

# Pay differentials: the case of Japan

*In Japan, as in the United States, employees' investment in human capital cannot fully explain the tendency of larger firms to pay higher wages; idiosyncrasies of the labor market, such as the extensive payment of bonuses and practices related to lifetime employment, may account for much of the remaining gap*

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In a review of industrial relations research conducted during the 1970's, James G. Scoville writes that, in both Japan and the United States, size-of-firm wage differentials are explained by differences in employees' human capital.<sup>1</sup> However, two recent studies suggest that human capital differences do not completely explain the differentials in this country. Using data for 1979, Wesley Mellow found that wages in firms of 1,000 or more workers were 8 percent greater than those in firms with fewer than 25 workers when a number of factors, including education and experience, were held constant.<sup>2</sup> Martin E. Personick and Carl B. Barsky, who studied pay at various experience and responsibility levels of professional, technical, and clerical occupations, reported size-of-firm differentials for all but 1 of 25 job levels. Typically, these were only for the largest corporations (more than 10,000 employees), where differentials were 10 to 15 percent for professionals and 20 percent for clerical and technical occupations over pay in firms with 500 or fewer employees.<sup>3</sup>

If elements of human capital do not completely explain size-of-firm differentials in the United States, is Japan a similar case? This article explores that issue, and suggests

an answer based on data from the *Chingin Kōzō Kihon Tōkei Chōsa* [Wage Structure Survey].<sup>4</sup>

## The employment decision in Japan

The model employment relationship in Japan is that of *Shūshin Koyō* [lifetime employment].<sup>5</sup> Under this system, workers are initially employed upon graduation from school. Once a worker is hired, the firm goes to great lengths to provide continuous employment until the individual retires, sometime between the ages of 50 and 60. In return for the understood employer commitment to long tenure, the employee is expected to devote himself fully to the firm and to allow management considerable flexibility as to the type and geographical location of work assignments.

Remuneration consists of a basic wage, various allowances, a semiannual bonus, and a number of fringe benefits. The basic wage depends upon the employee's education, age, and job abilities. It is increased annually based upon decisions made in collective bargaining. The annual increase consists of two parts, one of which recognizes an additional year of service to the firm, new job abilities, and merit, and another that is a general increase in the base wage.

Given the employment opportunities and wage patterns faced by the graduating student, what pecuniary variable should be used in making the employment decision? Clearly, it is some subjective assessment of the present value of

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future earnings with the various firms. Such a present value calculation would incorporate expected growth of the firm relative to the economy, the pattern of wages associated with long tenure, the pattern of wages if tenure is short because of voluntary mobility or the firm's economic difficulties, and so forth. For the observer trying to approximate such individual calculations, the most desirable data would be those on wages and bonuses by worker age, education, and length of service, and, for the question at hand, the size of the employing firm. Fortunately, these data are available in the annual Wage Structure Survey. It is thus possible to account for the principal elements of human capital that economists believe are important for wage determination, and to differentiate these among three size-of-firm categories. (Of course, the individual graduate also considers other, unquantifiable factors, such as his preference for risk, the prestige of the firm, and subjective probabilities of advancement, in making the final decision.)

### Differentials by size of firm

Table 1 presents monthly wage and wage-plus-bonus<sup>6</sup> relationships by size of firm and by workers' age and educational attainment for Japanese men who have been continuously employed by the same firm. (In 1980, about one-fourth of the regular private-sector labor force were employed by firms of 1,000 workers or more, and another one-fourth were in firms with 100 to 999 employees.) According to the table, compensation is generally less in the smaller companies, regardless of worker age or education. Monthly wages are about the same in the two smaller size classes until workers are in their forties, when those in the medium-size firms begin to receive more. When bonus payments are included as compensation, the differences between the largest and smallest firms become more dramatic. In general, the higher the level of education, the larger is the wage gap by size of firm.

To more fully illuminate these relationships, table 2 presents compensation relatives by industry for broad age categories of high school and college educated men. Data

underlying the estimates relate to individuals whose tenure suggests that they have been continuously employed by the same firm since graduation. Thus, only a few of all possible matched age-tenure pairs are shown, but these represent core groups in the economy. Two distributions are presented, one for monthly wages and one for monthly wages plus one-twelfth of annual bonus payments. Again, the inclusion of bonuses tends to increase the income differences among the three size-of-firm classes, and the benefits of working for the larger firms increase with age and tenure.

The pay relatives suggest little in the way of systematic variation by industry, although those for transportation and communications tend to be quite high in smaller firms while those in finance and insurance are comparatively low. The indices of each industry's differentials were ranked and compared to rankings by union penetration and proportion of total employment in large firms by industry. Neither comparison indicated any systematic relationship with size-of-firm differentials.

Except for occupations that require substantial training—airline pilots, construction crafts, and so forth—occupational distinctions are weakly, if at all, correlated with wages in Japan. Hence, while table 3 shows significant occupational wage differentials by size of firm, these results may be less meaningful than estimates based on other variables.

The data in table 2 do suggest that experience with the firm is seen as a specific human capital investment with its own rewards. Yet the greater opportunity to achieve long tenure which characterizes employment in large firms should also be seen as an additional benefit to such employment, unless the individual worker has a positive taste for risk.<sup>7</sup> New graduates are quite aware that their prospects for long tenure with a large firm are more promising than with a smaller firm. For example, in 1981, 79.4 percent of all college educated men age 45 to 49 who were employed in firms with 1,000 workers or more had worked 20 or more years for their current employer. The figure for those in firms with 100 to 999 workers was 54.5 percent, and for firms with 10 to 99 workers, it was 31.7 percent. Earnings

**Table 1. Monthly pay relatives for Japanese men, by firm size and worker's age and educational attainment, 1981**

[Firms with 1,000+ workers = 100]

Worker's age	Junior high school graduates				High school graduates				College graduates			
	Wage		Wage + bonus		Wage		Wage + bonus		Wage		Wage + bonus	
	100-999 workers	10-99 workers	100-999 workers	10-99 workers	100-999 workers	10-99 workers	100-999 workers	10-99 workers	100-999 workers	10-99 workers	100-999 workers	10-99 workers
18-19	94	97	97	87	95	93	93	91	—	—	—	—
20-24	93	98	90	89	95	97	93	91	99	97	97	93
25-29	98	106	96	96	93	97	91	92	91	95	85	88
30-34	96	100	100	92	91	94	89	87	88	94	85	86
35-39	94	94	94	87	89	88	86	81	86	89	82	80
40-44	96	95	95	85	87	83	82	75	83	83	78	75
45-49	94	85	85	78	87	83	81	72	85	79	79	69
50-54	92	77	77	72	91	79	86	69	88	80	80	70

NOTE: Data refer to men who have been continuously employed by the same firm.

SOURCE: 1981 Wage Structure Survey, vol. III, pp. 139-41.

data for 50- to 54-year-old high school educated men suggest that workers do not have to pay a compensation premium for the greater probability of long tenure: Among those with 30 or more years of tenure, wages plus bonuses in large firms are 17 percent higher than in middle-size firms and 31 percent higher than in small firms, while the comparable figures for similarly aged workers at all levels of tenure are 25 percent and 40 percent.

Employment opportunities for women, especially at high-level jobs and with the major employers, are markedly different from those for men, although there have been changes toward equality during the postwar years. In particular, men's wages increase more with age: In 1981, the 50- to 54-year-old high school educated male with 1 to 2 years of firm tenure had a monthly wage that was 56 percent higher than that of a similarly educated 18- to 19-year-old. Among women, the worker age 50 to 54 received only 17 percent more than her younger counterpart. Yet, firm-specific tenure appears to be relatively more valuable for older women than for older men. This is probably because women with brief tenure are likely to have been in the labor market for only a short time, which is not typically the case for men. Yet, when the compensation of high school educated workers with at least 30 years' tenure was compared by size of firm, the patterns for men and women were quite similar. Women's wages plus bonus in firms with 1,000 workers or more were 18 percent higher than in firms with 100 to 999 workers, and 26 percent higher than in small firms. Again, there is no compensation premium paid by workers for the probability of long tenure in larger firms: At ages 50 to 54 for all levels of tenure, wages plus bonus for women in the largest firms were 36 percent higher than in middle-size firms and 44 percent higher than in the smallest firms.

### The puzzle

It seems clear in Japan, as in the United States, that the standard human capital variables of education and experience do not completely explain, if ever they did, size-of-firm differentials. In addition, it is evident that the Japanese differential is much larger after age 40 or when bonus income is included. Any explanation, therefore, must be consistent with the age pattern demonstrated and the concentration of the differential in the bonus portion of compensation.

It is possible that a more exhaustive test of worker characteristics would reduce the size of the differential. We know, for example, that the most able students enroll in the very best schools, from which the larger, more successful corporations seek employees.<sup>8</sup> Yet it seems unlikely that such difficult-to-measure characteristics of employees could explain wage differentials of the magnitude shown in the tables.

*Widening differential with age.* Some recent studies of compensation by age include variables for implicit contracts, experience, risk, incentives, and so forth, that may explain the Japanese pattern. One approach incorporating a variety of these concepts was presented in a 1982 article by Milton Harris and Bengt Holmstrom.<sup>9</sup>

According to the authors, there are four possible reasons why compensation increases with age: a) firms learn about individual abilities and are better able to match workers to jobs; b) workers begin to pay employers lower implicit premiums to guarantee their ability to do acceptable work; c) employees learn productivity-enhancing skills; and d) pay levels are a particularly important means to motivate employees in a world of lifetime employment security. The first two of these, while consistent with a general widening

**Table 2. Monthly pay relatives by industry and size of firm for selected age and tenure groups of Japanese men, 1981**

[Firms with 1,000+ workers = 100]

Industry	Age 18 to 19 <sup>1</sup>				Age 30 to 34 <sup>2</sup>				Age 35 to 39 <sup>3</sup>				Age 50 to 54 <sup>4</sup>			
	Wage		Wage + bonus		Wage		Wage + bonus		Wage		Wage + bonus		Wage		Wage + bonus	
	100-999 workers	10-99 workers	100-999 workers	10-99 workers	100-999 workers	10-99 workers	100-999 workers	10-99 workers	100-999 workers	10-99 workers	100-999 workers	10-99 workers	100-999 workers	10-99 workers	100-999 workers	10-99 workers
All private . . . . .	93	89	91	88	91	91	88	84	88	79	84	71	86	79	79	60
Mining . . . . .	75	83	77	81	89	93	90	91	95	92	88	84	85	70	82	62
Construction . . . . .	111	102	112	100	90	92	88	83	85	97	84	90	82	82	77	68
Manufacturing . . . . .	90	87	90	86	93	95	91	88	89	93	86	83	82	82	78	68
Trade . . . . .	96	95	95	93	89	85	83	83	87	92	83	83	94	114	88	101
Finance and insurance . . . . .	110	94	106	95	74	69	72	67	80	79	76	75	87	76	80	63
Real estate . . . . .	105	116	100	111	91	85	84	78	92	79	87	70	91	98	80	86
Services . . . . .	101	93	99	92	92	90	91	84	94	93	90	84	88	85	81	73
Transportation and communication . . . . .	124	126	116	116	125	130	110	110	102	102	99	94	95	93	87	83
Utilities . . . . .	102	100	101	96	92	90	94	91	89	85	90	86	80	64	81	63

<sup>1</sup>Data for 18- to 19-year-olds are for those with less than 1 year of firm tenure, or approximately 59 percent of the total age cohort.

<sup>2</sup>Data for 30- to 34-year-olds are for those with 10 to 14 years of tenure, or about 26 percent of the total cohort.

<sup>3</sup>Data for 35- to 39-year-olds are for those with 10 to 14 years of tenure, or about 50 percent of the total cohort.

<sup>4</sup>Data for 50- to 54-year-olds are for those with 25 to 29 years of tenure, or about 38 percent of the total cohort.

**Table 3. Monthly pay relatives by occupation and size of the employing firm for Japanese men age 35 to 39 with 10 to 14 years of tenure, 1981**

[Firms with 1,000+ workers = 100]

Occupation	100-999 workers		10-99 workers	
	Wage	Wage + bonus	Wage	Wage + bonus
Department head	92	86	—	—
Section head	79	74	—	—
Systems engineer	86	84	86	82
Programmer	101	97	95	88
Chauffeur	87	86	77	73
Truck driver	90	89	87	84
Guard	73	66	67	64
Chemical reaction worker	97	96	92	90
Metal press operator	86	85	80	76
Crane operator	106	104	95	89
Lathe operator	93	91	88	85
Machine assembler	92	91	100	85
Mechanical draftsman	94	91	95	89
Auto assembler	93	92	82	78
Retail sales (except department stores)	87	80	87	78

of the wage differentials over time, do not imply a rapid shift after the age of 40. The second two appear to be more relevant.

In the larger firms, there is more physical capital per worker, which could yield greater productivity, and thus justify higher wages. It also is probable that the interaction of higher quality employees with similar employees and with higher levels of physical capital generates greater increases in human capital in the larger firms. The development of productivity enhancing skills with additional tenure may well be an important element in the ability of large firms to pay high wages. Indeed, in the context of a technology-specific skills model, Hong Tan has argued that such gains over a working life are key determinants of Japanese wage patterns.<sup>10</sup> A somewhat similar argument was made by Kazuo Koike, who hypothesized that the more developed system of internal training in large firms provides a greater range of technologically related positions than is true in smaller firms, which in turn contributes to wage differentials by size of firm.<sup>11</sup> However, even if enhanced skills are an important factor, there remains the problem of timing. Why should so much of the differential be concentrated in the years after age 40?

The last element, motivational allowances, may best explain the time pattern.<sup>12</sup> As is well known by the organizers of games of chance, large prizes and prizes that are ever in the future seem to have disproportionate power to motivate participants when compared to their discounted value. Many of the new employees in major Japanese firms will not be there to collect their "prize" at older ages, but the promise of greater compensation is a constant motivating factor. Thus, the firm saves money compared to paying an annual motivational allowance to each employee. In a sense, the firm also has received an interest-free loan from the employee, who has tacitly agreed to defer a portion of compensation to later worklife. In a rapidly growing economy,

such an arrangement is highly advantageous to the firm, but even in less dynamic times an interest-free loan has value.

*Japanese institutions.* There are two institutional factors unique to Japan which also have significantly affected the time pattern of the differential and its size. The concept of a living wage based upon family needs has long been important in Japan.<sup>13</sup> It is rooted in the nation's history, but has become more prominent since World War I, and particularly since the economic difficulties of the post-World War II years. The concept provides that wages should increase over a worker's life to accommodate marriage, the birth of children, the high costs of private college, and savings for early retirement from the primary employer. The latter two factors would suggest significant wage increases after the age of 40.

The second institutional consideration is that the nature of the large corporation in postwar Japan is quite different than in prewar years. Formerly, corporations were uniquely capitalistic, owned and controlled by wealthy individuals. However, share ownership in postwar Japan has tended to be diluted into the hands of other firms and banks. There is a high proportion of capital in the form of loans and internally generated funds, and an almost complete absence of outside directors. These changes, in conjunction with Japanese historical patterns and moral visions, have persuaded many scholars that today's large firms are essentially collectives of employees who hire high risk-high gain capital from shareholders and low risk-fixed gain capital from banks. If the assumption that the Japanese corporation is a collective of employees which hires capital rather than a collective of owners of capital which hires workers (including senior managers) is valid, it is hardly surprising that economic rents are shared among the members of the collective—the employees.<sup>14</sup>

The extensive use of bonus payments as the mechanism to pay out significant portions of the higher income received by employees in large firms is more complicated to explain. The payment of a semiannual bonus is a very old Japanese practice which was intended to provide employees with sufficient funds to meet the extra needs associated with certain cultural and religious practices. The bonus also served to provide a measure of equity and motivation in the form of profit sharing. However, with the democratization of employment in the postwar years, a significant bonus, which to an extent had been reserved for white-collar and management employees, was extended to all workers.<sup>15</sup>

While extensively used by all Japanese employers, the bonus tends to be relatively larger in the larger firms, while smaller firms compete for labor on the basis of regular monthly wages. The emphasis small firms give to wages as opposed to bonuses seems to be attributable to two factors: First, the firm wants to provide a monthly wage to cover the necessities of life, and second, a somewhat less rosy employment future gives any "promised" bonus made by

a smaller employer less value than an equivalent promise by a large employer. Consequently, one would expect that smaller firms would first meet competitive levels in monthly wages, and only later meet those of the bonus.

**Patterns over time**

There is no simple measure of the degree of wage difference by size of firm because the wage ratios between alternative matched pairs do not all move together. To describe movements over time, I chose to examine wages for 35- to 39-year-old male high school graduates with 15 to 19 years of tenure who worked as production workers in manufacturing (table 4). In addition, data on wage dispersion are provided for selected years (table 5). According to table 4, size-of-firm differentials that were quite wide in 1955 closed somewhat, reaching near equality in 1964. The 1960's were a period of generally tightening differentials as the labor market became much more competitive, and the productivity levels of small firms approached those of large firms.<sup>16</sup> After 1967, the differential gradually widened until a second period of near equality occurred during the oil-shock years 1973-74. This second narrowing was undoubtedly related to inflation,<sup>17</sup> for employment growth in manufacturing had leveled off, turning negative by 1972.

The estimates in table 4, which have been standardized for industry, general type of work, age, sex, education, and firm tenure, suggest that size-of-firm wage differentials have remained relatively constant since 1975. However, the figures in table 5, which exclude bonuses and include data for

**Table 5. Median and interquartile range of current-dollar monthly wages in manufacturing for male production workers age 35 to 39, by size of firm, selected years**

[In thousands of yen]

Year	1,000+ workers		100-999 workers		10-99 workers	
	Median	Interquartile range	Median	Interquartile range	Median	Interquartile range
1954	22.6	.40	18.6	.51	13.7	.57
1960	31.6	.44	25.3	.49	19.4	.71
1967	54.0	.32	45.6	.63	40.0	.48
1974	131.3	.22	121.7	.30	109.9	.37
1981	214.8	.20	197.9	.25	190.7	.30

NOTE: The interquartile range, a common measure of dispersion, is the difference between the highest wage observation for the bottom 25 percent of the workers and the lowest observation for the top 25 percent.

workers at all levels of education and years of firm tenure, show a continuing narrowing of the dispersion of wages within the three size classes. Both tables imply that there has been a greater narrowing of differences between firms of 10 to 99 employees and those with 100 to 999 employees than between the latter and firms of 1,000 and more employees.

**A comparison with the United States**

Recent estimates of size-of-firm differentials in the United States, cited earlier, permit some limited comparisons. Wesley Mellow's estimate of an 8-percent pay advantage in firms of 1,000 workers or more over firms with fewer than 25 employees appears relatively modest compared to most of the differentials for Japanese men shown in tables 1 and 2. In the United States, as in Japan, the large-firm differential was greater when specific firm tenure was not considered, and the differential existed across all major industries, although the U.S. differential appeared to be greater in manufacturing than in nonmanufacturing.

Personick and Barsky's study of professional, technical, and clerical occupations revealed as typical 10- to 15-percent differentials for professionals and a 20-percent gap for clerical and technical occupations between firms of 10,000 or more employees and those with 500 or fewer employees. Although these estimates are for quite different firm-size classes, they do approximate the differentials reported in table 1 for younger Japanese high school and college graduates, but they are smaller than those for older college educated males. Interestingly, the U.S. size-of-firm differential seemed to be larger for workers with less than a college education. Also, the U.S. differentials were larger for entry-level positions than for higher levels of experience. Again, this is the opposite of the Japanese case, in which differentials widen at older ages. These differences between the two countries are consistent with a situation in which large firms pay above-market prices in order to pick and choose among applicants whose employment potential has not yet been established, but in which one economy embraces the norm of continuous tenure from graduation while the other anticipates considerable interfirm mobility at younger ages. □

**Table 4. Trends in pay relatives<sup>1</sup> by size of firm, 1955-81**

[Firms with 1,000+ employees = 100]

Year	Wage		Wage + bonus	
	100-999 workers	10-99 workers	100-999 workers	10-99 workers
1981	94	91	92	86
1980	92	88	91	81
1979	95	91	93	84
1978	96	91	93	84
1977	96	90	94	84
1976	95	90	93	82
1975	96	89	95	83
1974	100	90	100	86
1973	105	94	104	90
1972	98	88	96	82
1971	93	86	93	80
1970	92	83	93	79
1969	91	86	88	79
1968	92	82	89	75
1967	97	95	95	87
1966	97	95	93	85
1965	95	94	92	83
1964	99	93	101	—
1961	93	80	—	—
1960 <sup>2</sup>	96	80	—	—
1955 <sup>3</sup>	86	66	—	—

<sup>1</sup>Data are for male production workers in manufacturing who had at least a high school education, and who were age 35 to 39 with 15 to 19 years of tenure in the reference year.

<sup>2</sup>Data are for all 35- to 39-year-old male blue-collar high school graduates, regardless of tenure.

<sup>3</sup>Data are for all high school educated men with 15 to 19 years of tenure, regardless of age. In 1955, data were available for five employment size categories. The differentials shown here were estimated from the differentials of component size categories weighted by the number of employees in each.

<sup>1</sup>James G. Scoville, "A Review of International and Comparative Research in the 1970's," in Thomas A. Kochan, Daniel J. B. Mitchel, and Lee Dyer, eds., *Industrial Relations Research in the 1970's: Review and Appraisal* (Madison, Wis., Industrial Relations Research Association, 1982), p. 25.

<sup>2</sup>Wesley Mellow, "Employer Size and Wages," *Review of Economics and Statistics*, August 1982, pp. 495-501.

<sup>3</sup>Martin E. Personick and Carl B. Barsky, "White-collar pay levels linked to corporate work force size," *Monthly Labor Review*, May 1982, pp. 24-26.

<sup>4</sup>Published since 1954 and annually since 1964 by the Japanese Ministry of Labor.

<sup>5</sup>Ever since James Abbeglen coined the phrase "lifetime commitment" (translated into Japanese as *shūshin koyō* and then retranslated as lifetime employment), there has been a lively debate over the nature and extent of this system. Recently, the tendency has been to downplay the significance of lifetime employment for the Japanese economy; given the early ages of mandatory retirement (currently 55 to 60 years), the higher levels of mobility among those who work for smaller firms, and so forth, few individuals literally spend their entire working lives with a single employer. However, the impact of *shūshin koyō* should not be measured by the proportion of workers who do spend their entire lives in the employ of one firm. Perhaps the most important role of the system is to promote a concept of mutual commitment between employers and their workers that dominates the Japanese labor market and shapes practices even for those workers (including most women) who are not beneficiaries of the benefits which the system provides to workers more directly involved.

<sup>6</sup>In Japan, wages (including any overtime payments) are paid on a monthly basis, and that is the wage concept used in this study. In a world of continuous employment, hours of work for full-time workers are a condition of employment and not a variable which should be divided into wages. Use of average hourly rates would only expand the differences reported here: In 1981, average monthly hours worked by male employees were 197 in firms of 1,000 workers or more, 200 in firms of 100 to 999 workers, and 210 in firms of 10 to 99 workers. Middle school graduates worked more hours than did high school graduates, who worked more hours than college graduates, and for each educational level, the larger the firm, the fewer the hours.

The bonus data (technically special payments, of which bonuses are the principal part) for table 2 are available by sex, age, educational attainment, and size of employing firm, but not by length of tenure. Because bonuses

are bargained and expressed in monthly-wage equivalents, the average number of months of bonus for a given sex, age, education level, and size of firm times the monthly wage at the relevant tenure level divided by 12 has been added to the average monthly wage to obtain estimates of the monthly wage plus bonus.

<sup>7</sup>No doubt there are today some combinations of equity participation and employee compensation in small firms which will ultimately provide more income than a slow but steady progression in a large firm. The key would be to know which small firm in 1981 is the Sony or Honda of the future.

<sup>8</sup>Shigemi Wakamatsu, "Foreign Firms Compete for Local Talent in Japan," *The Asian Wall Street Journal*, Apr. 27, 1983, p. 8.

<sup>9</sup>Milton Harris and Bengt Holmstrom, "A Theory of Wage Dynamics," *Review of Economics and Statistics*, July 1982, pp. 315-33.

<sup>10</sup>Hon W. Tan, "Wage Determination in Japanese Manufacturing: A Review of Recent Literature," *Economic Record*, March 1982, pp. 56-57.

<sup>11</sup>Kuzuo Koike, "Workers in Small Firms and Women in Industry," in Taishiro Shirai, ed., *Contemporary Industrial Relations in Japan* (Madison, University of Wisconsin Press, 1983), pp. 99-100.

<sup>12</sup>Edward P. Lazear makes a similar point in "Agency, Earnings Profiles, Productivity and Hours Restrictions," *American Economic Review*, September 1981, p. 618.

<sup>13</sup>Naomichi Funahashi, "The Industrial Reward System," in Kazuo Ōkochi and others, eds., *Workers and Employers in Japan* (Tokyo, University of Tokyo Press, 1974), p. 362.

<sup>14</sup>Kenichi Ohmae, *The Mind of the Strategist* (New York, McGraw-Hill, 1982), p. 219; Naoto Sasaki, *Management and Industrial Structure in Japan* (London, Oxford-Pergamon Press, 1981), p. 63; and Gene Gregory, "The Logic of Japanese Enterprise," a paper presented at the International Productivity Symposium, Tokyo, May 1983, p. 38.

<sup>15</sup>For a history of the development of the bonus system, see Kōji Taira, *Economic Development and the Labor Market in Japan* (New York, Columbia University Press, 1971).

<sup>16</sup>Taishiro Shirai and Haruo Shimada, "Japan," in John T. Dunlop and Walter Galenson, eds., *Labor in the Twentieth Century* (New York, Academic Press, 1978), p. 307.

<sup>17</sup>The impact of inflation on differentials is discussed in Robert Evans, Jr., "Wage Differentials, Excess Demand for Labor and Inflation: A Note," *Review of Economics and Statistics*, February 1963, pp. 95-98.