacturing & printing. (As wholesale prices were stable for this period, the gap between value productivity and physical productivity seems to have been not so large. For a more precise analysis an examination by commodity groups may be necessary.) For primary metals processing, with a big increase in employment, wages increased in spite of decreasing productivity. A similar trend is seen for food processing to a certain degree, but in most sections the rate of wage increase is lower than that of productivity growth. As for commerce (in Chart 3, No. 11) calculation is based on the following data.

	1958	1961
Commercial income.....	66.57 bill. dollars	69.63 bill. dollars
Consumer price index	108.0	111.7
Employment.....	107.50 thousand	113.65 thousand

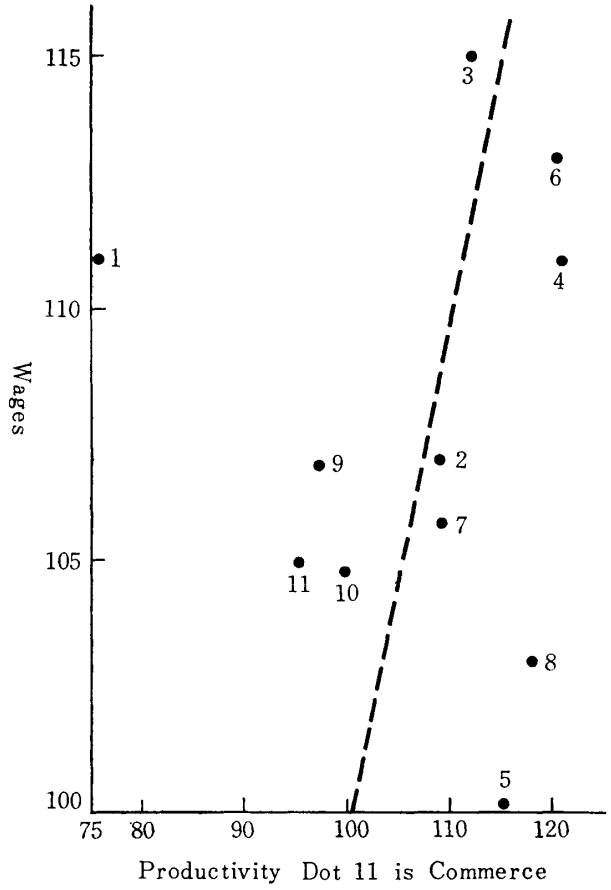
(Note; we take consumer prices because distribution costs are involved in the income of commerce.)

By the calculation on these data, per-head real income (labor productivity) for 1961 presents 95.5 percent of that for 1958; a decline. On the other hand, nominal wages rose to 105.0 percent in 1959–62; to take the rise in consumer prices, 100.05 percent. It is thinkable that this increase in distribution cost gave birth to the gap, though slight, between consumer and wholesale prices. Since the wage level in retail trade was low, being next to textiles

Table 3. Correlation between Productivity and Wages in America, by industries

	Production Index (1958—61)	Employment Index (1959—62)	Productivity	Nominal Wage Index
1. Primary metals	113	150	75.5	111.0
2. Metal products	114	104	109.5	107.0
3. Transport equipment	106	94	112.5	115.4
4. Machinery	122	101	121.0	111.4
5. Wood	105	90	116.5	100.0
6. Clothes & textiles	117	97	120.5	113.3
7. Paper & printing	116	106	109.5	105.8
8. Chemicals & oil	124	105	118.0	103.9
9. Food & drinks	111	113	98.3	107.7
10. Mining	108	108	100.0	104.8

Chart 3. Correlation between Productivity and Wages in America



and leather, as seen in Table 2, nominal wages must have been raised even without rise in productivity, if the labor mobility was large.

Supposedly reflecting the advance in mechanization, unemployment increased as follows.

1955	2.900 thousand persons	1959	3,810 thousand persons
1956	2,820 〃	1960	3,930 〃
1957	2,940 〃	1961	4,810 〃
1958	4,680 〃	1962	4,010 〃

Of course, increasing labor population had been making the background, but such increase in unemployment resulted from one of two causes; the expansion of economic scale was not large enough to absorb growing labor population, or, the inducement of capital was brisk to replace labor. The latter seems to have been the case by our above analysis. If so, it means that Böhm-Wicksell's new wage fund theory applies in advanced countries also.

Lastly, we shall examine data on agriculture.

	1958		1961	
Agricultural population	5,844	thousand persons	5,463	thousand persons
Index of production	100	〃	125	〃
productivity Index	100.0	〃	133.5	〃

Due to such rise in productivity agricultural prices dropped to 92.5 percent in 1961 (base 1958), in contrast to wholesale prices remaining stable for the three years. (Agricultural population makes up only less than 10 percent of total labor power.)

V.

In Britain, nominal national income has shown a near "steady growth", the share of earned income in distribution being on a gradual rise. This is a small difference from the case in America, but the growth of nominal national income owes to inflation in no small measure. While in America the rise in consumer prices was 16 percent for the ten years, it marked as high as 31 percent in Britain. Also whole-sale prices there turned to a rising trend since 1959. And, the gap between the rises in consumer and wholesale prices was wider than in America. In view of these facts it is impossible to appraise the remarkably high rate growth of British economy.

The composition of national income by industries for 1956 is as below.

Agriculture, forestry & fishery	4.4%		
Manufacturing	44.1%	Mining	3.7%
Administration	6.4%	Commerce	12.4%
Finance & services	14.7%		

In Britain also manufacturing makes obviously the trunk of economic development. Major indicators for manufacturing are shown in Table 4, and correlations between productivity, level of real wages and employment are figured in Chart 4.

There is a great difference from the case in America on the following points.

Table 4. Relevant Economic Indicators for Britain

	Industrial Production Index (A)	Employment (B) (1000 persons)	Industrial Employment Index (C)	Hourly Wages (D) (pences)	Wholesale Price Index (E)	Consumer Price Index
1953	100	8,746	100	49.2	(100)	100.0
1954	106	8,976	103	52.5	100.0	101.8
1955	116	9,206	105	56.9	103.4	106.4
1956	112	9,269	106	61.1	106.7	111.7
1957	114	9,271	106	65.3	110.2	115.8
1958	113	9,147	104	67.1	111.0	119.3
1959	120	8,477	105	70.0	111.4	120.0
1960	127	8,811	109	76.8	113.1	121.2
1961	128	8,928	110	81.5	115.7	125.3
1962	129	8,852	110	84.5	118.0	130.5

	(A)/(C) (Productivity)	(D)/(E) (Real Wages)	National Income (in million pounds)	Growth of National Income	Share of Earned Income
1953	100		14,910		65%
1954	103	100	15,896	6.6%	65
1955	106	105	16,821	5.8	67
1956	106	109	18,412*	7.7	67
1957	108	113	19,492	5.9	67
1958	109	115	20,281	4.3	67
1959	114	120	21,125	4.2	68
1960	116	129	22,395	6.0	68
1961	116	134	23,694	5.8	69
1962	117	136	24,520	3.5	69

* A year of revision

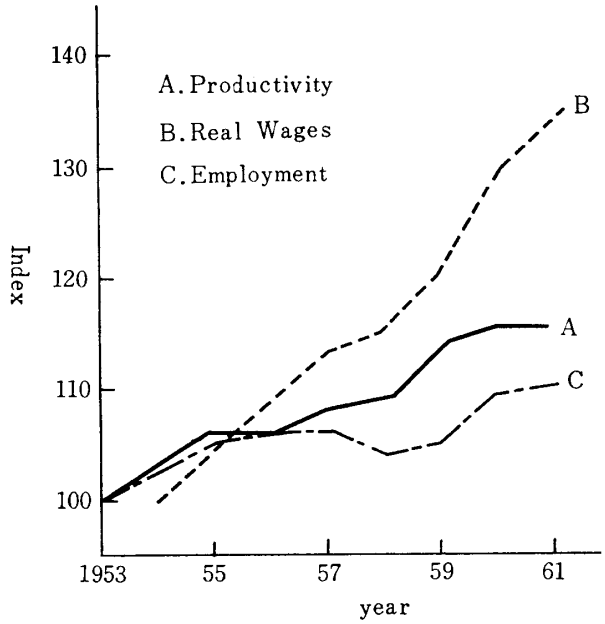
(1) The rate of productivity rise for the ten years is 17 percent, far lower than 35 percent in America. This difference in pace is reflected in the difference of price rise rate.

(2) Although a small decrease in employment occured in 1958, the trend of employment has been on gradual increase in contrast to that in America. Also factors are few that suggest rapid advance in mechanization. Employment increases by industrial (median group) sections 1958–61 are as follows:

Machinery industry .....0.7% Total manufacturing ...−2.5%
Car & wheel industry ...−25.8% Construction 8.4%
Metal industry .....12.5% Textile industry 3.4%

These figures are somewhat rough since there is a small change in the contents of labor survey between the two years. But we can see an increase in metal industry, in contrast to a decrease in machinery industry. As for production index, rises in 1958–61 are:

Chart 4. Behaviors of Productivity, Real Wages and Employment in Britain



Total manufacturing av.	14.7%	Textiles	11%
Cement & related goods	22 %	Food	10%
Steel	14 %	Wooden goods	16%
Non-ferrous metals	16 %	Paper	20%
Machinery	13 %	Construction	20%
Chemicals	24 %	Mining	−0.7%

High rate rises for cement and chemicals are noticeable, but we cannot find definite data to conclude a prolongation of roundabout production.

(3) The inrcease in real wages is far exceeding productivity, which may be a cause for inflation. The rate of unemployment moved:

1956	1.2%	1957	1.4%
1958	2.1%	1959	2.2%
1960	1.6%	1961	1.5%
1962	1.9		

Although there are some fluctuations accompanying business cycles, any sign of structural unemployment following the prolongation of roundabout production, as is seen in America, is unrecognizable. It may be said that this is also making the worry of Britain with inflation and low rate of production growth.

Figures of incomes by industrial sectors are available only up to 1960 at the writing. Data on commerce for 1958–60 are:

Growth rate of commercial income	11.4 %
Rate of consumer price rise	1.76%
Rate of employment increase	12.0 %

The rate of rise in productivity, calculated from these figures, shows 7.7 percent, surpassing that of manufacturing. This appears to tell the major reason why the gap between wholesale and consumer prices did not widen

during the years. In 1961, however, the gap was enlarged, in spite of increasing retail sales and supposable rise in productivity.

The rate of the rise in retail prices for the five years 1956–61 is 14 percent. High rate is seen for housing, services, light and heat expenses, sundry goods and communication charges, and low rate for consumer durables, alkohol drinks and clothes. This difference by commodity groups resembles the case in Japan, excepting food with 9 percent, lower than the average. In Britain food depends substantially on import, but as for domestic agriculture we have:

	1956	1961
Production index ...	100	150
Employment	1,032 thousand persons	943 thousand persons

A 65 percent rise in productivity is seen in the five years. Perhaps this makes one of the factors preventing sharp rise in food price.

On the above descriptions we may conclude:

(1) In Britain we cannot find materials for positive negation of the proposition that rate of productivity change affects relative prices.

(2) For manufacturing, real wages have risen beyond the rise in productivity, and employment has remained unchanged or showed gradual increase making a cause for inflation. This seems to suggest the inappropriateness of an explanation from the side of demand for labor, that is to say the demand for labor, being promoted by increasing effective demand and production, resulted in the increases in wages and employment. Rather, it seems to tell the predominance of the behaviors of the supply side due to labor shortage. In order to prevent such wage-price spiral, mechanization and productivity rise are necessary. But we can find no index reflecting the prolongation of roundabout production, maybe due to the shortage of capital accumulation.

(3) The share of labor in income distribution has been on gradual rise, but yet lower than in America. This appears to have correlation with the difference in total amount of national income.

VI.

In France the growth rate of nominal national income is fairly high, and that showing nearly a steady growth. Its growth rate is higher than that of Britain, although prices rose somewhat higher. Major economic indicators are shown in Table 5, and the correlations between productivity, real wages and employment in Chart 5. The rise in productivity for nine years recorded 81 percent, far exceeding 17 percent of Britain and 35 percent of America (both for ten years). This may be an effect of the equipment modernization. Productivity jumped over real wages of 48 percent increase and employment of 8 percent increase. It is well inferable that the surplus born from the higher rise in productivity was directed to the capital accumulation for modernization. The share of earned income in distribution is lower than in Britain, but gradually increasing. Perhaps this owes to the fact that, through

mechanization, the marginal productivity curve shifted upward. The prolongation of roundabout production is laterally given evidence by production indices of manufacturing by sections, below; for 1961, basic year 1952:

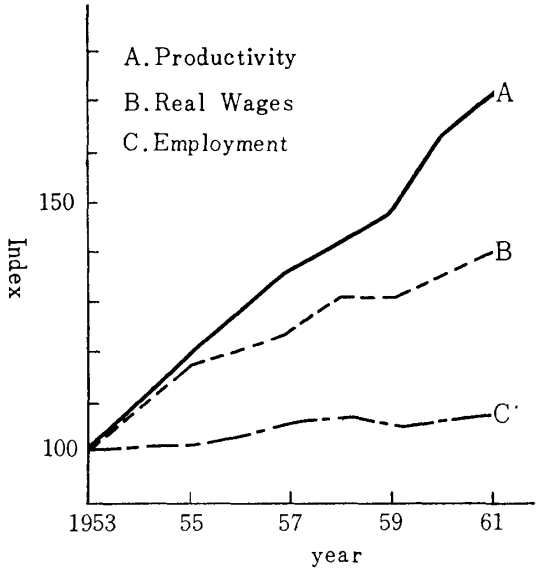
Mining	115	Rubber manufact.	175
Power industry	178	Textiles	138
Steel	163	Leather	111
Non-ferrous metals	230	Paper	232
Metal processing	183	Construction	129
Construction materials	162	Chemicals	338

The rates are hige for chemicals, paper, non-ferrous metals and metal processing, while low for leather, mining and textiles. This represents the intensification of industrial structure in this country making a great contribution to the rise in productivity.

Table 5. Relevant Economic Indicators for France

	Industrial Production Index	Employment Index	Wages (hourly, francs)	Wholesale Price Index	Consumer Price Index	Productivity	Real Wage Index	National Income	Growth of National Income	Share of Earned Income
1953	100	100	124.2	100	100.0	100	100	1,116		
1954	110	101	131.5	97	99.7	109	109	1,190	6.6%	58%
1955	120	101	141.6	97	101.8	119	117.5	1,292	8.6	58
1956	133	103	152.4	102	102.8	129	120	1,433	10.9	59
1957	145	106	164.4	106	105.5	137	124.5	1,596	11.4	59
1958	151	107	183.8	113	121.4	141	131	1,800	12.8	60
1959	156	105	194.8	120	128.9	148.5	131	1,934	7.5	61
1960	174	106	2.11	125	133.6	164.5	136	2,150	11.1	61
1961	184	107	2.25	129	138.0	172	140	2,332	7.8	62
1962	195	108	2.45	133	144.5	180.5	148			

Chart 5. Behaviors of Productivity, Real Wages and Employment in France



Also in this country consumer prices have risen faster than wholesale prices, but the gap is observed only after 1958, having no correlation with the growth rate of nominal national income. We cannot analyze the distribution costs due to lack of data, but we can point out marked rises in the prices of labor service from data on consumer price rises by groups for 1956–61; high rises for services (155.0%), amusements (150.5%), housing and rent (181.8%) and communication expenses (144.0%), and low rate rises for home appliances (120.9%), milk & egg (122.7%), shoes & textile goods (122.5%) and vegetables (125.6%). The index of agricultural production showed a 46 percent rise for three years, making a good help to restrain price rise. The change in price structure in this country resembles that of our country, but the rise in agricultural prices is moderate, in common with Britain.

Major indicators for Italy are provided in Table 6. The growth rate of nominal national income is a little higher than in Britain and lower than in France and W. Germany. Wholesale prices have remained stable for the ten years, and national income has shown a steady growth. The rise in consumer prices is rather moderate; lower than in France and Britain and higher than in W. Germany. The gap between wholesale and consumer prices is seen similarly with other countries, but its degree is relatively small. Incomes by industries for 1960 is as follows:

Agriculture, forestry & fishery	...17%	Mining	..... 1%
Manufacturing	.....32%	Construction	..... 7%
Transportation & communication	...7%	Commerce	..... 9%
Administration & professional	.....27%		

Clearly manufacturing is the main pillar of growth. Correlations between productivity, real wages and employment are figured in Chart 6. Similarly with France, the rate of productivity rise is enormously high, leaving those of real wages and employment behind. Indices of industrial production by

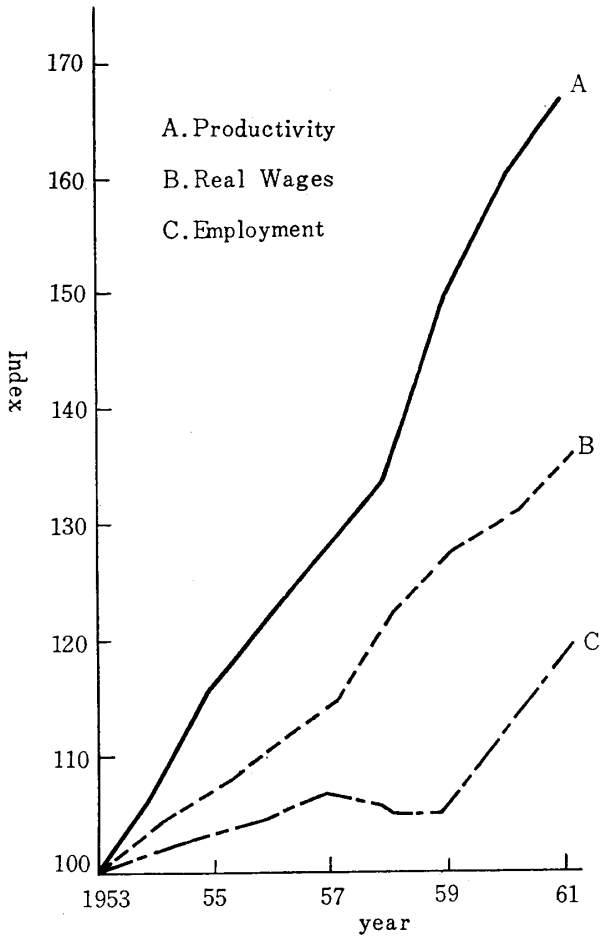
Table 6. Relevant Economic Indicators for Italy

	Industrial Production Index	Employment Index	Productivity	Nominal Wage Index (hourly)	Wholesale Price Index	Real Wage Index	Consumer Price Index	National Income (billion lira)	Growth of National Income
1953	100	100	100	100	100	100	100		
1954	109	102	107	103	99	104	103	11,880	
1955	120	103	116.5	107	100	107	105	12,995	9.4%
1956	128	105	122	113	101.7	111	108.8	13,939	7.3
1957	137	107	128	117	102.7	114	110.2	14,962	7.3
1958	142	105	135	123	100.9	122	113.3	15,915	6.4
1959	158	105	150.5	125	97.9	127.5	112.8	17,477	9.8
1960	180	112	160.5	129	98.8	130.5	115.4	19,078	9.7
1961	200	(119)*	168	134	99.0	135.5	117.8	20,975	10.0
1962	220			145	102.0	142.0	123.5		

Note; data on dividend income are unavailable because they are not reported to the United Nations.

(*denotes figure for June, 1961.)

Chart 6.



sections for 1961 show high rate rises (base year 1953); for chemical fibres 326%, chemicals 273%, transport equipment 256%, oil refining 256%, metals 248%, and ceramics 224%. In contrast, slower growth is seen for; textiles 126%, woods 152%, tobacco 138% and food 159%. Herein we can find the cause for rising productivity, based on the intensification of industrial structures and prolongation of roundabout production. However, due to the high rate of growth, the substitution between labor and capital is not so explicitly manifested as in America.

Among wholesale prices by groups, those with high rate for 1953–61 are; culture and amusement expenditures of 146% and transportation charges of 135.3%. Low rates are for auto & bicycle 95.3% and electricity and gas 99.8 %. Food with 113.8% is also a little lower than the average. Rises in labor and service and decline in capital service is clearly presented. Agricultural production showed smooth growth, with a 48 percent rise for 1958–61.

VII.

Situations in W. Germany are somewhat different from those in France

and Italy. The growth rate of nominal national income is substantially the same with that in France, as seen in Table 7. A slight rise in wholesale prices is seen, but not so significant. The growth is steady with smaller inflationary effects as compared with France. Also the rate of consumer price rise is relatively low. Thus far positions resemble those in Italy. Incomes by industries for 1960 are:

Agriculture, forestry & fishery 7% Mining & manufacturing 52%
Transportation & commerce ...20% Administration & professional 21%

The weight of manufacturing is high samely with, or higher than, other European countries. However, the correlations between productivity, real wages and employment, as shown in Chart 7, are of inflationary trend, more clearly than in Britain in Chart 3. Then, is the germ of mechanization for raising productivity emerging? In the production indices for 1961 high rates are found for investment goods of 365% (base year 1950) and basic materials of 275%, while low rates for mining with 150% and consumer goods with 220%. Herein a tendency toward prolonged roundabout production is clear. Nevertheless the rise in productivity has not been catching up with those in real wages and employment, because, for one thing, the substitution between capital and labor does not explicitly presents itself because of the high rate growth. Another explanation may be that the real wages in the base year 1953 were too low. To prove this explanation, we must make international comparison of real wages and productivity for 1953, or measure the Douglas production function of the time. If the wages were not low at the base time, we must say mechanization has been delayed due to insufficient capital accumulation, despite of appreciable differentials in the production indices by industrial sections. It is problematic to say, however, that this means a resemblance to British type. In view of significant changes in industrial structures, factual analysis about each particular section may be necessary.

Employment in commerce (including finance, hence with fear of some error) and volume index of retail sales, as shown in Table 7, reveal that the

Table 7. Relevant Economic Indicators for W. Germany

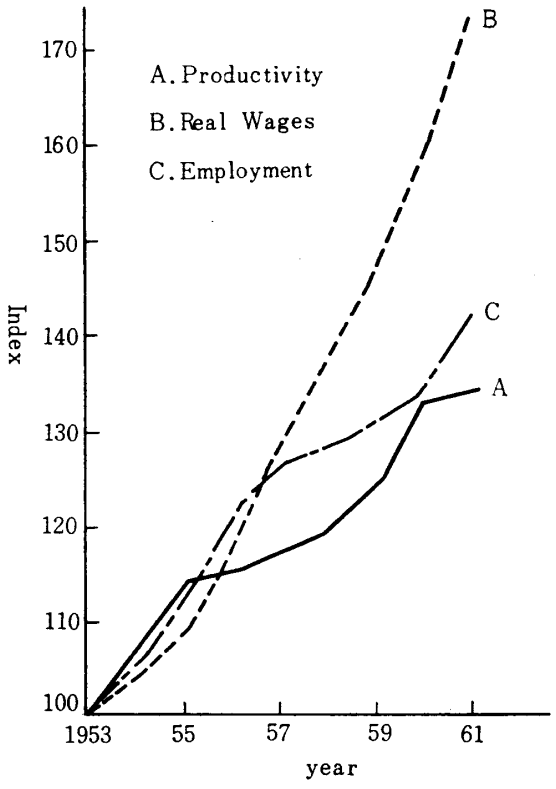
	Industrial Production Index	Employment Index	Productivity	Hourly* Wages (Mark)	Wholesale Price Index	Real Wage Index	Consumer Price Index
1953	100	100	100	1.63	100.0	100	100.0
1954	112	105	107	1.67	98.4	104	100.1
1955	129	113	114	1.78	100.1	109	101.7
1956	139	121	115	1.94	101.5	117	104.4
1957	147	126	117	2.17	103.4	129	106.5
1958	152	128	119	2.32	103.0	138	108.8
1959	162	131	124	2.44	102.2	147	109.9
1960	179	134	133	2.68	103.4	159	111.4
1961	191	142	135	2.96	104.9	173	114.3
1962	200			3.30	106.0	185	118.3

* Hourly, in Mark.

	National Income (billion mark)	Growth of National Income	Share of Earned Income	Farm Population (1000 persons)	Commercial Population (1000 persons)	Agricultural Production Index	Retail Sale Index
1953	110.6		59.5	970.8	1,603.7	100	
1954	119.7	8.3	60.2	925.3	1,733.3	101	100
1955	137.5	14.9	59.6	879.6	1,880.7	102	110
1956	152.1	10.6	60.5	862.9	2,059.3	102	120
1957	165.8	9.0	60.7	873.6	2,235.1	102	
1958	177.5	7.1	61.4	771.2	2,339.8	109	130
1959	192.2	8.3	61.7	768.5	2,466.3	121.5	135
1960	220.2*	11.0	60.7	657.0	2,663.3	130	146
1961	240.8	9.4	62.2	584.1	2,777.0	160	156
1962	260.2	8.1	64.0	531.5	2,920.7	179.5	163

(*Below Saar is included.)

Chart 7.



per-employee sales volume is almost unchanged either for 1958–61 or for 1954–61, and so it is impossible to say higher efficiency in commerce has worked to prevent the rise in consumer prices. Among consumer price indices by groups for 1961 (base year 1958) high rates are for housing of 118.0% and culture and amusement expenditures of 108.7%, and low rates for drinks and tobacco of 99.0% and furnitures with 101.1%. Here, rises in service prices and shortage of housing are apparent, as in other European countries. It should be noted that, samely as is in Japan, the price of vegetables marked 145 percent in

1961 (base year 1950), the highest among retail prices registering mean value of 115. As Table 7 shows, farm population has declined drastically, and the index of labor productivity has recorded steep rises to 154 for 1958 and 266 for 1961. The stable vegetable price for 1958–61 may be explained by this high priductivity, but general situations before this period remain questionable. For, agricultural prices cannot be explained solely by productivity, still more in view of the stable consumer prices lacking in productivity increase (our analysis is incomplete because data on agricultural wages are unavailable). Anyhow, a further detailed study is necessary for German economy.

VIII.

It is generally said that the Japanese economy is making a miraculous growth. The growth rates of nominal national income for recent five years are; 4.5% for 1958, 16.8% for 1959, 13.2% for 1960, 16.0% for 1961 and 10.5% (estimate) for 1962. The average for the years is 12.2%, being a high one compared with other countries, even when the 20 percent rise in consumer prices is taken into account. Hence, the problem facing present Japan is not such "aggregate" one as stagnation, but one concerning the structural change, particularly the limping trend between wholesale and retail prices. During the period 1953–62 the volume of manufacturing production has increased 3.47—fold and the level of employment 2—fold. The rise in labor productivity is 79 percent, and that of real wages 84 percent. These relations are indicated in Table 8 and Chart 8. In the meantime manufacturing has raised its share in national income from 24.3 percent in 1953 to 29.8 percent in1962. However, the rise in productivity is behind that in real wages, as seen in the Chart. For such a phenomenon an advance of mechanization is thinkable, but employment also has realized a very high rate of growth. Two reasons for this are supposable. First, due to the extremely speedy growth of manufacturing production, mechanization, if any, did not require standstill or decline in

Table 8. Relevant Economic Indicators for Japan Agriculture

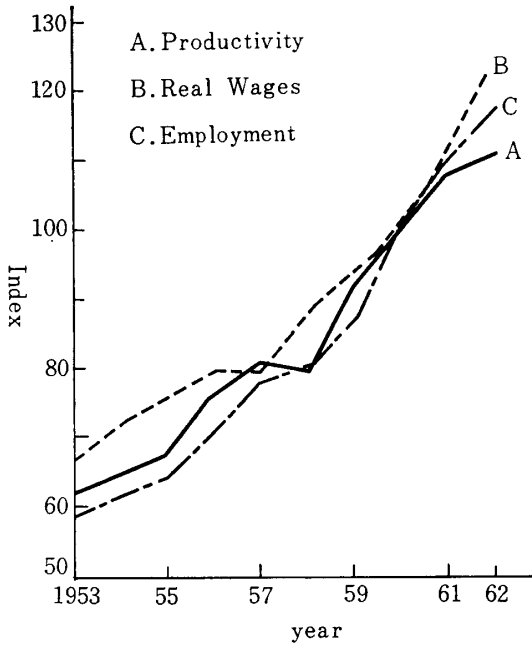
	Agricultural Production Index	Labor Force (1,000 persons)	Daily Wages* (yen)	Rural Price Index	Productivity	Real Wages
1953	93.4	14,560	264	108.7	72.5	81.4
1954	102.9	13,580	292	105.2	85.6	93.0
1955	124.5	14,090	301	100.7	100.0	100.0
1956	117.4	13,310	311	98.4	100.0	106.0
1957	122.1	13,760	326	100.0	100.0	109.0
1958	127.2	12,770	340	96.7	112.7	117.5
1959	130.6	12,040	351	98.5	122.5	119.0
1960	133.3	11.880	382	104.0	126.7	118.3
1961	134.6	11,460	466	113.1	132.5	137.7
1962	135.4*	11,570*	552.5	115.8	132.1	160.0

* Preliminary (yen, daily pay for male worker)

Manufacturing

	Production Index	Employment Index	Productivity	Nominal Wage Index	Wholesale Price Index	Real Wage Index
1953	37.3	58.4	62.0	67.2	99.8	67.3
1954	39.8	61.5	64.5	70.8	99.2	71.5
1955	43.0	63.5	67.7	73.6	97.5	75.5
1956	53.0	69.5	76.3	80.4	101.7	79.2
1957	63.0	78.0	80.7	83.2	105.0	79.2
1958	63.2	79.7	79.0	85.5	97.8	87.5
1959	79.6	86.5	92.0	92.6	98.8	92.8
1960	100.0	100.0	100.0	100.0	100.0	100.0
1961	119.9	110.7	108.3	111.8	101.0	110.5
1962	129.1	116.8	111.0	123.0	99.3	124.0

Chart 8.



employment. Second, the rise in productivity was hampered by the attitude of enterprises that had to stick to the traditional labor-intensive production partly due to the difficulty of raising money, although apparently mechanization would bring about cost reduction. This might be a transitional phenomenon, but in a sense resembles the situations in Britain.

These facts in manufacturing, i.e. increasing labor demand—progress of mechanization—growing labor mobility, have worked influences on other industries. In agriculture, farm labor population began to decline with 1957, being most remarkable in 1958–9 and thereafter stagnant. It seems, the labor

outflow to manufacturing reached a pause then, but at the same time, daily wages of farm labor turned to steep rise. Farm real wages rose by 35 percent during 1959–61, although agricultural prices also showed some increase. As the rise in productivity was about 7 percent, the gap between productivity and real wages was wider than in the case of manufacturing, resulting in the rise in agricultural prices. In contrast to total wholesale prices remaining at crablike positions for the three years, a 17 percent rise was recorded for agricultural products, particularly for vegetables. The basic reason for such rise lies in the said wide gap between real wages and productivity, requiring modernization in agriculture for its cure. It must be noted, however, that such gap was not one bringing hardship to farm households as enterprise. Surplus income of farm households increased: 25,534 yen in 1958, 32,359 yen in 1959, 44,573 yen in 1960, 50,283 yen in 1961. Farm consumption level also rose by 22.8 percent in real terms for 1959–62. This trend will continue as long as the expansion of effective demand, particularly that for dairy products, is sustained following the increase in national income.

IX.

Recently the problem of increasing distribution cost is earnestly discussed. It has been raised from the faster rise in consumer prices as against wholesale prices, the former registering 12 percent for 1960–62 while the latter being constant. In the background of this phenomenon a problem of changing cost structure, in other words the westernization of cost structure, accompanying capital accumulation, is involved, say, "dear consumer goods and cheap production goods." We shall first take up the cost in distribution. As adequate indices of volume of commercial sales are not available, we must use per-employee real income as the index of productivity. As for 1962, however, the national income figures are not yet publicated, so we rely on the data of charge in sales volume 1961 to 62 for computing productivity, assuming that the shares remain unchanged. The figures on employment in Table 9 include finance and estate business employees, since they are not specified in the survey of labor force. This implicitly assumes parallel movements between finance-estate employees and wholesale-retail trade employees. Contrastively to farm population, commercial population has shown no marked decrease, although it began to decline since 1960 after steady increases in preceding years. Productivity rose sharply in 1950–60, but was stagnant for 1961–62. On the other hand, wages moved as follows:

	Nominal wages	Real wages
1959	21,457 yen	20,850 yen
1960	23,139	21,900
1961	24,144	25,300
1962	26,907	32,100

(monthly wages)

Real wages as cost have recorded a sharp rise in 1961–62, and resulted in the consumer price rise side by side with the stagnant productivity. To solve

Table. 9. Data on Commerce in Japan

	Nominal Commercial Income (billion yen)	Retail Price Index	Real Commercial Income	Commercial Population (1000 persons)	Per-Employee Real Income
1952	832	100.0	832	6,010	138.5
1953	912	103.5	880	6,510	135.0
1954	963	106.9	900	7,510	120.0
1955	1,065	102.4	1,040	7,330	142.0
1956	1,234	102.1	1,210	7,940	152.5
1957	1,302	104.4	1,245	7,680	156.0
1958	1,334	103.2	1,295	8,320	155.5
1959	1,604	102.9	1,330	8,490	156.5
1960	1,926	105.7	1,820	9,000	202.0
1961	2,220	110.9	2,000	8,710	229.5
1962	—	115.2	—	8,990	229.0

the problem a decrease in employment by way of capital-intensive method of trading may be necessary.

To speak from classical view, the value of labor rises with economic growth, and naturally prices in capital-intensive industries decline relatively more. Next, we shall positively examine the "westernization of price structure" and its effects upon employment and wages.

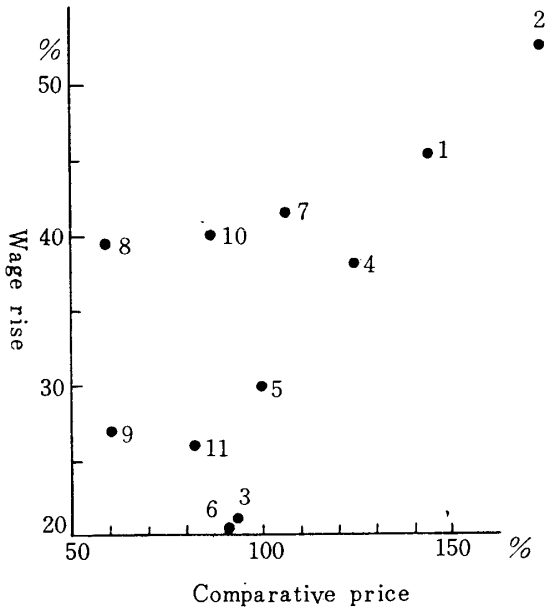
In the case of Japan, the most weighty effect of trade liberalization will come from the relation with American economy. Prices of principal commodities in both countries as for the summer of 1961 are compared in Table 10. The comparative prices there are obtained by dividing export prices in America (after converting into yen prices) by domestic market prices in Japan and then multiplying the results 100-fold. If a relative price is over 100, Japan's ware is cheaper. On the other hand, the multiple rates of wages in the Table are computed by dividing average wages in American industrial sections (in U.S. Department of Labor; Employment and Earnings, Sept., 1959) by those in Japan (in Ministry of Labor; Monthly Labor Statistics). On the Table, the Spearman's coefficient of rank correlation becomes 0.734, representing some degree of correlation (putting aside the smallness of sample). Hence, we could say "wages are relatively low in those industries with relatively low prices of products".

In Chart 9 is illustrated the correlation between the rates of wage increase for 1959–62 and the comparative prices, as computed in Table 10. (As to those industries with several sorts of products, e.g. steel, mean value of such several prices, or where even numbers simple arithmetic average of median two values, is taken as the comparative price.) By the Chart we could broadly say that high rate of wage increase is recognized for those industrial sections with relatively low comparative price, excepting an extreme case of leather manufacturing. This seems to tell that, with economic growth, even under condition of closed economy the price structure tends to shift toward patterns of advanced countries, and, in addition, the trade liberalization has worked

Table 10. US-Japan Comparative Prices and Wages

Comparative Price		Industry	Multiple Rate of Wages	Change (Japan) 1959-61	1959-62
Cotton yarn	144	1. Textile manufact.	6,580	26.4%	45.5%
Cotto fabric	111	2. Fabric manufact.	7,492	30.0	52.5
Rayon yarn	173				
Staple fibre	227				
Pig iron	97.5	3. Primary metal manu-	5,384	17.2 (steel)	
Steel bar	117.0	fact.			21.0
Steel plate	90.8				
Steel thin plate	75.9				
Electro-copper	87.0			19.5	26.5
Electro-lead	98.4			(non-ferrous	
Electro-zinc	86.5				metals)
Tin	97.4				
Aluminium	100.5				
Cement	125	4. Stone & glass manufact.	6,778	22.1	38.0
Ammonium sulfate	112.3	5. Chemicals	6,458	19.2	30.0
Caustic soda	97.4				
Rayon pulp	89.0	6. Paper manufact.	6,258	11.2	20.5
Bean oil	92.5				
Crude rubber	106	7. Rubber manufact.	10,010	25.0	41.5
Cowhide	59.0	8. Leather manufact.	4,483	24.4	39.5
Coal	60.2	9. Mining	5,657	16.7	27.0
Heavy oil	86.5	10. Oil & coal manufact.	6,566	31.2	40.0

Chart 9. The Correlation between Wage Rises and Comparative Prices



to smooth the unevenness in the price structure. This finding will serve as an useful material for observing the future of price and wage structures in Japan.

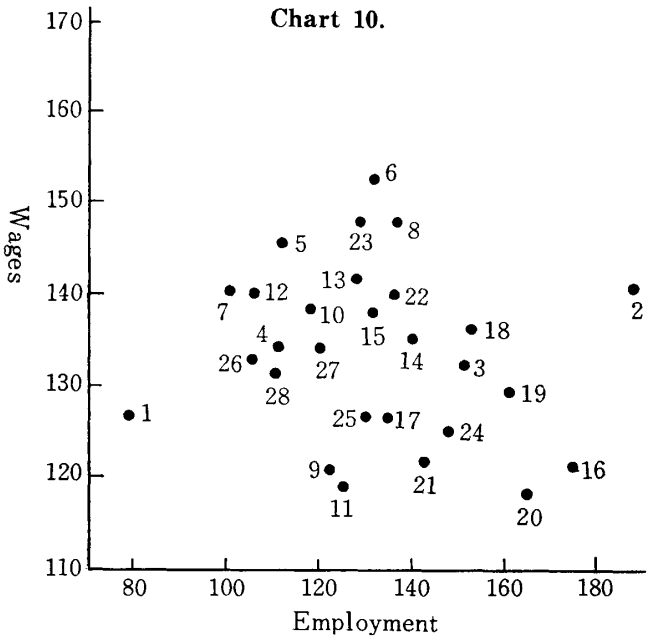
X.

Then, in our economy, how are the correlations between productivity, wages and employment? Table 11 reveals the changes in these three items during 1959–62. This is just the period when, against the background of "Iwato boom", such problems as labor shortage, changes in price structure, and the shift to Western type of economy were arising. In the Table, productivity indices by industrial (median) sections are computed from the index of industrial production by the Ministry of International Trade and Industry, the index

Table 11. Changes in Wages, Production, Employment and Productivity in Japan, 1959 to 1962

Industry	Wages	Production	Employment	Productivity
1. Mining	127.0%	119.0%	79.8%	136.5%
2. Construction	143.0		187.0	
3. Food manufact.	132.5	121.5	150.7	80.8
4. Tobacco	134.0	126.5	111.0	104.0
5. Textiles	145.5	117.3	111.5	105.2
6. Clothes & belongings	152.5	117.0	132.0	89.7
7. Sawing	140.5	121.0	100.8	120.0
8. Furnitures	147.5		136.5	
9. Paper	120.5	142.0	121.5	117.0
10. Publishing & printing	138.3		118.0	
11. Chemicals	119.2	154.0	125.5	123.0
12. Oil & coal	140.0	172.5	106.0	162.7
13. Rubber	141.5	158.0	128.0	123.3
14. Hide & leather	139.5	173.3	135.0	128.3
15. Ceramics & stone	138.0	160.0	131.0	122.0
16. Iron & steel	121.0	164.5	174.5	94.5
17. Non-ferrous metals	126.5	155.5	134.0	116.0
18. Metal products	136.0		152.5	
19. Machinery	129.0	201.0	160.0	111.5
20. Electrical equip.	118.0	207.0	164.0	126.0
21. Transport equip.	122.0	192.5	142.5	135.0
22. Precision instruments	140.0	186.5	135.3	137.0
23. Miscellaneous manufact.	148.5	174.0	129.0	135.0
24. Wholesale & retail trade	125.0		147.3	146.0
25. Finance & insurance	127.0		129.7	
26. Real estates	133.0		105.0	
27. Transport & communication	134.0		120.0	
28. Gas & electricity	131.5	146.5	110.0	133.3
29. Agriculture	157.5			108.0

Chart 10.



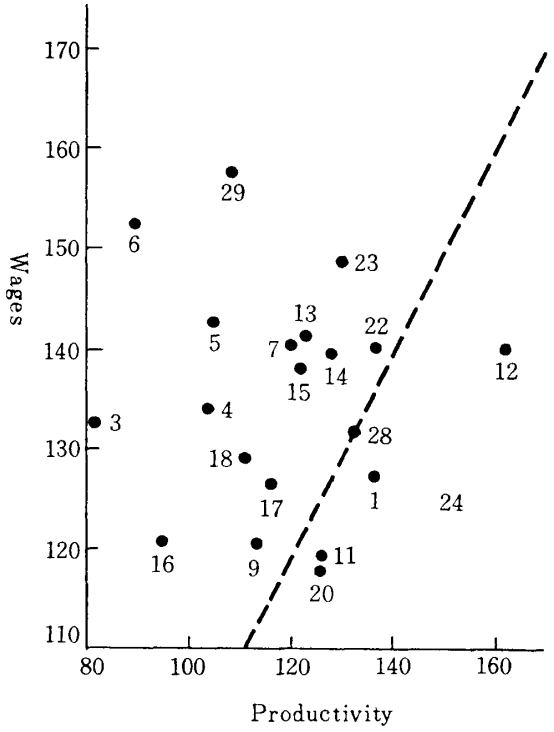
of agricultural production by the Ministry of Agriculture and Forestry, and above cited data on real income of retail trade.

First, employment and nominal wages are in non-correlation on the whole, as seen in Chart 10. While in America employment decreased or showed crablike trends, and the substitution between labor and capital emerged in industries with high rate of wage increase, in the case of Japan such phenomena are not discernible. This seems to depend on the facts that industries were feeling the need of reserving labor power amid the mood of high tempo growth, and that the period was still a transitional stage toward capital-intensive production. However, a move toward prolonged roundabout production is recognizable by the highest growth of machinery manufacturing and the lowest one for textile section. It is noteworthy also that, with a shift to Western type of price structure, the growth rate in light industries, particularly intextiles, would slow down due to relative rise in wages, while that of heavy industries would be relatively accelerated. A germ pointing to such trend could be found in the facts that metals and machinery sections have low rate of wage increase and high rate of employment increase while textile section has high rate of wage increase and low rate of employment increase. The low increase rates of wages and employment in mining and the vise-versa in construction depend obviously on the respective trends of effective demand. As for mining, the high comparative prices of Japan's mining products are making a reason for stagnant effective demand, and so employment in this industry would have been in a higher level under the condition of closed economy.

The correlation between the rate of productivity rise and that of wage rise is seen in Chart 11. Equality between two rates is recognized only for (28) gas & electricity and a near equality for (22) precision instruments. High wage increase, compared with productivity rise, is seen for (29) agricul-

ture, (6) clothes & belongings, (23) miscellaneous manufacturing and (5) textiles. The reason why the price of textile goods, despite of such high rate of wage increase, remained at moderate rise, i.e. 9 percent for consumer price and 6 percent for wholesale price in 1960–62, may be found in the condition that the demand for these goods has small income elasticity and large price elasticity. Some agricultural products other than staple food, with large income elasticity and small price elasticity, showed price rise. Conversely, (12) oil & coal is a section with low rate of wage increase relative to productivity rise. The wholesale price of this section marked a 7.5 percent drop for 1960–62. A problematic case is (24) wholesale & retail trade whose relative "price", distribution cost, increased. This may be derived from the scarce rise in productivity and some rise in wages.

Chart 11.



On the ground of the above observation we could say:

(1) In the Japanese economy after the "Iwato boom", being faced with labor shortage, the behavior of the supply side of labor has been strongly imposed on the wage decision, whereas the position of demand side, intending to provide the fruit of productivity rise for improving real wages and employment, has not been so clearly represented.

(2) The substitution between labor and capital, to follow wage increase, is not yet explicit. This resembles the situation in Britain. But in view of the emerging structural changes in industry, the substitution is expected to arise sooner or later.

(3) The prolongation of roundabout production will be unavoidably accelerated by the economic growth as well by the trade liberalization.

The share of earned income in the nation's national income had been on a gradual increase with the rise in production level in the early postwar years, but later changed to a declining trend with 1958 of 52.4 percent as the turning point, being 51.0 percent in 1951. This is due to the increasing corporate income by budyant business, but the share of earned income is still low, as compared internationally. It has risen to 53.0 percent in 1962, but for a further increase the upward shift of the marginal labor productivity curve through the prolongation of roundabout production will be necessary.

XI.

Though our analysis is very crude, we may tentatively conclude as below.

First, our previous findings regarding the period about 1950, as abridged in the beginning section of this paper, requires revision on one point; that is:

(1) Now Japan as well as Italy are stepping into the economic pattern of labor shortage. Labor mobility is increasing and wage differentials are diminishing.

And, our new findings are:

(2) Böhm-Wicksell's theory on roundabout production holds true to advanced countries also, when the growth rate is low or fluctuates with a wide breadth.

(3) The share of labor in a nation's income depends on the absolute level of labor productivity. The existence or non-existence of cost inflation has no direct relation with the share but works effect on its stability.

(4) The increasing distribution cost is a phenomenon common to all countries, causing the gap between consumer and wholesale prices. The tempo of increase in distribution cost seems to be affected by the rise in the productivity in commerce, excepting the case in Germany where such explanation is not complete. The rise in agricultural prices is especially remarkable for Japan, which may have a certain degree of relation with the increase in productivity (in a relative sense with the increase in agricultural wages).

(5) The fundamental cause for inflation or non-inflation lies in the existence or non-exislence of bottle-necks, but the pace of inflation may have a relation with the relative speed of rise between productivity and wages.

(6) Cost inflation has no relationship with the high-or-low of economic growth, but relationship with the rise-or-non-rise in productivity by mechanization conforming to the increase in real wages. Mechanization is not yet complete in Japan, Britain and Germany, suggesting insufficient capital accumulation.

(7) Explanation by the demand function of labor is applicable to America, France and Italy. In Japan, Britain and Germany the supply side of labor appears to have worked more strongly on wage decision.

(8) In the case of Japan, the westernization of price and wage structures will be promoted by both factors of internal economic growth and external trade liberalization. However, after passing a transitional phase, average prices would not rise so remarkably, if cost-down by mechanization were

realized.

— August 6, 1963. —