Wage Differentials in Japan: 1958 – 85

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Abstract

The market is a place where people behave quite relentlessly. If one person is selling a particular commodity at a higher price than others, no one will buy that commodity from him, however virtuous or merciful he is known to be. Of course, the actual world does not always work exactly in this way, but if it works too differently, the case is regarded as being an exceptional one. Thus, the assumption that the market is a relentless place is acceptable as a first approximation ot the real world.

Keywords: Japan, wage differentials, commodity, market, labour market, manual labour, non-manual labour, education, sex, wage payment, seniority.

1. Introduction

The market is a place where people behave quite relentlessly. If one person is selling a particular commodity at a higher price than others, no one will buy that commodity from him, however virtuous or merciful he is known to be. Of course, the actual world does not always work exactly in this way, but if it works too differently, the case is regarded as being an exceptional one. Thus, the assumption that the market is a relentless place is acceptable as a first approximation to the real world.

There is, however, one market to which the above assumption is not applicable. This is the labour market. Probably because of one of the worst sins human beings have ever committed, that is, buying fellow creatures as slaves, it is impossible for employers in this century to behave entirely egoistically in the market place, like slave dealers did in the past. So what kind of behaviour is permitted as being fair? What is rejected as vicious? The criteria for such judgements are not universal, but historical. Where people still keep the memory of slavery, they will strongly object to anything which might remind them of the shameful period when many persons were deprived of their freedom.

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For example, a permanent employment system, under which workers engage to work for their whole life for a certain individual or a certain company, is unlikely to be popular in countries where the purchase and sale of slaves has actually been practiced. On the other hand, in a country with no such history, permanent employment may be taken as an example of good, paternalistic practice in the feudal age. Once master and servant had plighted themselves to be "lord and vessel", the master would never sack his servant, and the servant would never abandon his master. Even so, it is legally impossible to enforce lifetime service for a worker in such a country. Under a permanent employment scheme, a worker is of course free to leave if he should submit his resignation.

Anyway, there are various points of interest regarding the labour market. First, as has been seen, the assumption of economic man does not help us much. A labour market of a certain type actually exists because of that country's historical, sociological and cultural environment; we will almost certainly have a different type of market in different circumstances. This implies that the study of the labour market is not a subject of pure logical economics. It is intrinsically multi-disciplinary, and it is in this spirit that I am concerned with the problem of wage disparities in Japan discussed in this paper. The wage disparities themselves are estimated by using econometric methods, but they are interpreted in relation to the three most important characteristics of labour relations historically prevailing in Japan: the permanent employment system, seniority

wage payments and the system of company labour unions.

In this paper I estimate several sets of wage differentials existing in Japan in the period 1958-85, using Tachibanaki's analysis of variance relating to wage determination in Japanese manufacturing industries.[1] Using the data provided in The Japanese Ministry of Labour's Wage Structure Survey, Tachibanaki's original analysis was made for the four years, 1958, 1962, 1966 and 1970 only, but I have extended my analysis to the additional five year period, 1981 - 85, as Professor Tachibanaki was kind enough to compute the coefficients of the factor analysis for these years for me. I have, however, only his results for the two years 1981 and 1985 in the following paper.

Tachibanaki analysed wages on the basis of six factors and fourteen interactions of these factors. The factors are (1) sex, (2) occupation, (3) size of the firm, (4) education, (5) experience, and (6) age, while the interactions are (i) sex-occupation, (ii) sex-size, (iii) sex-education, (iv) sex-experience, (v) sex-age, (vi) occupation-size, (vii) occupation-education, (viii) occupation-experience, (ix) occupation-age, (x) size-education, (xi) size-experience, (xii) size-age, (xiii)

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[1] T. Tachibanaki, "Wage Determinations in Japanese Manufacturing Industries: Structural Change and Wage Differentials", International Economic Review, 1975, Vol.16, No.3, pp.562-86. Tachibanaki's table of the estimated parameters in Appendix 2 of this paper contains several misprints, which have all been corrected in the following calculation of wage differentials. In his Analysis of the Labour Market (Rodo-shijo Bunseki), in Japanese, Iwanami-Shoten, 1984, however, K. Odaka estimates wage differentials on the basis of Tachibanaki's uncorrected table.

education-experience, and (xiv) education-age. In the 1981-85 extension the factor of age, originally classified into seven groups, has been re-classified into nine-groups; the original age groups, 40 - 49 and 50 - 59, have been divided into 40 - 44 and 45 - 49, and 50 - 54 and 55 - 59, respectively. Also, the effects of the interaction of age and experience are newly examined. Because the manual workers' group scarcely includes any senior high school graduates, especially for the earlier years of 1958 - 1962, estimates for junior-high graduates are in these years more important than those for senior-high graduates. This is true for both male and female workers, but is, of course, more true for the latter than for the former. Similarly, it is noted that in the case of non-manual workers, the senior-high graduate group is more important, especially for males, than is that of junior-high graduates.

Before proceeding to the discussion of our results from Tachibanaki's work, let us briefly describe the history of wage differentials in Japan. Detailed surveys of wages in factories were carried out in Japan for 1909 and 1914; these surveys classify wages according to sex, occupation and size of the firm.[2] Occupations are recorded in much more detail than in Tachibanaki's data, while the other factors considered by him, i.e. education, age and experience, are all ignored. The disregarding of education, however, is not a problem, because virtually all factors workers in those years received either no

[2] Archive of the Secretariat of the Minister of Agriculture and Commerce: Kogyo Tokei Hyo (Statistical Tables of Factories) for 1909 and 1914.

Table 1. Wage disparities (wage per worker in plants of 1000 or more = 100)

Scale of plant (number of workers)	1908[2]	1909[1]			1914[1]			1930[2]	1932[3]	1951[4]	1955[4]	1960[4]
	Male	Male	Female	Total	Male	Female	Total	Total	Total	Total	Total	Total
5 - 9		80	76	100	73	72	92		33			
10 - 19	-	86	79	97	77	75	86	50	38	38	41	46
20 - 29	80							80	45	56	53	59
30 - 49	85	89	86	92	79	81	80	85	-			
50 - 99	87	92	93	94	83	87	82	87	54			
100 - 199	94	94	94	97	85	90	83	94	-	75	69	71
200 - 499	100							100	68			
500 - 999		92	103	99	88	101	91		78			
1000 -		100	100	100	100	100	100		84	100	100	100
									100			

Source:
1 Archive of Secretariat of Minister of Agriculture and Commerce: Kogyō Tōkei Hyō (Statistical tables of factories) for 1909 and 1914.
2 H. Hazama, Nippon Rōmu Kanri-shi Kenkyū (Studies in the history of labour management in Japan), 1978, Ochanomizu Shobō, p. 57
3 Obtained by converting Umemura figures in Y. Andō (ed.) Kindai Nippon Keizai Yoran (Survey of the economic history of modern Japan), Tokyo University Press, 1975.
4 Ministry of Labour, Maigetsu Kinrō Tōkei Chōsa (Monthly survey of employment statistics).

education at all, or only a very elementary formal education. Table 1 shows the results from these surveys. It shows first of all that wage differentials between very large scale enterprises and smaller ones were not very great over these years, though the figures for both sexes suggest that differentials were becoming greater between 1909 and 1914. Especially as far as the totals for both male and female workers are concerned, we may safely say that there was little substantial wage difference at all, particularly in 1909. Such high figures result from the fact that in these years relatively expensive male workers worked in small enterprises, while relatively cheap female workers worked in large factories.

It is widely accepted among Japanese specialists that wage differentials became greater in Japan during the First World War and more conspicuous after the war. It is not unreasonable to conjecture that during the war Japan enjoyed an unprecedented, vigorous economic boom and made advances into the vast China market, vacated by the warring European powers. Japan's large enterprises were given energy and strength, enabling them to offer better wages to their workers, while small firms did not do so well and their workers had to be satisfied with low wages. Unfortunately, it is extremely difficult to support this view statistically, because of the lack of reliable and authoritative data. Nevertheless the conjecture seems convincing.

The only available evidence we have is Professor Umemura's estimates for 1932, according to which the wages offered by companies with capital of ¥5 - 10,000 were no more than 33% of average wages in large companies with capital of ¥5m or more,

while those in companies with capital of ¥10-20,000, ¥50-100,000, ¥500,000 - ¥1m and ¥1-5 million respectively, were 38, 45, 54, 68, 78, and 84% of the wages in the largest companies. Umemura obtained these figures from a survey of industry in Japan's six largest cities: Tokyo, Kyoto, Nagoya, Yokohama and Kobe.

However, Unemura's figures are rather difficult to compare with other statistics on wage differentials, because firms are classified according to the amount of capital, while firms are more normally graded according to the number of employees of firms. We have therefore converted the Umemura estimates into the standard format, as listed in the 1932 column of Table 1, by estimating the number of employees of firms in each capital range. The table is made more comprehensive by adding statistics for the two years, 1908 and 1930, made available in the work of Hiroshi Hazama. These figures are in turn very different from other statistics, because Hazama has obtained them by re-arranging the statistics for industry wise wage differentials according to firm-scale (i.e. the number of employees per firm) within that particular industry, whereas in the other statistics a variety of industries are taken together at all levels of firm size. Therefore, the 1908 and 1930 figures should not be taken as much more than supplementary evidence. Table 1 therefore suggests that wage disparities, which had been very insignificant at least until 1914, became considerably greater in the 1930s. Wage differentials of the 1930s magnitude seem to have persisted after the war. The figures for the 195Cs may be considered almost as divergent as those of the thirties. This suggests that Japan remained a surplus labour economy after the war and even

at the beginning of the sixties, so that wages of small firms were particularly suppressed.

Medium and small enterprises, especially for the former, improved greatly during the 1960s. Many became able to offer decent wages to their workers, and the labour market in general became much tighter. It was thought that Japan had at last succeeded in moving away from a surplus labour position. In order to get as many workers as they wanted to employ, the medium/small firms had to compete with large firms and take part in the competition to bid up wages. In view of their poor working conditions and low social status, many of these firms had to offer wages which were much higher than those in large enterprises. In the middle of the 1960s, national newspapers often reported that medium/small firms were catching up with large firms in the wage race. It was thought that the notorious problem of wage inequality would finally be solved and sooner or later such a disparity would cease to be discernible in Japan.

As will be shown later, however, this hope was, unfortunately, never realized. Wage differentials, though minimized around 1966, revived in the 1970s; they persisted, in a somewhat modified form, at least in the middle of the 1980s.

In spite of this historical pattern, Professor Koike insists in his Nippon no Jukuren (Japan's Skill) that wage differentials between medium and small firms and large firms in Japan are not too bad by comparison with EC countries.[3] From EC Structure of

[3] K. Koike, Nippon no Jukuren (Japan's Skill), in Japanese, Yuhikaku, 1981, pp.81-4. We argue later that Koike's measure of wage differentials is inadequate. Similarly, for the sake of fairness it must be said that all the figures presented in Table 1 are subject to similar errors to those for which I criticise Koike.

Earnings in Industry, 1971 and Japan's Wage Structure Survey, 1976, Koike derives the following four observations. First, wage differentials by scale of establishment for male manual (or blue collar) workers are greater in Japan than in West Germany and the Netherlands, but less than in Italy and Belgium, and very close to those in France. Secondly, where male, non-manual or white collar workers are concerned, Japan is clearly worse than most of the EC countries, except for Italy, which is worse than Japan in the case of small firms with less than 200 workers. However, even here Japan's absolute wage differentials are fairly low; that is, white collar workers in medium and small firms earn wages which are around 85% of the average wage of white collar workers in large enterprises. This figure is viewed by Koike as being very high, leading him to conclude that there is no substantial wage differential for male white collar workers in Japan. Thirdly, for female blue collar workers, the observations are similar to those for male manual workers, except that differentials in Japan are slightly worse than those in France for female workers, while the reverse order between Japan and France is true for males. Finally, for female non-manual (white collar) workers, he finds that Japan is more or less comparable with West Germany and France and Japanese differentials are less than those in the Netherlands, Belgium and Italy.

On the basis of these figures Koike says that in the context of the EC countries, Japan does not have particularly wide wage disparities and, moreover, his own observations are not in line

with the generally accepted view that in Japan workers in small firms earn only 40 - 50% of the wages of workers in large firms. He then emphatically concludes that if there is a country to which this conventional view applies, it is not Japan but Italy, and if the only country which can be considered as possessing what might be called a dual industrial structure is Italy, and not Japan.

2. Comments on Professor K. Koike

Unfortunately I cannot support Koike's conclusions, since I believe them to be mistaken, not only for economic reasons but also for statistical reasons. Let us clarify the second point first. Suppose there are two subgroups of workers in the same group; for example, if we look at male manual workers in small firms, let w_{1S} be the wage per worker for junior workers and w_{2S} that for senior workers. Similarly, let w_{1L} and w_{2L} be junior and senior worker wages in the large firm sector. Then the wage per worker for all male manual workers in the small firms will be

$$w_S = (w_{1S}\, a_{1S} + w_{2S}\, a_{2S})/(a_{1S} + a_{2S}),$$

where a_{1S} denotes the number of junior workers, and a_{2S} the number of senior workers, employed by small firms. Similarly, for large firms we have

$$w_L = (w_{1L}\, a_{1L} + w_{2L}\, a_{2L})/(a_{1L} + a_{2L}).$$

Koike's wage differential, which ignores the division of workers

into junior and senior subgroups, is given by w_S/w_L, and not by either w_{LS}/w_{1L} or w_{2S}/w_{2L}.

In the light of these two equations it can easily be shown that the aggregate wage differential between small and large firms, w_S/w_L, which Koike has used for his international comparison, is associated with disaggregated differentials, w_{1S}/w_{1L} and w_{2S}/w_{2L}, through the following formula:

$$\frac{w_S}{w_L} = \frac{w_{1S}}{w_{1L}} \quad \frac{w_{1L}(1 - b_S)}{w_{1L}(1 - b_L) + w_{2L}b_L} + \frac{w_{2S}}{w_{2L}} \quad \frac{w_{2L}b_S}{w_{1L}(1 - b_L) + w_{2L}b_L}$$

where $b_S = a_{2S}/(a_{1S} + a_{2S})$ and $b_L = a_{2L}/(a_{1L} + a_{2L})$. By definition, both b_S and b_L are positive and less than 1. Obviously, w_{1S}/w_{1L} designates the wage differential between junior workers in small and large firms, while w_{2S}/w_{2L} stands for that relating to senior workers. Common sense suggests the existence of disparities in wages between the same kind of workers in different firms, and is not concerned with the statistical averages to which Koike has given his attention. In other words, the commonly accepted view of Japan's wage differentials is formed on the basis of the people's knowledge about w_{1S}/w_{1L} and w_{2S}/w_{2L}. In particular, in a country like Japan, where workers stay in the same firm for a long period, the common sense view is going to be more strongly influenced by senior workers' wage differentials, w_{2S}/w_{2L}, than by those between junior workers w_{1S}/w_{1L}. It is this with which it is most concerned. Moreover, in the above formula a very low level of w_{2S}/w_{2L} may be compatible with a high value of w_S/w_L. It is wrong to assume that the common view is formed on the basis of w_S/w_L, rather than w_{2S}/w_{2L}, and hence to conclude that a high value

of w_S/w_L prevails in the actual economy marks a refutation of the common view. As the numerical example given in footnote shows, Koike's index, w_S/w_L, may take a value of 82% , whereas w_{1S}/w_{1L} and w_{2S}/w_{2L} are only 80% and 50%, respectively.[4] In such circumstances, a healthy common sense would conclude that the wage differential is fairly large, probably of the magnitude of, say, 55-60%. This shows the statistical inadequacy of Koike's index.

Age or seniority distinction is not the only factor I feel has been disregarded by Koike; there is no mention of workers' educational background. The problem here is of a similar perversity. Let group 1 be those workers who are illiterate, and group 2 educated workers. It is then possible that w_S/w_L is higher than either w_{1S}/w_{1L} or w_{2S}/w_{2L}. In exactly the same way, an opposite perversity may also be possible: that is, w_S/w_L may be lower than either w_{1S}/w_{1L} or w_{2S}/w_{2L}. In fact, it can be seen from Table 1 that out of 12 possible cases, only in 5 cases is the figure for the total, discounting classification by sex, between the figures for males and females separately, while in the remaining 7 cases, it exceeds both of these two figures. This implies that the perversities are not exceptions; they simply reveal the inadequacies of the Koike index.

It is now clear that wage differentials due to some factor,

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[4] Assume $w_{1L} = 1$, $w_{1S} = 0.8$, $w_{2L} = 2$ and $w_{2S} = 1$. These give $w_{1S}/w_{1L} = 80\%$ and $w_{2S}/w_{2L} = 50\%$. Wages for senior members are higher than junior members because of wage payment according to the seniority principle. Note that the seniority principle is stronger in large firms than in small firms. Assume that the percentage of senior members is 50% in small firms, while it is only 10% in large firms. Then we obtain $w_S/w_L = 82\%$ from the formula.

say, the size of the firm, can be ascertained by comparing the wages of two perfectly homogeneous groups of workers. Where one group consists mainly of male workers and the other mainly of female workers, we can be sure that the wage differentials obtained are a mixture of those resulting from firm-size and those resulting from sex. Unless the groups to be compared are totally unmixed, we will always get some mixture of differentials due to different factors, and end up by obtaining a modified or biased, if not perverse, result. Thus perfect factor analysis, which exhausts all possible factors causing wage disparities, is a most important precondition for the examination of whether or not the medium and small firm sector and the large firm sector of the Japanese economy still keep the dual wage structure.

I do not consider Tachibanaki's analysis as perfect. First of all, the effects of interaction of age and experience, which were neglected in his original paper, appear for the firm time when the analysis is extended to the period 1981 - 1985. Secondly, with respect to education, Tachibanaki estimates two models. Model I classifies workers into two categories in terms of their educational attainment: group 1 consists of those workers who have received junior high school education only, and group 2 those with at least senior high school education. As the latter includes college and university graduates, Model I, based on this classification, is certainly unsatisfactory for an analysis of the wages of male non-manual (white collar) workers, many of whom are college and university graduates. Recognizing this weak point, Tachibanaki developed Model II, where workers are classified into four categories corresponding to the four

levels of education: junior and senior high schools, college and university. Unfortunately only the estimated parameters of Model I have been printed in the 1975 paper, while those of Model II are unavailable. Moreover, the economic and social significance of educational attainment at a certain level (say, university level) was very different in 1985 from what it had been in 1958. It may not mean so much now, whereas it was a significant achievement in earlier days. Perhaps it would be desirable, particularly because most firms have their own independent company unions, and even in the case of Japan, to classify universities in more detail, so that there is some reflection of the qualities, or courses, of universities. Finally, concerning occupation, Tachibanaki simply groups workers into two subgroups: manual and non-manual. It would obviously be desirable to have an industry-wise classification of jobs. In the following, however, we accept Tachibanaki's results without trying to improve upon them.

Next, let us discuss how Koike's comparisons are economically inadequate and his conclusions derived from them wrong, or at least misleading. What I feel Koike has unfortunately failed to do is to develop his argument in relation to the characteristics of the Japanese employment system, and the unique features of Japanese labour unions play no role in his international comparison of wage disparities; he has just gathered relevant statistics and calculated indices for a number of countries, in order to make numerical comparisons. By merely reading diagrams and tables, a conclusion has been derived to the effect that no clear numerical distinction can be observed

between Japan and the EC countries, and that the numerals suggest that the "dual structure" should have disappeared in Japan. This is all. The economic reasoning is at best poor.

It is evident that any problem of wage disparities must be discussed in relation to the structure of the labour market. Even under the so-called permanent employment system, it remains true that Japan has an enormous, highly competitive labour market. This labour market is geared to recent school, college or university leavers, and even these people can use it only once during their life. The labour market for the unemployed, and for movers from one firm to another, is quite distinct from this first labour market, both undeveloped and badly organized. These persons usually find their new jobs through individual personal connections, and are employed on a more or less supplementary basis.

The demand for regular labour is mostly fulfilled by regular workers who are already employed. Firms first satisfy their demand for labour with the labour of their own employees, and never touch workers in other firms. This means that within each firm there is an internal market, which is closed in the sense that one firm can never acquire labour from the internal market of another firm, and no employee can sell labour on the internal market of a different firm. Each internal market is isolated and segregated from the others. There is no single level of competitive wage valid on all these internal markets. Wage levels may differ considerably from one firm to another. This is particularly because most firms have their own independent company unions, and even in the case of the unions belonging to

some nationwide or industry-wide organisation, each enterprise union has very considerable autonomy concerning wage negotiation. Each union is well acquainted with the company's position, so that wage negotiation produces agreement at a wage level which the employer also finds to be reasonable and agreeable. Reflecting the variation in profitability between firms, wages tend to vary widely between one firm and another.

On the other hand, in the open labour market, where new school leavers are allocated to firms, all firms - small, medium and large - compete with each other, so that wage levels are more or less equalized. Sometimes, more often at a time of labour shortage, small and medium firms have to offer higher wages than large firms, in order to attract school leavers. Thus for workers in the 18 - 19 and 20 -24 age brackets, wages paid by medium and small firms are as high as, or even higher than, those paid by large firms. For workers over 30, however, the situation is completely different. Wage differentials are conspicuous and often extreme, especially in the case of female workers. The period between the ages of 25 and 29 years old is one of transition from competitive wages to wages adapted to firms' conditions. In the work mentioned above, K. Odaka investigated wage differentials in Japan for workers in this wage group. Not surprisingly, he obtained a lukewarm, half-way result.[5]

Wage differentials with respect to other characteristics trace out a similar age pattern. Every year, all firms compete for new school leavers in the open labour market. Male and

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[5] K. Odaka, op. cit.

female graduates are taken by them as substitutes, though there is no perfect substitutability. The index of wage differentials between the sexes w_F/w_M, therefore tends to be close to 100% for young workers in the age groups , 18 - 19 and 20 - 24, but it decreases to something like 50% with age, reflecting sex discrimination against female workers. (In earlier years, such as 1958 and 1962, it even went down below 40% for older workers.) This ratio must be calculated for workers in the same type of occupation and with the same educational background; otherwise the sort of errors criticized above will be repeated. Similarly, new leavers from junior and senior high schools appear more or less as substitutes in the open market, but the same age pattern as can be seen above may be expected to be revealed in wage differentials between worker with junior high school education and those with senior high school education or above. In this case too, in order to ascertain wage disparities due solely to differences in educational background, we must compare workers who are identical with respect to all other characteristics. Ignoring some of these, e.g. firm size and occupation, Koike has calculated wage differentials between male workers with different educational backgrounds in Japan in 1971.[6] From a comparison of his result with ours we may conclude that the true differentials may well be smaller than those he believes to exist, which he even so claims to be of a small magnitude by international comparison. In this case the neglect of other characteristics seems to have created errors opposite to those resulting in the

[6] K. Koike, op. cit., p.79.

estimation of wage differentials according to firm-scale.

Finally, a remark on the treatment of the bonus system is in order. The bonus system has a long history in Japan. Early on it was mainly for staff members; it was introduced to stimulate initiative, special effort and innovative conduct. At this stage, bonuses could not be regarded as part of the regular income of staff members; we can regard it as a kind of prize money. When the system was later applied to blue-collar workers, it was used in an attempt to persuade workers to stay longer in a particular firm. It became a prize for diligence. After the war the system lost its character of a prize, and the bonus became a part of regular wage payments, especially to manual workers. The amount of the bonus became an important item in wage bargaining. Even now, some firms have two types of bonus existing together: the bonus as a part of regular wages and the bonus as a kind of prize. In the following, however, we include the total amount of the bonus in wages, as did Tachibanaki.

3. Wage Payment According to Seniority

As will be seen later, the seniority payment scheme plays a significant role in studies on wage differentials. Of course, this is not a scheme exclusive to Japan. In the West, too, it is adopted by many organisations, including government, police, military forces, schools and universities. It is understandable that large firms should tend to give some consideration to seniority elements in the determination of wages, especially because such a scheme is very easily implemented. Conversely, in Japan, too, there are many elements other than seniority,

which are taken into account in determining wages. In some types of company and for some types of labour, seniority is a predominant principle, but in other areas its significance may well vary to a substantial degree.

In pre-modern Japan, there were three types of economic organisation, from which Japan's modern companies have emerged in a sophisticated synthesis. They were enterprises (munitions factories, shipyards, mines, trading houses etc.) established by a clan or by the Tokugawa government; private merchant houses; and handicraft workshops. The history of labour management in these organizations may be summarized as follows.[7] First, in the clan or Tokugawa government enterprises samurai managed work carried out by lower class samurai or non-samurai workers, and loyalty was the basic principle of the work ethic. Most of these state enterprises in the feudal period were taken over by the new Meiji government and strengthened by adoption of Western technology. They were given favourable treatment as model factories by the government. However, many of them were later privatized, and played a core role in the growth of Japanese capitalism. In this way the spirit of loyalty was implanted in private enterprises. However, no paternalism along the lines of that cultivated in merchant houses prevailed in these feudal state enterprises.

Secondly, the merchant houses of the Tokugawa period, many of which were later transformed into modern companies and became the foundation of various zaibatsu, had been accustomed to treat

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[7] See, in more detail, Hazama, op. cit.

shop assistants and apprentices as members of the master's family. They lived in his house and dined together with his children. Some even eventually married his daughters. Such permanent employment was regarded as the ideal form of labour relationship, and in return for this lifetime commitment the master increased wages and promoted his workers to higher positions in the course of time. In this way the seniority system was established as a time-honoured custom in the merchant houses. Thus the seniority payment scheme on the employers' side, and the long time commitment on the workers' side, were parallel outgrown of feudalistic paternalism, and may be regarded as two faces of the same coin.

In artisan society, the relationship between the master and his apprentices was less restrictive than in the merchant houses. They would learn techniques from the master, until they reached the time of graduation, when they received certificates or diplomas and were freed from him. Afterwards they would become independent and start their own businesses. Although they often advertised themselves having been taught by such and such a master, and used his crest as their trade mark, the relationship between them was not close. Disciples of the same master frequently competed with each other; despite an occasional meeting for example, at the time of retirement of their master or the marriage ceremony of his son, they remained rivals throughout their lives. Consequently, we may say that no deep paternalism prevailed in artisan society.

In view of these characteristics it is not surprising to find that modern Japanese enterprises first applied the seniority

wage payment scheme to male, non-manual employees with higher education, especially staff officials or future executives. It was then extended to less educated non-manual workers, then to male manual workers and finally to female workers. It also spread from large to medium-sized enterprises, and finally to small firms. Modern white collar workers may be regarded as the successors of Tokugawa merchant house employees, and factory blue collar workers as the modern version of the Tokugawa artisan, so it is not surprising that we should be able to find close similarities between them in as far as they are regarded by employers. Paternalism prevails among white collar workers, while mobility from one company to another is relatively high among blue collar workers, who have a spirit of independence. These workers believe in the skills they have acquired, instead of relying on paternalistic treatment by their bosses. In fact, as will be seen below, use of Tachibanaki's factor analysis shows that seniority considerations are minimal among female manual workers with only a junior high school education, and greatest among male non-manual workers with higher education backgrounds working in the large firm sector. It can also be seen that the seniority system remains weak among female manual workers possessing a senior high school education. From the point of view of seniority treatment it can be observed that male manual workers with only a junior high school education, particularly those in small firms, are also dealt with harshly.

Let us first examine male, non-manual workers with senior high school education or above, whose wages are most responsive to the seniority rule. We normalise their wages calculated

Table 2. Estimated wages for male, non-manual workers with senior high school education or more

(unit: %)

Age	18-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
Experience	0-1	1-2	3-5	6-9	10-14	15-19	20-29	20-29	20-29
Small firms									
1958	37	48	64	100	126	161[1]		177[2]	
62	26	53	76	100	145	163[1]		183[2]	
66	29	45	62	100	114	127[1]		136[2]	
70	34	48	72	100	139	122[1]		136[2]	
81	33	52	79	100	116	130	136	136	128
85	49	61	83	100	121	139	148	148	144
Medium firms									
1958	20	43	65	100	133	170[1]		187[2]	
62	23	43	73	100	147	177[1]		204[2]	
66	28	41	62	100	115	132[1]		147[2]	
70	34	47	70	100	126	127[1]		143[2]	
81	33	50	78	100	116	130	136	135	128
85	40	59	81	100	121	141	154	155	150
Large firms									
1958	25	43	62	100	134	179[1]		196[2]	
62	24	40	67	100	150	186[1]		219[2]	
66	30	43	59	100	118	140[1]		158[2]	
70	38	49	72	100	126	124[1]		147[2]	
81	29	45	79	100	115	127	135	132	122
85	28	53	75	100	116	139	149	149	144

1 For the age group, 40 - 49, with experience of 15-19 years.

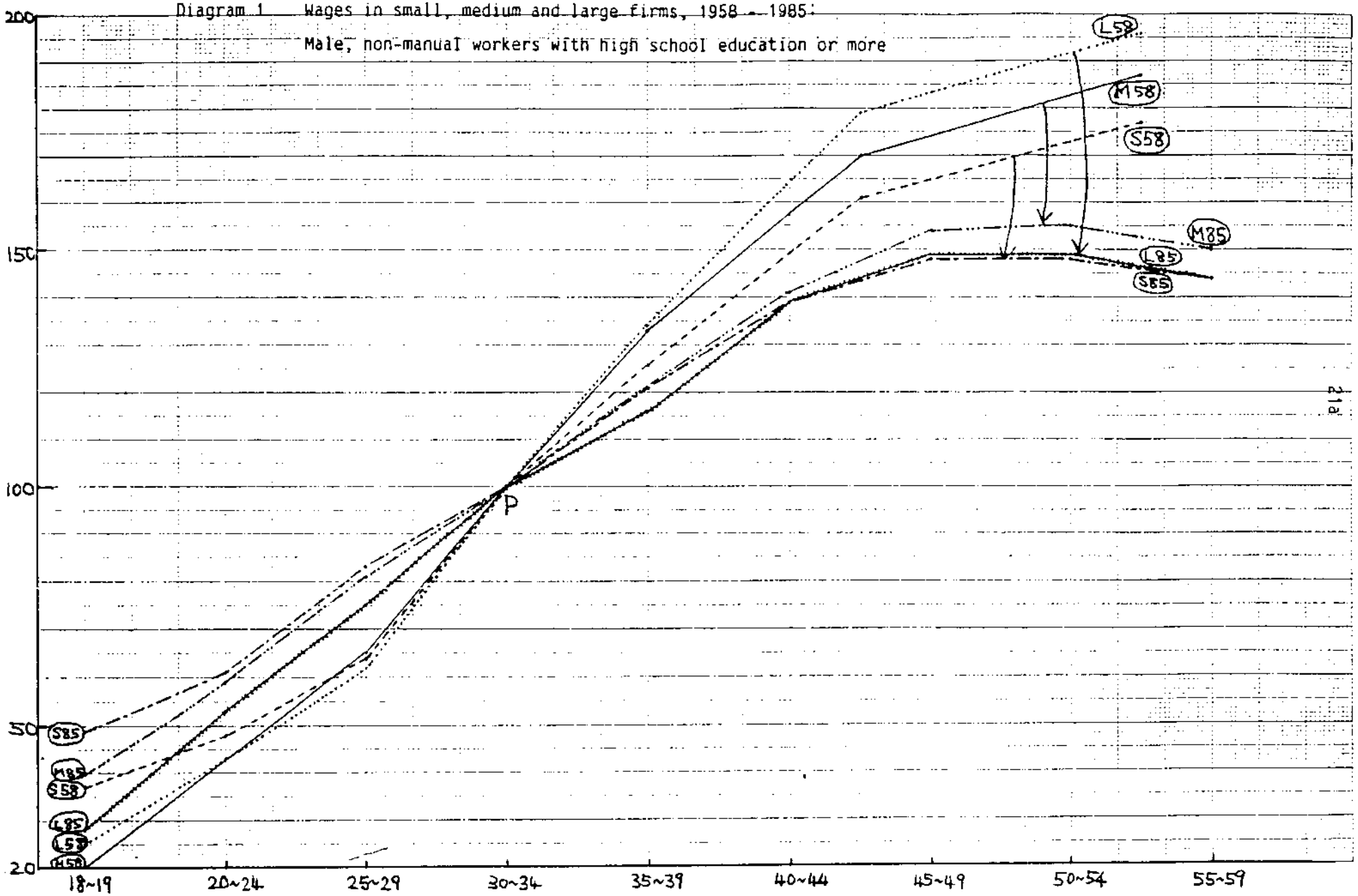
2 For the age group, 50 - 59, with experience of 20-29 years.

according to the Tachibanaki formula, such that they take on a value of 100 for workers of 30 - 34 years of age. (See Table 2.) Taking age along the horizontal axis and wage index along the vertical axis, we may draw wage curves for large, medium and small firms, respectively. The curve for large firms is steeper than that for medium-sized firms which is, in turn, steeper than that for small firms reflecting the fact that seniority rule is most operative in the large firm sector and least operative in the small firm sector. From 1958 to 1962 firms in each scale group strengthened their seniority practice but afterwards became more reluctant to pay higher wages to senior workers, so that the wage curves for 1981 and 1985 are rather flat for each group of firms. Also, as far as each of these two years are concerned, the wage curves of the three groups are almost identical. This means that by the first half of the eighties medium and small firms had almost caught up large firms in the application of the seniority rule. Reflecting the movement in the figures in Table 2, Diagram 1 shows that in the period, 1958-85, the wage curves are rotated around the point P, at which wages are 100 for the age group 30 - 34.

The fact that in 1958 a pair of scissors having two wage curves as blades, one for large, and the other for medium or small firms, was wide open, implies that the index of relatives wages, w_{tS}/w_{tL}, or w_{tM}/w_{tL}, declines as the age t of the worker becomes higher, provided $t > (30 - 34)$, where w_{ts} represents the wages of the small firm's worker of age t, while w_{tM} and w_{tL} are those of the medium-sized and large firms. Thus, as he gets older, a worker in a small firm obtains relatively lower wages

Diagram 1 Wages in small, medium and large firms, 1958 - 1985:

Male, non-manual workers with high school education or more



by comparison with the corresponding worker in a large firm. That is to say, in medium and small firms, workers were more and more harshly treated by comparison with large firms, as they became more senior. The scissors were, however, closing in 1966 and 1970, and were almost completely shut in 1981 and 1985, reflecting the fact that wages for older workers had been greatly improved in medium and small firms during these years. For the last two years we cannot discern any substantial change in firm-size based wage differentials between workers on the standard wage (aged 30 - 34) and their older fellow workers. On the other hand, it should be pointed out that in these years the movement of workers from large to medium-sized firms and from medium-sized to small firms have become more frequent than before. The internal labour market of each firm has thus become less isolated, and more interconnected with those of other firms. This is consistent with the observed homogenization of the seniority wage payment system through all classes of firm.

More or less similar trends can be observed in the wages of male workers in the other three groups: (1) non-manual workers with junior high school education only, (2) manual workers with senior high school education or above, and (3) manual workers with junior high school education only. For these groups too, in particular for the first two, the following three types of movement are clearly discernible. (1) The practice of seniority wage payment prevails in all of the three groups of firm, large, medium and small, to varying degrees. During the period under investigation it was strongest in large firms, and weakest in small firms. (2) The seniority payment scheme has become

progressively weaker during the period. Finally, (3) the scheme lost its influence more rapidly in large firms than in medium-sized firms, but more rapidly in medium-sized than in small firms. Because of these differences in the rate of change, small and medium sized firms almost caught up with large firms in 1981 and 1985, and all three groups' schemes are now very homogeneous with respect to the annual increments given to workers.

As a consequence of these trends for each of the three groups, the long standing fact that older workers in small and medium-sized firms are especially badly treated in comparison with older workers in large firms had almost completely disappeared by the beginning of the eighties. Only manual workers in small firms with just a junior high school education may be regarded as deviating from this broad tendency. Small firms have never been rich enough to be able to extend the seniority principle to this group of workers. For them age-related increases in wages have always been small. The process of catching up has been almost completed in the eighties; now the rate of wage increases according to the seniority principle in medium and large firms has finally come down almost to the level of small firms, though we may still say that in the first group it is slightly higher than in the last one. In any case it remains true that the position of older workers in the small and medium firm sectors in terms of the ratio of their wages to wages in the large firm sector, has been improved for the most recent two years, 1981 and 1985. Alternatively, we may say that it is only in recent years that older workers in larger firms have begun to lose the advantages they gained over those in small

and medium firms under the seniority system.

For female workers the situation is more dramatic. Factor analysis shows that employers treat female non-manual workers, regardless of the level of their education, in a more or less similar fashion to that in which they treat male workers. We can observe the same three movements in their wages we have seen above for male workers. As for female manual workers with junior high school education only, the seniority system does not work except in large firms; this is especially true for the early years (1958, 1966, 1966). (See Table 3.) In recent years, with the decline of the system, it is female workers in large firms who seem to have been the major casualties. In 1981, in medium-sized as well as large firms, older workers were not treated more favourably than those in the standard age group, although they were treated slightly more favourably in 1985. The system remained foreign to small firms throughout the period, 1958 - 1985. Between this group and the two groups of non-manual workers with junior and senior high school education, we find the remaining group of female manual workers educated at senior high school. For this type of worker the seniority system already prevailed in the large and medium firm sectors in 1958, and this continued in later years. Small firms seem to have taken little account of the system. In the case of workers in this group, as for those in the group possessing junior high school education only, small firms are still very far behind large firms in the treatment of older workers, whereas medium-sized firms have virtually caught up with large firms.

4. Size of the Firm

If we look at younger workers below the standard age, Diagram 1 shows that in 1958 the wage curve of small firms was above that of large firms at 18 - 19, and at the same age for large firms was above that of medium-sized firms. Let w_S^*, and w_M^* and w_L^* be the wages of small, medium and large firms at the standard age, 30 - 34, while w_S, w_M and w_L are those at the starting age of 18-19. Finally, I_S, I_M and I_L are the wage indices for the three groups of firms respectively. As

$$100 \quad w_S = I_S \, w_S^*, \qquad 100 \; w_M = I_M \, w_M^*,$$

we obtain

$$\frac{w_S}{w_L} = \frac{I_S \, w_S^*}{I_L \, w_L^*}, \qquad \frac{w_M}{w_L} = \frac{I_M \, w_M^*}{I_L \, w_L^*}$$

It then follows that the rate of increase in relative wages between the starting age and the standard age, that is, $(w_S^*/w_L^*)/(w_S/w_L) - 1$ for the small firms or $(w_M^*/w_L^*)/(w_M/w_L) - 1$ for the medium-sized firms, is given by

$$I_L/I_S - 1 \qquad \text{or} \qquad I_L/I_M - 1,$$

respectively. We define the wage differentials between small and large firms at the initial age as

$$(w_L - w_S)/w_L = 1 - w_S/w_L,$$

Table 3. Estimated wages for female, manual worker with junior high school education only

(unit: %)

Age	18-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
Experience	1-2	2-3	6-9	10-14	15-19	20-29	20-29	20-29	20-29
Small firms									
1958	66	67	90	100	72	54[1]		35[2]	
62	82	91	101	100	91	72[1]		31[2]	
66	77	88	101	100	99	90[1]		80[2]	
70	83	87	97	100	112	82[1]		61[2]	
81	124	126	110	100	96	86	85	88	76
85	122	120	102	100	102	95	92	86	87
Medium firms									
1958	45	51	82	100	99	83[1]		85[2]	
62	57	72	93	100	123	122[1]		119[2]	
66	60	73	93	100	106	105[1]		113[2]	
70	69	75	94	100	119	97[1]		81[2]	
81	92	101	106	100	101	99	99	104	91
85	94	104	99	100	109	110	112	105	105
Large firma									
1958	38	43	77	100	124	120[1]		130[2]	
62	42	55	85	100	156	159[1]		169[2]	
66	50	62	81	100	120	120[1]		141[2]	
70	65	74	92	100	116	96[1]		105[2]	
81	68	79	96	100	104	103	108	98	91
85	81	94	100	100	121	123	124	118	116

1 For the age group, 40 - 49, with experience of 20-29 years.
2 For the age group, 50 - 59, with experience of 20-29 years.

and that between medium and large firms as

$$1 - w_M/w_L.$$

Similarly for differentials at the standard age. Therefore, the following propositions concerning relative wages can be immediately translated into propositions in terms of wage differentials.

It is apparent that the above mentioned facts concerning wage curves in the year 1958, that is $I_S > I_L$ and $I_M < I_L$, imply that for small firms relative wages at the standard age, w_S^*/w_L^* were smaller than those at the initial age w_S/w_L, while in the case of medium firms the reverse relationship was true: $w_M^*/w_L^* > w_M/w_L$.

Beginners were relatively (i.e. in terms of relative wages w_S/w_L) more favourably treated than 'standard' workers in small firms, whereas they were treated less favourably in medium firms. Anyway, in both cases standard relative wages were less than 1, whilst initial relative wages (w_S/w_L or w_M/w_L) were sufficiently small. In fact, initial relative wages were not much greater than 1 for small firms and well below 1 for medium firms; hence standard relative wages were less than 1 for both sizes of firm in 1958, at 78% and 86%, respectively.

In 1985, we see from Table 2 that wage indices satisfy $I_S > I_M > I_L$, so that small firms' and medium firms' relative wages in terms of large firms' wages were increasing between the initial and standard ages. Whereas both w_S/w_L and W_M/w_L at the starting age were greater than one, standard relative wages in small and

Table 4. Relative wages of male, non-manual workers with senior high school education or more.

(unit: %)

Age	18-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
Experience	0-1	1-2	3-5	6-9	10-14	15-19	20-29	20-29	20-29
w_S/w_L									
1958	118	86	81	78	73	70[1]		70[2]	
62	82	87	88	77	74	67[1]		64[2]	
66	85	97	90	87	84	79[1]		74[2]	
70	71	78	78	79	79	78[1]		73[2]	
81	85	76	70	70	73	71	71	72	73
85	136	92	88	79	83	80	79	79	80
w_M/w_L									
1958	69	86	89	86	85	82[1]		82[2]	
62	83	94	96	88	87	84[1]		82[2]	
66	87	97	97	94	92	89[1]		87[2]	
70	77	84	85	87	87	90[1]		85[2]	
81	85	84	79	80	84	82	83	84	85
85	114	95	92	86	89	87	89	89	89

1 For the age group, 40 - 49, with experience of 15 - 19 years.

2 For the age group, 50 - 59, with experience of 20 - 29 years.

medium firms were both less than 1 (i.e. 79% and 86%, respectively), since I_L/I_S and I_L/I_M are sufficiently small. Table 4 shows that except for 1966 and 1981 standard relative wages of small firms, w_S^*/w_L^*, were all between 77% and 79%, while those of medium firms were between 86% and 88%. The figures for 1966 are exceptionally high; the table shows them as 87% for small firms and 94% for the medium firms, compared with the exceptionally low figures of 70% and 80% respectively, for 1981. With these exceptions it is observed that standard relative wages and, hence, standard wage differentials, do not exhibit any upwards or downwards trend.

Other observations which may be derived from Table 4 are as follows. First, for the first four years, 1958, 1962, 1966 and 1970, relative wages for older workers are lower than the corresponding standard wages for small and medium firms, while for the last two years, 1981 and 1985, such a decline in relative wages can no longer be seen. This implies that for each age group relative wages improved during the period, 1958 - 1985. That is to say, for each age group senior to the standard one we can observe an upwards trend in relative wages, notwithstanding some ups and downs. We may conclude that as far as male, non-manual workers with higher education are concerned, the problem of senior workers' low relative wages was finally solved in the eighties; these workers have at last in comparative terms, become as equally paid as are 'standard' workers.

As for the remaining three groups of male workers, i.e. (1) manual or (2) non-manual workers, both with junior high school education only, and (3) manual workers with senior high school

education or more, small firms have been particularly in arrears of large firms in effecting seniority wage payment schemes. In the case of manual workers with compulsory (junior high school) education only, the scheme was barely operative even in 1985. But as in large firms the scheme became very weak in the eighties and virtually ineffective in 1981 and 1985, older workers in this group working in small firms are now treated almost equally with workers in the standard age group, at least in terms of any comparison with corresponding workers in large firms. For the first four dates of our period, the wages paid to workers in the age group, 50 - 59, were only 40 - 66% of those paid to corresponding workers in large firms. In view of the relative wages of workers in the standard age group, i.e. 65 - 84%, it must be said that older workers have been subject to especially bad treatment. In the two years in the eighties, as said above, they were receiving more or less equal treatment with standard workers, but remained poorly paid by comparison with corresponding workers in large firms, receiving only 64 - 71% of the wages of their large firm counterparts at age 50 - 59, as against 66 - 74% at the standard age. (See Table 5.)

Situated between non-manual workers with higher education and manual workers with junior high school education only, we find manual workers with higher education and non-manual workers with compulsory education only. Of these the former are less favourably treated than the latter. In these two groups 1970 relative wages for the age group, 50 - 59, were as low as 68 - 71% of the wages of corresponding large firm workers, while 76 - 79% of the wages of large firm workers were paid to standard age

Table 5. Relative wages of male, manual workers with junior high school education only.

(unit: %)

Age	18-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
Experience	1-2	2-3	6-9	10-14	15-19	20-29	20-29	20-29	20-29
w_S/w_L									
1958	81	84	72	65	56		55[1]		50[2]
62	110	97	81	72	61		56[1]		49[2]
66	113	104	96	84	79		77[1]		66[2]
70	76	78	76	74	74		73[1]		63[2]
81	90	81	68	66	66	65	63	64	65
85	100	87	77	74	73	72	71	71	70
w_M/w_L									
1958	101	102	93	89	81		77[1]		74[2]
62	108	106	95	90	81		80[1]		78[2]
66	106	104	102	94	87		89[1]		84[2]
70	80	84	84	85	87		87[1]		77[2]
81	97	93	81	82	82	83	81	83	85
85	92	87	84	81	82	82	83	83	83

1 For the age group, 40 - 49, with experience of 20 - 29 years.

2 For the age group. 50 - 59, with experience of 20 - 29 years.

group workers. Such discriminatory treatment of older persons, a typical and long standing phenomenon in Japan, was more obvious in the earlier years, 1958 and 1962, particularly for manual workers with a higher education, for whom the relative wages of senior workers of age 40 or above often took on values below 60%. Such workers were treated almost as badly as senior manual workers possessing only compulsory education. In the eighties, senior workers were finally more favourably dealt with.

For female workers similar findings may be observed, but on an enlarged scale. First, the workers for whom wage differentials between small and medium firms and large firms are the smallest, are non-manual workers with senior high school education or more, while the largest wage differentials are found among manual workers with compulsory education only. Between them we find manual workers with higher education and non-manual workers with compulsory education, of whom the former are less well treated than the latter. This ordering of the degree of wage differentials among the four groups of female workers is identical to that for male workers.

Reflecting traditional discrimination against women workers and manual work, both of which still prevail in contemporary Japan, the figures for relative wages of female workers in their forties and fifties are, regardless of their educational background, miserable. (See Tables 6 and 7.) In the case of manual workers with compulsory education only, relative wages of small firms (in terms of wages in large firms) sometimes take values below 50%, or even 40%, for workers more than 40 years of age. Even for the years 1981 and 1985, when they were best paid,

the figures remain below 60%. For workers with a senior high school education relative wages were slightly higher, but these changes can hardly be regarded as a significant improvement.

However cruel and shameful it may be, it is not surprising that such a degree of discrimination persists in Japan despite her becoming one of the world's major industrial countries. Japan is a Confucian country; I myself have referred to her economy as a type of Confucian capitalism. The work ethic in such an economy accords with Confucian social philosophy. It is a strongly male-chauvinistic philosophy developed for feudalism advocating intellectualism and elitism. In such a context it is natural that females should be subject to discrimination, and non-manual desk work is put above manual productive work. As a Confucian capitalist country Japan allocates labour between manual and non-manual workers, mainly according to the level of education a person has received. That is to say, those with elementary education usually only become manual workers, while most of those with senior high school education or above are employed as non-manual workers. Once a person becomes a manual worker, regardless of his/her higher education he/she is a manual worker, and is treated almost as unfavourably as other manual workers who have only received an elementary education. Where such disdain persists, it is natural that it is female manual workers who receive the least protection from labour unions. Employers do not extend paternalistic policies to them, and no seniority payment scheme is applicable to them. This is especially true of small firms, where financial conditions are usually very difficult. Therefore, older, female workers in

Table 6. Relative wages of female, manual workers with junior high school education only.

(unit: %)

Age	18-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
Experience	1-2	2-3	6-9	10-14	15-19	20-29	20-29	20-29	20-29
w_S/w_L									
1958	94	86	64	55	32		25[1]		15[2]
62	142	121	90	73	42		33[1]		13[2]
66	120	111	97	78	65		59[1]		44[2]
70	81	75	70	63	61		54[1]		36[2]
81	109	96	69	60	55	50	47	54	50
85	109	93	74	73	62	56	55	53	55
w_M/w_L									
1958	96	99	88	82	65		57[1]		54[2]
62	121	119	99	90	71		69[1]		63[2]
66	107	106	103	90	80		79[1]		72[2]
70	82	78	79	77	79		78[1]		59[2]
81	100	95	82	75	72	72	69	79	74
85	91	86	78	78	71	70	71	70	70

1 For the age group. 40 - 49, with experience of 20 - 29 years.

2 For the age group, 40 - 49, with experience of 20 - 29 years.

Table 7. Relative wages of female, manual workers with senior high school education or more.

(unit: %)

Age	18-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
Experience	0-1	1-2	3-5	6-9	10-14	15-19	20-29	20-29	20-29
w_S/w_L									
1958	143	77	63	58	45	37[1]		28[2]	
62	113	105	95	67	53	38[1]		21[2]	
66	88	69	87	75	70	58[1]		46[2]	
70	74	77	69	65	61	63[1]		51[2]	
81	110	88	70	60	58	53	50	52	57
85	104	87	80	64	67	59	56	57	58
w_M/w_L									
1958	39	63	71	59	66	59[1]		55[2]	
62	93	101	101	80	75	69[1]		64[2]	
66	86	66	97	87	84	77[1]		71[2]	
70	76	82	81	78	76	83[1]		69[2]	
81	96	87	75	68	73	68	68	71	75
85	107	81	79	69	73	68	72	72	72

1 For the age group, 40 - 49, with experience of 15 - 19 years.

2 For the age group, 50 - 59, with experiemce of 20 - 29 years.

small firms are extremely poorly paid by comparison with those working in large firms.

Koike, as I have already pointed out, tends to disregard this kind of phenomenon, despite it being easily observable in Japan, even in the 1980s. He states: "For female blue collar workers, wage differentials based on a difference in firm-scale are confined to within about 15 - 25% for most EC countries. Differentials in Japan, too, are within the same range. For female blue collar workers too, Japan is not by any means an exception, such workers' differentials falling in the lower part of the EC range. ... In any case, apart from male white collar workers, it generally follows from comparison with EC countries that Japan is not a country with big wage differentials."[8] A comment of this kind, which fails to mention the extraordinary discrimination which exists against older female workers, is at the very least somewhat misleading. It comes from not estimating the wages of workers according to their various characteristics by applying an appropriate factor analysis, but simply comparing aggregate statistics of various countries.

5. Manual and Non-manual Labour, and Education

It is true, as has been pointed out by Koike, that wage differentials between manual and non-manual labour are very small in Japan. However, in order to get a more accurate view of occupational wage differentials the effects of education have to be removed. Koike views this small differential as evidence of

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[8] Koike, op. cit., pp.83 - 4.

the super-advanced nature of Japanese firms compared with firms in EC countries,[9] though I must confess that I am unclear why an egalitarian wage payment to manual and non-manual labour -- a disincentive to the latter, though welcomed by the former -- should be advanced, or super-advanced.

Koike also points out that wage differentials based on differences in the level of education are low in Japan (at least in comparison with the USA).[10] It should be noted that his indices for representing these differentials are aggregate indices, each including both manual and non-manual workers. They therefore do not reflect wage differentials due to education alone, but include those due to occupation. In fact, where junior high school graduates can only be manual labourers and those with at least a senior high school education can become non-manual workers, Koike's index for relative wages based on different education levels will be identical to that for the relative wages of manual and non-manual workers. They are no more than different names for the same thing. As long as we stick to this method of comparing wage differentials, we cannot identify in the total index that element which is solely due to educational background and that which is solely due to occupation.

It is, of course, true that all junior high school leavers do not become manual workers; some work in offices. It is also true that those with further or higher education do not

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[9] Op. cit., p.5

[10] Op. cit., pp.77-9

necessarily become white collar workers. It is, however, highly probable that school leavers from junior high school will become manual workers, while those with further or higher education will find themselves in the white collar class. It would seem to be important and of interest to identify that part of the observed wage differentials purely due to education, and that purely due to occupation, by comparing, say, male, manual workers with only compulsory education with male, non-manual workers with senior high school experience.

Let w^m_{MJS} be the per capita wages of male, manual workers with junior high school education working in the small firm sector, and w^m_{NSS} those of male, non-manual workers with senior high school education working in the S sector. The comparison is of workers belonging to the same age group and having the same work experience. Total wage differentials are given by

$$A_S = 1 - w^m_{MJS}/w^m_{NSS}$$

where the S applied to A refers to the fact that the measurement of A is based on workers in the S sector. On the other hand, differentials purely due to education may be given

$$B_S = 1 - w^m_{MJS}/w^m_{MSS}$$

and those purely due to occupation by

$$C_S = 1 - w^m_{MSS}/w^m_{NSS},$$

where the notation is evident: w^m_{MSS} refers to per capita wages of

male, manual workers with further or higher education working in the S sector. We can show that the sum of the last two approximates the first, namely:

$$A_S \equiv B_S + C_S.^{11}$$

In this approximation the measurement of wage differentials due to education is based on male, manual workers in small firms. Alternatively, we may measure it on the basis of male, non-manual workers in the same group of firms. We then have

$$B'_S = 1 - w^m_{NJS}/w^m_{NSS}$$

In this case we have to measure wage differentials due to occupation, on the basis of small firm workers with elementary education only, as

$$C'_S = 1 - w^m_{MJS}/w^m_{NJS}$$

We get another equation of approximation

$$A_S \equiv B'_S + C'_S$$

Of course B_S generally differs from B'_S, and C_S from C'_S.

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[11] The error of the approximation amounts to $B_S\ C_S$, so that where B_S and C_S are small in absolute value, the approximation is satisfactory.

Table 8. Effects of occupation and education upon the wage differentials between manual workers with junior high school education only and non-manual workers with senior high school education or more; the case of male workers

(unit: %)

Age	40 - 49				50 - 59			
Experience								
J.H. education	20 - 29				20 - 29			
S.H. education	15 - 19				20 - 29			
Small firms	B_S/A_S	C_S/A_S	B'_S/A_S	C'_S/A_S	B_S/A_S	C_S/A_S	B'_S/A_S	C'_S/A_S
1958	82	30	91	16	*	*	87	24
62	80	33	93	13	*	*	90	18
66	68	39	93	11	89	22	89	16
70	72	36	104	-4	51	59	81	27
81	66[1]	41[1]	79[1]	28[1]	69[2]	40[2]	69[2]	43[2]
85	82[1]	23[1]	73[1]	32[1]	70[2]	37[2]	60[2]	47[2]
Medium firms	B_M/A_M	C_M/A_M	B'_M/A_M	C'_M/A_M	B_M/A_M	C_M/A_M	B'_M/A_M	C'_M/A_M
1958	94	9	100	3	81	29	88	20
62	93	11	104	-4	81	28	86	19
66	90	10	105	-10	81	25	88	19
70	76	29	110	-14	53	59	82	26
81	73[1]	32[1]	86[1]	18[1]	72[2]	34[2]	66[2]	41[2]
85	94[1]	6[1]	83[1]	22[1]	69[2]	38[2]	58[2]	50[2]
Large firms	B_L/A_L	C_L/A_L	B'_L/A_L	C'_L/A_L	B_L/A_L	C_L/A_L	B'_L/A_L	C'_L/A_L
1958	100	0	104	-4	71	37	80	29
62	105	-5	115	-15	76	33	82	24
66	94	6	106	-11	72	34	79	24
70	127	-36	*	*	50	57	79	29
81	64[1]	41[1]	68[1]	36[1]	67[2]	41[2]	63[2]	48[2]
85	79[1]	21[1]	64[1]	43[1]	57[2]	48[2]	48[2]	62[2]

* The estimate is not listed because the rate of error is large, i.e. 13% or more.

1 For the age group, 40-44, with experience of 20-29 and 15-19 years, respectively, for junior and senior high school graduates.

2 For the age group, 50-54, with experience of 20-29 years for both junior and senior high school graduates.

Similarly, we may define A_M, B_M, C_M, etc., or A_L, B_L, C_L, etc. on the basis of workers working in medium and large firms, respectively. The results of the numerical analysis of A_L and B_L and C_L or B'_L and C'_L, together with the results of similar analysis of A_M and A_S, are shown in Table 8, from which we find that the effect of education upon wage differentials between uneducated manual and educated non-manual workers is surprisingly small. It would seem to be so small that investment in education would not yield wage differentials at least as high as the amount of amortization and interest on the capital invested. In the pre-war period the entrance examinations for high schools were very competitive, but since the war they have been replaced as the most difficult and important examinations in the life of a Japanese by university entrance examinations. As these examinations are so competitive, a significant proportion of candidates have to repeat, often several times. During these retrial years, not only the candidates themselves, but their parents, sisters and brothers too, have to live in a state of anxiety, and forget to smile.

Despite this, boys in particular -- but girls as well -- rush to universities. This is true not only for those from the middle class, but also for most working class children. It is obvious that Japanese students have to cope with this examination ordeal without any hope of a significantly higher income in the future. Judged from this point of view, they are irrational indeed, and we must conclude that the economic theory of investment in human capital is wrong, at least in Japan in both the pre-war and post-war periods. If we widen the scope,

however, and take the non-pecuniary, sociological aspects of education into account, it is possible to understand the reasonableness of the hectic kind of competition among students in Japan.

Under the influence of Confucianism, Japanese, like Chinese, classify people into 'illiterates' and 'literati'. This classification, like the occidental one of 'poor' and 'rich' is decided by both heredity and competition, although the heritages received is in the form of nature or character in the case of oriental societies, whereas it comes as wealth in the Occident. These two types of societies differ in that 'oriental' competition is carried on mainly during people's period at school, while in the west it occurs mainly in their time at work. Those who are successful in entrance examinations are recognized as a member of the 'literati' classes, which opens wide opportunities to them. Not only is a white collar job likely to be provided -- important, despite the insignificant pecuniary gain, because Japanese usually despise and look down upon manual work -- but he/she is also likely to be able to find a spouse from the same educational class. Senior high school education (or perhaps university education) is the minimum condition for being a member of the 'middle' class in contemporary Japan. This is true to some degree even if a person with such an educational background becomes a manual worker; he/she will be regarded as belonging to the fringe of the middle class or the semi-middle class. In any case, without consideration of these social elements, it is very difficult, if not impossible, to explain Japan's high rate of investment in education.

Table 8 shows that usually less than 40% of total wage differentials between uneducated manual and educated non-manual workers is due to difference in levels of education, while the remaining 60% (or more than 70% if errors are ignored) is due to occupation. The results for female workers are given in Table 9. It can be seen that the effects of education upon wage differentials are negative in many cases, especially while workers are young;[12] even where they are positive, it is usually less than 40%, and the effects of occupation are much more dominant. From this we may conclude that the economic inducement for sending girls to senior high school in Japan is still very low, because female workers' wages are much lower than those of male workers. Women's higher education is still a part of their bridal wear.[13]

The first half of Table 10 shows the ratios of wages of female manual workers with junior high school education only (w^f_{MJ}) to the corresponding wages of senior high school graduates (w^f_{MS}) for the most recent three years of the selected period, 1970, 1981 and 1985. The second half gives similar relative wages for female non-manual workers, that is to say, w^f_{NJ}/w^f_{NS}. It can be seen from the table that the rate of return on investment

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[12] Junior high school graduates usually get a job a few years earlier than senior high school graduates; so the formers' wages are higher than the latters' for those in the same group. Negative figures imply overqualification.

[13] There are some inevitable discrepancies between the results in terms of B/A and C/A and those in terms of B'/A and C'/A. Table 9 presents the former only, from which I have derived the above conclusion. It should be noted, however, that substantially the same conclusion would follow from a table of results in terms of B'/A and C'/A.

Table 9. Effects of occupation and education upon the wage differentials between manual workers with junior high school education only and non-manual workers with senior high school education or more: the case of female workers

(unit: %)

Age	30 - 34		35 - 39		40 - 49	
Experience						
J.H. education	10 - 14		15 - 19		20 - 29	
S.H. education	6 - 9		10 - 14		15 -19	
Small firms	B_S/A_S	C_S/A_S	B_S/A_S	C_S/A_S	B_S/A_S	C_S/A_S
1958	*	*	*	*	*	*
62	135	-45	80	29	*	*
66	121	-26	75	33	*	*
70	100	0	103	-6	*	*
81	114	-10	97	3	79[1]	33[1]
85	109	-9	84	22	81[1]	29[1]
Medium firms	B_M/A_M	C_M/A_M	B_M/A_M	C_M/A_M	B_M/A_M	C_M/A_M
1958	*	*	119	-30	*	*
62	*	*	103	-6	*	*
66	115	-20	81	28	94	6
70	105	-10	117	-21	*	*
81	*	*	115	-20	90[1]	13[1]
85	110	-10	92	8	91[1]	12[1]
Large firms	B_L/A_L	C_L/A_L	B_L/A_L	C_L/A_L	B_L/A_L	C_L/A_L
1958	*	*	*	*	83	23
62	100	-4	127	-33	88	15
66	100	0	88	16	96	4
70	121	-21	105	-5	75	29
81	131	-31	125	-31	76[1]	34[1]
85	55	55	108	-8	79[1]	29[1]

* The estimate is not listed because the rate of error is large, i.e. 13% or more.

1 For the age group, 40-44.

Table 10. The educational wage differentials among female workers (unit: %)

Age		18 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59
Experience	J.H. education	1 - 2	2 - 3	6 - 9	10 - 14	15 - 19	20 - 29	20 - 29	20 - 29	20 - 29
	S.H. education	0 - 1	1 - 2	3 - 5	6 - 9	10 - 14	15 - 19	20 - 29	20 - 29	20 - 29
w^f_{MJ}/w^f_{MS}										
Small firms	1970	127	114	119	107	80	61[1]			53[2]
	81	114	124	104	104	99	86	85	85	69
	85	135	119	97	102	93	88	87	81	82
Medium firms	1970	127	116	113	110	87	70[1]			63[2]
	81	120	125	115	113	104	96	91	90	78
	85	129	112	104	89	101	93	89	87	87
Large firms	1970	116	120	143	105	104	78[1]			75[2]
	81	114	113	105	104	105	90	90	81	79
	85	129	112	104	89	101	93	89	87	87
w^f_{NJ}/w^f_{NS}										
Small firms	1970	165	146	138	123	112	104[1]			99[2]
	81	113	107	104	96	91	92	84	83	84
	85	129	94	94	93	97	90	85	83	83
Medium firms	1970	164	145	136	123	112	102[1]			98[2]
	81	121	108	107	104	96	98	87	87	87
	85	129	94	94	93	97	90	85	83	83
Large firms	1970	146	146	131	117	112	102[1]			99[2]
	81	113	99	105	99	94	93	87	87	87
	85	129	94	94	93	97	90	85	83	83

1 Age, 40 - 49, with experience, 20 - 29, for J.H. and 15 - 19, for S.H. graduates.

2 Age, 50 - 59, with experience, 20 - 29, for both J.H. and S.H. graduates.

in sending a girl to senior high school is certainly negative for a girl who becomes a manual worker after graduation, assuming that she retires from the job before the age of 40, as female workers usually do in Japan. The same is true for non-manual workers for the years 1970 and 1981. In 1985, however, the rate of return in the case of non-manual workers is just positive, but small in magnitude, probably too small, in fact, to compensate for the investment in higher education. We may consequently conclude that existing wage differentials between uneducated and educated workers provide no economic incentive to education beyond the compulsory period. Nevertheless, if it is the case that further education develops individuals' abilities and talents and their productivity is therefore higher than that of less educated workers, most of the additional production gained by employing workers with a senior high school education or above would remain in the hands of employers. If this was so, they would pay more to workers with a senior high school education in order to employ more of them. This does not actually happen. A move towards equilibrium is prevented in an economy where relative wages tend to adhere to those traditionally considered as reasonable, as is the case in Japan.

In the case of male workers, the table of relative wages, w^m_{MJ}/w^m_{MS} or w^m_{NJ}/w^m_{NS}, is not significantly different from Table 10, although educated workers are more favourably treated compared with uneducated workers than is the case for female workers. In view of the fact that most male workers, unlike females, continue to work until the age of 59 or more, and given that wages for the age groups 40-49 and 50-59 are, in general, much higher than

those for workers aged 30-39, we may say that investment in higher education for boys may well be economically justifiable. In the case of women, however, a senior high school education may be taken as unnecessary, or superfluous, for both manual and non-manual workers, at least in as far as any decision to take such education is based solely on economic calculation. This was true even in 1985. Japanese parents decide to send their daughters to institutions of higher education, not because of economic calculations, but on the basis of socio-cultural considerations, or because they appreciate the intrinsic value of education. This anti-Chicago motive is quite strong in a Confucian country like Japan.

6. Sex

The age profile of relative wages between female and male workers may be examined by dividing it into four phases: (1) the first two age groups, 18 - 19 and 20 - 24, (2) the second half of the twenties, 25 - 29, (3) the two groups of the thirties, 30 - 34 and 34 - 39, (4) the four remaining age groups of the forties and fifties, 40 - 44, 45 - 49, 50 - 54, 55 - 59. In the first phase, both male and female school leavers get a job through the open, competitive labour market. If there is excess demand for male workers their wages will be high, so that employers will shift their demand for labour from male to female workers, and the latter's wages will tend to rise. Female workers' relative wages in terms of the wages of male workers do not deviate far from 100% in this phase. They are still high, around 70%, in the second phase, which is a transition period between the first and third phases. In 1981 and 1985 this was

Table 11. The wage differentials between female and male workers, (unit: %)

Age		18 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54	55 - 59
Experience	J.H. education	1 - 2	2 - 3	6 - 9	10 - 14	15 - 19	20 - 29	20 - 29	20 - 29	20 - 29
	S.H. education	0 - 1	1 - 2	3 - 5	6 - 9	10 - 14	15 - 19	20 - 29	20 - 29	20 - 29
w^f_{MJ}/w^m_{MJ}										
Small firms	1970	94	76	58	51	43		35[1]		31[2]
	81	138	113	77	59	49	44	43	45	42
	85	95	94	69	58	52	44	44	42	45
Medium firms	1970	90	75	60	56	50		45[1]		41[2]
	81	118	99	76	59	52	49	49	51	48
	85	86	87	66	56	54	48	48	47	49
Large firms	1970	89	77	64	60	60		55[1]		54[2]
	81	114	96	75	65	60	57	57	53	55
	85	87	88	71	58	62	57	57	56	57
w^f_{NJ}/w^m_{NJ}										
Small firms	1970	142	115	91	74	69		69[1]		67[2]
	81	159	113	76	63	56	55	56	57	56
	85	98	98	73	64	62	56	55	54	57
Medium firms	1970	140	115	92	78	73		73[1]		69[2]
	81	115	94	69	61	56	57	57	58	57
	85	87	90	69	62	61	57	57	57	
Large firms	1970	123	114	92	77	83		76[1]		74[2]
	81	116	95	75	68	63	63	64	65	59
	85	86	90	72	67	67	62	62	61	63
										64

1 Age, 40 - 49, with experience, 20 - 29, for J.H. and 15 - 19, for S.H. graduates.

2 Age, 50 - 59, with experience,20 - 29, for both J.H. and S.H. graduates.

generally true for all types of workers: manual or non-manual workers with junior or senior high school education.

In the second phase, though many female workers are still employed, the greater part of them retire for a while. They start to work again during the third phase. (See Table 11.) That the wage differentials should be very unfavourable to female workers in this third phase, therefore, is a serious problem. A simple average of the six relative wages of small, medium and large firms for the age groups 30 - 34 and 35 - 39, is 57% for 1981 and as low as 56.5% for 1985. The same averages for the fourth phase for 1981 and 1985 are 49 and 49.5%, respectively. These are the figures for manual workers with junior high school education only. The results for those with some kind of further or higher education are more or less similar, being 54 and 52% for the third and fourth phases in 1981, and 58 and 52% in 1985.

These figures suggest that Japan in the 1980s was still worse than Britain at the beginning of the 1970s, when Britain was the most notorious of the EC countries in the degree of discrimination against female workers. As wages in the third and fourth phases are determined mainly in the internal labour market of each firm, the big wage differentials between the sexes may be considered as a reflection of the fact that they are unfavourably treated by both employers and labour unions. This is not a surprising phenomenon at all in a Confucian country like Japan, where traditionally 'women and small men' have been looked down upon and discriminated against because of their alleged (by Confucius) 'senselessness'.

This conclusion regarding manual workers is confirmed as a

general conclusion which holds true for non-manual workers too. As far as non-manual workers with a junior high school education only are concerned, the simple average of relative wages during the third phase is 61% in 1981 and 64% in 1985. Similar averages for the fourth phase are 59% in 1981 and 58% in 1985. There is no substantial change in the results if we average the figures for non-manual workers with senior high school education or above. These statistics enable us to conclude that, in the case of non-manual workers, wage differentials according to sex in Japan in the 1980s are at least as bad as those obtaining in Britain in the early 1970s.

Professor Koike has made very similar observations,[14] but he seems reluctant to characterise Japan as a Confucian country. He tries to explain the big wage differentials between the sexes in Japan by factors such as operate in any Western economy. He points out that many female workers retire from their jobs for a while to take care of their children in their late twenties, and return to work in the course of their thirties. There is, therefore, says Koike, a substantial difference in experience found between female and male workers of the same age after they reach 30 years of age. He then concludes his argument by conjecturing that wage differentials between the sexes can reasonably be explained by the clearly observable insufficiency of experience of female workers.

Unfortunately this conjecture does not apply to the wage differentials discussed above, where wage comparisons are between

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[14] See Koike, op.cit., pp. 250-58

members of the two sexes in the same age group with the same number of years of experience. Moreover, long service is not well appreciated in the case of female workers, so that, contrary to Koike's conjecture, wage differentials due to sex will not be diminished and might even be adversely influenced, if female workers stay on at their jobs throughout their late twenties. In the worst cases, even allowing for some exaggeration, female workers' wages are determined in Japan in pretty much the same way as bunny girls are priced in night clubs. This has been true, and may still be true, to varying degrees of Western countries too. In my view, however, it is impossible to account for this characteristic in Japan without recognising that Japan is a Confucian country.