# The Over-Skilled Japanese : Changes
# in Earnings Inequality in Japan

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## 1. Introduction

The income distribution has been changing in Japan since the 1980s. It was said in the past that income distribution was highly equalised in Japan, compared to other countries. For example, in the 1976 OECD Economic Outlook, Malcom Sawyer reported that Japan was an equal society in terms of income distribution. Sawyer compared the income distribution statistics of ten advanced countries and concluded that Japan was the foremost country in terms of income equality. His results were mainly based on the statistics of the late 1960s and early 1970s. These periods were coincide with the rapid growth era in Japan when various measures of income differences diminished sharply.

After the end of the rapid growth period and the twice oil shocks, however, income inequality has been gradually increasing in Japan. According to the Family Income and Expenditure Survey by the Bureau of Statistics, the shares of annual gross income have increased the gap between top and bottom quintiles among all households since the late 1970s.

The increase in income inequality can be confirmed from a different statistical source. Using the Survey on Income and Distribution by the Ministry of Health and Welfare, which is the background data for social security policies, we can distinguish the primary income, which is the sum of all private income, and the redistributed income including all the net benefits of social insurance, transfer net of taxes, and in-kind income of medical benefits. Even if we consider these two incomes respectively, we can still find the modest increase in income inequality for the primary and redistributed incomes respectively. (See Ohtake 1994 for detailed survey for distribution of income and wealth in Japan in the 1980s)

Among total household income sources, the large component is shared by the wage income, or earnings. Earnings inequality declined in the rapid growth period, but it increased steadily in the 1980s, implying that the increase in earnings inequality played a role in enlarging income inequality among households.

# Table 1.

**Wage Inequality for Full-time Workers, Selected OECD Countries, 1970 to 1990[a]**

Log of Ratio of Wage of 90th Percentile Earner to 10th Percentile Earner

| Country | 1979 | 1984 | 1987 | 1990 | Change from 1979 to latest year |
|---|---|---|---|---|---|
| **Men** | | | | | |
| United Kingdom | 0.88 | 1.04 | 1.10 | 1.16 | 0.28 |
| United States | 1.23 | 1.36 | 1.38 | 1.40 | 0.17 |
| Japan | 0.95 | 1.02 | 1.01 | 1.04 | 0.09 |
| France | 1.19 | 1.18 | 1.22 | — | 0.03 |
| Italy[b] | 0.74 | 0.69 | 0.73 | — | -0.01 |
| Netherlands | 0.82 | 0.77 | — | 0.80 | -0.02 |
| Germany I[c] | 0.78 | 0.80 | — | — | } -0.03[d] |
| Germany II | — | 0.96 | 0.91 | — | |
| Canada[e] | 1.23 | — | 1.44 | — | 0.21 |
| **Women** | | | | | |
| United States | 0.96 | 1.16 | 1.23 | 1.27 | 0.31 |
| United Kingdom | 0.84 | 0.98 | 1.02 | 1.11 | 0.27 |
| Japan | 0.78 | 0.79 | 0.84 | 0.83 | 0.05 |
| France | 0.96 | 0.93 | 1.00 | — | 0.04 |
| Italy | 0.87 | 0.69 | 0.69 | — | -0.18 |
| **Men and Women** | | | | | |
| Sweden, all | — | 0.66 | — | 0.73 | 0.06 |
| Sweden, blue-coller | 0.30 | 0.30 | 0.31 | 0.35 | 0.05 |

SOURCES : The data for the United States, United Kingdom, France, an Japan are from Blanchflower, Katz, and Loveman, 1994 ; the data for Canada are from Davis, 1992 ; the data for Germany are from Abraham and Houseman, 1994 ; the data for Sweden are from Edin and Holmlund., 1994 ; the data for Italy are from Erickson and Ichino, 1994 ; and the data for the Netherlands are from Teulings, 1992.

[a] The samples consist of full-time workers, with the exception of Japan, which cover regular workers. Wages are measured by hourly earnings for the United States, United Kingdom, France, and Sweden ; weekly earnings for workers covered by the social security system for Germany I ; and gross average monthly earnings plus holiday allowances from the German socioeconomic panel for Germany II.
[b] The data in the second and third columns are for 1985 and 1989.
[c] The Germany I data are for years 1979 and 1983.
[d] This change is the sum of Germany I from 1979-84 and Germany II from 1984-87.
[e] Canada data are for years 1981 and 1985.

Freeman and katz (1994)

Table 1 presents this fact. (Freeman and Katz 1994) This table shows movements of wage gaps between high-wage earner and low-wage earner. The figures are the log wage ratio of the top 10th percentile earner to the bottom 10th percentile earner. For both males and females, earnings inequality increased largely in the United Kingdom and the United States. Earnings inequality in Japan steadily increased in the 1980s as well as in the UK and the US.

At the same time, however, it is also true that the increase in earnings inequality was quite modest in Japan relative to these two countries. For males, the earnings gap between the top 10th and the bottom 10th percentile earners increased by 28 percent in the UK and by 17 percent in the US. In Japan, the earnings gap also increased, but it was relatively small just by 9 percent. And, if the same measure is computed for Japan in 1994, it is 1.02 for males and 0.80 for females : these are almost the same with the figures of 1984.

The wage measure in Table 1 is the monthly wage income. Annual bonus payments share the large proportion of total annual earnings in Japan. Using the micro data, the Gini coefficient can be computed in terms of hourly wages, monthly earnings, and annual total earnings including bonuses. (Ishikawa and Dejima 1994) The Gini coefficients grew modestly in every term of earnings for both males and females.

Then, there naturally raise two questions : One is why earnings inequality raised in Japan, and the other is why the increase in earnings inequality was modest in Japan. To attempt to these questions, I rely on the most comprehensive and reliable wage data in Japan, the Basic Survey on Wage Structure. From the data, I focus on full-time male employees of age between 18 and 54 in private firms with 10 or more employees. [1]

Earnings inequality is caused by so many factors such as gender, age, education, occupation, firm size, industry, and so on. In order to find the main reason for the movement of earnings inequality, however, I believe it not so informative but just complicated to treat in parallel with each of these factors. For a reason to explain the modest increase in earnings inequality, I here focus on skills of workers as determinants of earnings. I define the skill as ability that comes from training through formal education or work experience.

Using the concept of skill, I divide the male employees into four skill groups by education and experience as follows.

|  | Young (Age Less than 35) | Experienced (Age 35-54) |
|---|---|---|
| High School Graduates | the least-skilled and lowest-wage |  |
| College Graduates |  | the most-skilled and highest-wage |

The top left panel of the table presents the young high school graduate group. The bottom right panel presents the experienced college graduate group. Other two groups are young college graduate, and experienced high school graduate groups. Of these four groups, the young high school graduates are the least-skilled and lowest-wage group. On the other hand, the most-skilled and highest-wage group is the experienced college graduates.

The average real wage increased for each of the four skill groups in the 1980s and early 1990s. But, the important point is that the magnitude of the increase in the average wage was quite different between

the four groups. Table 2 evaluates the magnitude of wage changes. The average wages increased largely for young college graduates and experienced high school graduates. In contrast, the increase in the average wages were relatively small for young high school graduates and experienced college graduates.

We can confirm these facts by Table 3. (Genda, forthcoming)

## Table 2.

Changes in Average Wages in the 1980s and Early 1990s

|  | Young<br>(Age Less than 35) | Experienced<br>(Age 35-54) |
|---|---|---|
| High School<br>Graduates | Relatively<br>Decrease | Largely<br>Increase |
| College<br>Graduates | Largely<br>Increase | Relatively<br>Decrease |

## Table 3.
A. Changes in Wage Differentials
between College and High School Graduates
from 1980 to 1992 (%)

| Earnings | Young<br>(Age Less than 35) | Experienced<br>(Age 35-54) |
|---|---|---|
| Hourly Wage | 7.4 | -4.6 |
| Monthly Wage | 5.5 | -4.7 |
| Annual Earnings | 7.8 | -4.3 |

B. Changes in Wage Differentials
between Experienced and Young Males
from 1980 to 1992 (%)

| Earnings | High School<br>Graduates | College<br>Graduates |
|---|---|---|
| Hourly Wage | 3.4 | -8.6 |
| Monthly Wage | 4.5 | -5.7 |
| Annual Earnings | 6.7 | -5.5 |

Source : Genda (forthcoming)

The first panel shows the changes in relative wages of college graduates to high school graduates. The education wage differential increased among young workers from 1980 to 1992. In contrast, it decreased among experienced workers. The second panel shows the changes in relative wages of experienced workers to young workers. The experience wage differential increased among high school graduates, while it decreased among college graduates. These are shown in every term of wage measures, hourly, monthly, and annual earnings.

The relative wage of young high school graduates, that is the least-skilled and lowest-wage group, declined to those of higher-wage groups such as young college graduates and experienced high school graduates. This further decline in earnings of the lowest-wage group was a reason for the increase in earnings inequality among the whole male employees.

On the other hand, the relative wage of experienced college graduates, that is the most-skilled and highest-wage group, declined to lower-wage groups such as experienced high school graduates and young college graduates. The smaller increase in earnings of the highest-wage group contributed to depressing the increase in wage inequality, which implied that the increase in wage inequality was modest among the whole male employees.

In the following, I explain movements of wages for these four skill groups, respectively.

## 2. Young High School Graduates : The Decline in Less-Skilled Workers

The average wage of young high school graduates increased less than the average wages of other groups with different experience and education. The further decline in earnings of the least-skilled and lowest-wage group raised earnings inequality. What was the reason for the decline in the relative wage of the less-skilled group in Japan?

It was because labour demand shifted against the less-skilled workers and moved toward the skilled workers through the 1970s and 1980s.

**Table 4.**

Changes in the Structure of Wages in Four OECD Countries

**Industry-Based Demand Shift Measures, 1969-89**

| Education Group | Change in Log Relative Demand | | | |
| | Males | | Females | |
| | 1969 - 79 | 1979 - 89 | 1969 - 79 | 1979 - 89 |
| --- | --- | --- | --- | --- |
| United States : | | | | |
| Dropouts | −.044 | −.048 | −.003 | −.009 |
| High school graduates | −.036 | −.041 | .023 | .025 |
| Some college | −.011 | −.012 | .046 | .047 |
| College graduates | .016 | .019 | .057 | .054 |
| Britain : | | | | |
| No qualifications | −.072 | −.097 | .028 | .000 |
| A - levels, O - levels, etc. | −.039 | −.041 | .069 | −.084 |
| College | .026 | .059 | .102 | .119 |
| Japan : | | | | |
| Lower secondary | −.066 | −.057 | −.128 | −.054 |
| Upper secondary | .035 | .007 | .032 | .028 |
| College | .098 | .054 | .107 | .073 |

Note : The between-industry demand shift measure for group $j$ is given by $\Delta \ln(e_{jt})$ where $e_{jt} = \Sigma_i \, \alpha_{ij} \, e_{it}$, $\alpha_{ij}$ is group $j$'s share of total employment in sector $i$ in the base period, and $e_{it}$ is industry $i$'s share of total employment in year $t$. $i$ indexes nine one-digit industries for the United States and Japan and eight one-digit industries for Britain.

Katz, Loveman, and Blanchflowr(1995)

Table 4 shows the labour demand shift measures between industries in the United Kingdom, the United States, and Japan. (Katz, Loveman, and Blanchflower 1995) In every country, labour demand increased with education levels in both the 1970s and the 1980s. Some studies in the UK and the US suggested that the demand shift against less-educated and less-skilled workers was due to computerisation. Because of the computer development, the less-skilled workers were substituted by the office automation process. Some others indicated the increasing foreign competition with developing countries as a reason for the decline in the unskilled workers in developed countries. Labour demand shifted from the unskilled workers in developed countries to those in developing countries to use the cheap labour forces.

Table 4 shows that labour demand moved against the less-skilled in Japan, too. It resulted in the relative decline in their average earnings for the less-skilled workers such as the young high school graduates.[2] The demand shift against the less-skilled seemed to be universal in the 1980s. There were, however, different outcomes of the demand shifts by countries. In the United States, the less-skilled workers lost their real wages. In several European countries, the less-skilled lost their jobs and were unemployed due to this demand shift. In Japan, the less-skilled did not reduce their real earnings nor lose employment largely until now. But the Japanese less-skilled workers really tended to lose chances for good jobs in high-wage sectors.

## Table 5.

### A. Average Years of Job Tenure

| periods | Young High School | Experienced High School | Young College | Experienced College |
|---|---|---|---|---|
| (1)1978-82 | 6.24 | 15.23 | 4.93 | 15.32 |
| (2)1983-87 | 6.10 | 16.20 | 4.96 | 15.84 |
| (3)1988-92 | 5.55 | 16.94 | 4.90 | 16.12 |
| | | | | |
| (2) - (1) | -.14 | .98 | .03 | .52 |
| (3) - (2) | -.56 | .74 | -.06 | .28 |
| (3) - (1) | -.70 | 1.72 | -.03 | .80 |

Job tenure is the working experience in current firms.

### B. Proportion of Employees in Large Firms (%)

| periods | Young High School | Experienced High School | Young College | Experienced College |
|---|---|---|---|---|
| (1)1978-82 | 32.0 | 33.9 | 38.2 | 46.0 |
| (2)1983-87 | 31.2 | 34.0 | 38.4 | 44.6 |
| (3)1988-92 | 29.1 | 34.9 | 44.3 | 42.9 |
| | | | | |
| (2) - (1) | -0.8 | 0.1 | 0.2 | -1.4 |
| (3) - (2) | -2.1 | 0.9 | 5.9 | -1.7 |
| (3) - (1) | -2.9 | 1.0 | 6.1 | -3.1 |

Large firms are those employing 1,000 or more workers.

Table 5 shows the average years of job tenure and the proportion of employees in large firms. The years of job tenure are defined as years of working in current firms, and large firms are defined as firms employing 1,000 or more workers. The figures are the average of three periods, 1978-1982, 1983-1987, and 1988-1992, and their differences.

For young high school graduates, the average years of job tenure fell in the long run. The proportion of employees in large firms also fell for them. There is the substantial wage differential between large and small-sized firms, and large firms are generally regarded as high-wage sectors in Japan. And, job tenure is an important factor of wage determinations in Japan. Hence, firms providing opportunities for the long-term employment and the resulting seniority wage growth by job tenure should be also included in high wage sectors. Young high school graduates faced difficulty in getting good jobs in high wage sectors continuously.

We can compute the effect of this losing opportunities for good jobs on the average wage changes. First, full-time regular male employees with different age, education, job tenure, and firm size are distinguished into the above four experience/education groups. Then, the average wage of each skill group can be computed by wages of subgroups with different job tenure and firm size. Let Yt be a vector of the log of real monthly wages of subgroups in year t, and Et be a vector of employment shares of subgroups in year t. Let Y and E be vectors of the average of the log real monthly wages and average employment shares of subgroups over years. The change in the mean of log real wage of each skill group is decomposed as follows :

$$\triangle Yt' Et \fallingdotseq \triangle Yt' E + \triangle Y' Et.$$

The first term of the right hand side of the equation (RHS) represents the effect of changes in wages of subgroups in case that the compositions of job tenure and firm size are fixed over years among subgroups. Hereafter, this is called the wage change effect. The second term of RHS represents, on the other hand, the effect of changes in compositions among subgroups in case that the real wages of subgroups are all fixed over years. This is called the composition change effect from now on.

Table 6.

Decomposition of Changes in
the Average Log Real Wage

| periods | Young High School | Experienced High School | Young College | Experienced College |
|---|---|---|---|---|
| Yt'Et | A. Change in the Average Log Real Wage | | | |
| (1)1978-82 | .625 | 1.064 | .754 | 1.368 |
| (2)1983-87 | .631 | 1.106 | .781 | 1.384 |
| (3)1988-92 | .687 | 1.170 | .867 | 1.442 |
| △Yt'Et | | | | |
| (2) - (1) | .007 | .042 | .028 | .016 |
| (3) - (2) | .056 | .064 | .085 | .058 |
| (3) - (1) | .062 | .106 | .113 | .074 |
| | | | | |
| Yt'E | B. The Wage Change Effect | | | |
| (1)1978-82 | .609 | 1.086 | .756 | 1.377 |
| (2)1983-87 | .629 | 1.110 | .784 | 1.389 |
| (3)1988-92 | .702 | 1.154 | .864 | 1.433 |
| △Yt'E | | | | |
| (2) - (1) | .020 | .024 | .028 | .012 |
| (3) - (2) | .073 | .043 | .080 | .044 |
| (3) - (1) | .092 | .068 | .109 | .057 |
| | | | | |
| Y'Et | C.The Composition Change Effect | | | |
| (1)1978-82 | .661 | 1.095 | .800 | 1.390 |
| (2)1983-87 | .649 | 1.113 | .799 | 1.394 |
| (3)1988-92 | .630 | 1.132 | .805 | 1.409 |
| DY'Et | | | | |
| (2) - (1) | -.012 | .018 | -.001 | .003 |
| (3) - (2) | -.019 | .019 | .005 | .015 |
| (3) - (1) | -.031 | .038 | .004 | .019 |

Table 6 shows the mean log wages in the three periods, 1978-1982, 1983-1987, and 1988-1992, and decomposes their changes between the periods based on the above decomposition. Vectors, Y and E, are computed over the 15 years between 1978 and 1992.

The increase in the mean log real wage was the smallest for young high school graduates among the four groups over the whole periods, 1978-1992.[3] Of the decomposed two terms, the wage change effect raised the mean wage more largely for young high school graduates than for experienced high school and college graduates. The labour quality of less-skilled workers such as young high school graduates does not appear to be depreciated in Japan, which might be another reason that the increase in overall earnings inequality was modest. The composition change effect, however, reduced the mean wage largely only for young high school graduates among the four groups. The relative decline in the average wage of young high school graduates was attributable to the composition shifts away from high wage sectors of large firms and firms with long-term employment. Table 6 also shows that the negative composition effect gradually strengthened for young high school graduates, implying the increasing difficulty in finding good jobs further for them.

## 3. Experienced High School Graduates : The Golden Egg Effect

The average wage of experienced high school graduates increased relatively to experienced college graduates and young high school graduates. As seen by Table 4, labour demand shifted against high school graduates. In addition, I have ever computed the similar demand shift not only by education shown in Table 4 but also by education and experience. (Genda 1994) Then, while labour demand increased the most for the young college graduates in the 1980s, it did the least for the experienced high school graduates. While did their relative wage increase in spite of the current demand decline in them?

The reason lies in the traces of the rapid economic growth from the late 1950s to the early 1970s. In these rapid growth periods, labour demand had been so tight for young less-educated workers because cheap labour forces were largely required for mass-production system. In particular, young workers newly graduated from junior high school decreased drastically because of the increasing high school enrolment. Then, the scarce young junior high school students working after graduation were sometimes called the "Golden Egg."

This strong labour demand for young less-educated workers in the rapid growth era improved working conditions for young high school graduates as well as young junior high school graduates. The young high school graduates could find good jobs in firms providing the long-term employment practice and the seniority wage growth more easily than those before the rapid growth era. And, it was the 1980s and early 1990s when these high school graduates hired in the rapid growth era could actually benefit from the long-term employment and the resulting wage growth by seniority.

As a result of enlarging opportunities for good working conditions, the average years of job tenure increased the most in the 1980s for the experienced high school graduates among the four groups as is seen by Table 5. This had a large effect on increasing the mean wage of the experienced high school graduates.

Looking at the decomposition of the mean wage growth in Table 6 again, we can find that the wage change effect under the time-invariant composition of job tenure and firm size was smaller for experienced high school graduates than for young high school graduates. But, due to the increasing job tenure, the composition change effect under the time-invariant real wages of subgroups was the largest for the experienced high school graduates among the four groups. The composition shift toward long tenure and large firms contributed largely to increasing the relative wage of the experienced high school graduates.

How about the earnings for experienced high school graduates in the future? The positive composition effect on the increase in average wages will be likely to disappear for the future experienced high school graduates. It is because the future experienced high school graduates, that is the current young high school graduates, are now losing the opportunities for good working conditions which the current experienced high school graduates have. This implies that the future experienced high school graduates will face more difficulty in wages and employment than do the current experienced high school graduates.

## 4. Young College Graduates : Keynesian Unemployment

Young college graduates were the group whose average real wage increased the most among the four skill groups. It was common with the UK and the US that the younger and more-educated workers raised their real wages largely in the 1980s. Looking at the decomposition of average wage changes in Table 6 again, the large increase in the average wage of young college graduates was not due to the composition

change effect, but to the strongest wage change effect among the four groups. The relative increase in the wages of young college graduates would be a result of the large increase in labour demand for them in Japan as well as in the UK and the US, as seen by Table 4.

The wages of young college graduates have increased largely in the long run since the 1980s, but they have faced a serious problem of finding employment since 1992. According to the Basic Survey on Schools by the Ministry of Education, the employment ratio of newly graduates from four-year college has declined continuously since 1992. The employment ratio of college graduates reached a peak of 81.1 percent for males and 81.8 percent for females in 1991. After that, it declined year by year, and fall to 68.7 percent for males and to 63.7 percent for females in 1995. In spite of strong labour demand for newly college graduates in the long run, why has it become so difficult for them to find employment since the early 1990s? Its reason was composed of three factors. [4]

The first factor was clearly the influence of the bubble burst in economy. The large decline in aggregate demand due to the bubble burst did not only cause a difficulty in finding employment for college graduates but also did that for high school and junior college graduates. The second factor was the rapid increase in the number of college graduates in the 1990s. Considering that the second baby boomers became 18 years old to enrol at college during the late 1980s and early 1990s, the Ministry of Education planned to increase total enrolments of college, junior college, and vocational high school by 86,000 students from 1986 to 1992. Actually, the college enrolment increased much larger in the 1990s than expected. It was simultaneously due to the second baby boom, the increasing enrolment policy of the Ministry of Education, and the increasing propensity to enrol at four-year college for female students.

## Table 7.
### Numbers of 4-Year College Graduates

| The Year of Graduation | Numbers of Graduates (thousands) | The Year of Age 40* | The Year of Age 50* |
|---|---|---|---|
| 1950 | 2 | 1968 | 1978 |
| 1955 | 95 | 1973 | 1983 |
| 1960 | 120 | 1978 | 1988 |
| 1965 | 162 | 1983 | 1993 |
| 1970 | 241 | 1988 | 1998 |
| 1975 | 313 | 1993 | 2003 |
| 1980 | 379 | 1998 | 2008 |
| 1985 | 373 | 2003 | 2013 |
| 1990 | 400 | 2008 | 2018 |
| 1991 | 428 | | |
| 1992 | 438 | | |
| 1993 | 446 | | |
| 1994 | 462 | | |
| 1995 | 493 | | |

Source : The Ministry of Education, The Basic Survey on Schools.
* : It is assumed that students graduate from college when they are 22 years old.

Table 7 shows movements of numbers of four-year college graduates. In 1995, the college graduates amounted to 493,000 persons. It exceeded the previous highest record every year after 1990, so that it increased by 93,000 persons in six years from 1990 to 1995. It resulted in the excess supply at the job entry market. Even if there were not the bubble burst and the aggregate demand were stable, there would be the excess supply in the job entry market of newly college graduates, implying a more difficulty in finding employment than in the past.

The third factor was the inflexible structure of the job entry market with the downward rigidity of wages. As seen by Table 6, the wage cost itself increased largely for young college graduates, reflecting the tight labour market for them through the 1980s. While there occurred the excess supply in the job entry market for college graduates in the 1990s, however, the wage adjustment mechanism did not work well. In the job entry market, wage competition did not work, but job competition did. The wage level remained highly as was observed in the 1980s, and did not fall in recessions in the 1990s. As a result, the excess supply was adjusted only by quantity of employment from the job queuing, and the large number of college graduates could not find jobs.

## 5. Experienced College Graduates : The Redundancy of Skilled Workers

The final group examined is experienced college graduates. These workers, who belong to the most-skilled and highest-wage group, declined their average wages relative to the lower-wage groups of experienced high school graduates and young college graduates. The decomposition of average wage changes in Table 6 shows that the wage change effect was the smallest for the experienced college graduate group. This result depressed to increase earnings inequality in Japan in the 1980s and early 1990s. In spite of the strong labour demand for college graduates, why did the relative wages decline for experienced college graduates?

Its reason lies in the promotion system in Japanese firms. Promotions into managerial positions such as directors which are called *bucho* or division heads called *kacho* are mainly determined by two conditions. One is the years of working experience in current firms, that is job tenure. The other is the assessment of competence of workers. The latter factor is called *satei* in Japanese firms. Being promoted into managerial positions, workers can get several kinds of compensations in addition to the wage increase.

There are the substantial wage differentials between managerial workers and others in Japanese firms. Figure 1 presents the average wage of whole managerial workers relative to non-managerial employees in terms of annual earnings. (Brunello et. al. (1995)) The wage differential tended to shrink in large firms with 1,000 or more workers, but it was consistently larger than that of medium sized firms with 100-999 workers. Its differential in the medium firms raised after the mid-1980s. In the end of the 1980s, managerial workers received higher wages, on average, by about 50 percent than non-managerial employees in both large and medium firms.

Compensations for managerial positions in Japan are not low in comparison with those in other countries. Compared to the quite high compensations of the chief executive officers (CEO) in the United States, it is often said that compensations for Japanese top executives are quite low. However, according to a recent study by Abowd and Bognanno in 1995, there was not so much difference in compensations for

human resource directors in several countries including Japan and the US. This was true even if benefits and perquisites are included in total compensations or not. Promotions into managerial positions will be a source of high compensations in Japan as well as in other countries.

Until the 1970s, scarce experienced college graduates had worked in same firms for long years and passed the assessments evaluated in those years, so that not a few proportion of them could have been promoted into managerial positions such as directors before retirement. Promoted into managerial positions, experienced college graduates with long job tenure could have got high compensations. In the late 1980s and early 1990, however, the rapid increase in numbers of experienced college graduates prevented them from being promoted as well as those in the past.

There were several reasons for the large increase in the experienced college graduates. First of all, ageing of labour forces has proceeded steadily in the long run, and it implied the increase in experienced workers. In addition, after the first baby boomers became experienced in the mid-1980s, the experienced workers increased rapidly. Secondly, the college enrolment increased largely from the 1960s until the mid-1970s. The enrolment rate of four-year college was just 8.2 percent in 1960. But, it gradually raised after that, and it reached to 26.7 percent in 1975. Limiting to male students, it rose from 13.7 percent in 1960 to 40.4 percent in 1975. After the late 1980s, these persons who had enrolled at college in these periods became the experienced college graduates.

These two backgrounds, ageing in the long run and the college enrolment growth in the 1960s and early 1970s, contributed to the rapid increase in the number of experienced college graduates from the late 1980s. From Table 7, we can confirm this rapid growth. The number of the 40-to-49-year-old college graduates was much larger in the late 1980s and early 1990s than in the late 1970s and early 1980s.

The growth rate of college enrolments from the 1950s to the 1970s was consistently high in Japan, compared with the UK and the US. Table 8 presents the college enrolment growths in these three countries.

## Table 8.
### The Growth of College Enrolments[1]
(1950 = 100)

| Year | Japan | The United States | The United Kingdom |
|------|-------|-------------------|--------------------|
| 1950 | 100 | 100 | [2] 100 |
| 1960 | 279 | 121 | 132 |
| 1970 | 625 | 268 | 273 |
| 1980 | 816 | 435 | [3] 349 |

Sources : Japan, Ministry of Education, *Basic Survey on Schools*. The United States, National Center for Education Statistics, *Digest of Education Statistics 1985-86*, Table 98. The United Kingdom, Department of Education and Science, *Education Statistics for the United Kingdom 1979*, Table 29.

[1] Numbers of Japan and the United Kingdom are based on full-time students at undergraduate level. Those of the United States are based on resident degree-credit enrolments of higher education.
[2] Data for 1953.
[3] Data for 1978.

Each of the three countries largely increased the students at college or higher education from the 1950s to the 1970s. The numbers of undergraduates students in the UK and students enroled at higher education in the US in 1950 was almost one-third or one-fourth of those in 1980. Colleges in Japan increased full-time students at undergraduate level more drasitcally. The number of these students in 1980 were almost eight times as large as that in 1950 in Japan.

In addition, as the third background, most of the college students graduated before the mid-1970s had been hired together by large-sized firms in the rapid growth period. As a result, the rapid growth of experienced employees with a college degree has been remarkable in large firms since the late 1980s.

Owing to these three factors, the experienced college graduates tended to be rapidly redundant, especially in large firms, in the late 1980s and early 1990s. Therefore, even if workers are experienced college graduates with long years of job tenure in large firms, the redundancy of the similar skilled workers prevented them from being promoted into managerial positions more than in the past. In other words, college education, size of firm, well experience, and long job tenure no longer guarantee the promotions and the resulting wage growth in Japan.

## Table 9.

### A. The Promotion Probability Among Experienced College Graduates in Large-Sized Firms (%)

| age groups | 35 - 39 | 40 - 44 | 45 - 49 | 50 - 54 |
|---|---|---|---|---|
| directors (bucho) | | | | |
| 1979 | 0.9 | 7.1 | 28.8 | 46.3 |
| 1991 | 0.6 | 3.9 | 19.7 | 36.0 |
| division heads (kacho) | | | | |
| 1979 | 19.5 | 45.7 | 28.4 | 15.7 |
| 1991 | 13.5 | 35.6 | 31.3 | 19.9 |
| section chiefs (kakaricho) | | | | |
| 1979 | 26.2 | 10.9 | 4.3 | 2.6 |
| 1991 | 21.3 | 11.6 | 5.3 | 2.7 |
| other managers (sonota) | | | | |
| 1979 | 16.5 | 17.3 | 23.4 | 20.2 |
| 1991 | 15.5 | 18.1 | 21.3 | 20.8 |
| non-managers (hi-shokkai) | | | | |
| 1979 | 36.8 | 18.9 | 14.9 | 15.2 |
| 1991 | 49.1 | 30.8 | 22.4 | 20.6 |

### B. Growth Rates of Positions and the Number of Employment From 1979 to 1991 (%)

| age groups | 35 - 39 | 40 - 44 | 45 - 49 | 50 - 54 |
|---|---|---|---|---|
| directors | -10.2 | 17.5 | 45.0 | 166.2 |
| division heads | -4.9 | 65.9 | 133.0 | 333.8 |
| section chiefs | 12.0 | 126.1 | 159.7 | 261.0 |
| other managers | 29.1 | 122.2 | 92.5 | 251.6 |
| non-managers | 83.7 | 247.1 | 217.9 | 363.1 |
| total employees | 37.8 | 113.0 | 112.1 | 242.2 |

The upper panel of Table 9 shows the promotion probability of male college graduates in large firms, which is distinguished by age category and managerial position. From 1979 to 1991, the promotion probability of directors declined in every age category, and its decline was especially large for those aged 45 or more. Instead, promotion probabilities of division heads and section chiefs increased for those aged 45 or more. These facts implied that more and more proportion of college graduates aged 45 or more remained in division heads or section chiefs not to be promoted into directors in the 1980s. Further, the proportion of experienced college graduates without any managerial positions increased at the same time.

The growth rate of the promotion probability is equal to the growth rate of the managerial position minus the growth rate of the number of college graduated employees. The lower panel of Table 9 shows these decomposed growth rates respectively. The director positions for 45-to-49-year old college graduates increased by 45 percent from 1979 to 1991. However, the number of 45-to-49-year-old college graduates themselves jumped up by 112 percent in the same period, so that the promotion probability of directors declined largely among them. Similarly, the decline in the promotion probability of division heads among 40-to-44-year-old college graduates was not due to the decline in the division head positions but due to the large increase in the number of these college graduates. The redundancy of experienced college graduates was the main reason for declining the promotion probabilities.

The rapid fall in the promotion probability would reduce the proportion of high-wage managerial workers and also imply the decline in the average wages among experienced college graduates with same years of job tenure in a same-sized firm. This process caused by the redundancy of experienced college graduates resulted in the smallest wage change effect among the decomposition of the average wage change, as seen by Table 6, depressing the wage increase for them.

## 6. Earnings Inequality in the Future

I have explained the reasons for the modest increase in earnings inequality in Japan in the 1980 and early 1990s, based on the concept of skill. Considering the future earnings inequality by this concept, it will be likely to increase further among male employees in Japan. There are two reasons for it.

The one reason is the continuous decline in labour demand against the low-skilled and low-wage workers. Its demand shift is closely related to the increasing foreign competition and technological innovations, and these effects will continue to be more and more strong in the long run. Then, the low-skilled workers will concentrate more in lowest-wage sectors, and it will develop earnings inequality much further.

Another reason is that the wage growth of the skilled workers will cease to slow down in the near future. The expected return to skill by education and experience has been recently declining because of the rapid increase in experienced college graduates in the 1980s and early 1990s. However, the future growth rate of the experienced college graduates will be smaller in the near future than the recent growth of them.

As is shown in Table 7, compared to the high growth rate of the experienced college graduates from the late 1970s to the early 1990s, its rate in the beginning of the 21st century will be much smaller at least until the second baby boomers with a college degree will become experienced. This is true in Table 9 that the growth rate of employment of 35-to-39-year-old college graduates is smaller than that of older college graduates. These facts imply that the future redundancy of experienced college graduates will have a

smaller impact than the current redundancy has.Therefore, without unexpected large demand shocks the promotion probability and the expected return to skill will turn to increase in future. The increase in earnings of skilled and high-wage group, due to the increase in promotions, will tend to raise earnings inequality among the whole male employees.

However, there are other remarks for the future earnings inequality among whole employees or all households in Japan. The one important point is the effect of gender on earnings and employment opportunities. The wage differentials between females and males among full-time employees tend to decline in the long run. However, gender is the most important factor to explain wage differentials in Japan still now. (Genda, forthcoming) The difference in earnings and employment opportunities between females and males will play an important role in determining the future trend of earnings inequality in Japan.

In addition, the wage differential between full-time and part-time workers is recently increasing while part-time workers steadily increase in Japan. This wage differential by employment status, full-time or part-time, will contribute to raise earnings inequality among whole employees including both full-time and part-time workers. And, in the ageing society, working condition after mandatory retirement will be also a key factor to determine the overall earnings inequality in future.

The skill, gender, employment status, and working conditions after mandatory retirement will be quite important to determine the future earnings inequality in Japan.

## Notes

1   There are not a few proportion of total employees working in tiny-sized firms with less than 10 employees in Japan. About 20 percent of total employees, including both full-time and part-time, worked for tiny-sized firms for both males and females in 1992. As these employees in tiny-sized firms belong to the low-wage group on average, it is necessary to consider the effect of changes in their wages on increasing overall inequality.

2   It does not imply that changes in the relative supply of high school graduates to college graduates did not play a role in enlarging the education wage differential among young workers. The college enrolment rate of males aged 18 reached its peak of 40.4 percent in 1975. But it declined gradually in the 1980s, and it fell to 33.4 percent in 1990. The relative decrease of college graduates appreciated the educated workers, and it might contribute to raising the education wage differential among young males in the 1980s.

3   In the 1980s, the average real wage of total labour forces increase by more than 10 percent, while the real wage of the four skill group increased at most by 10 percent. It implied that the composition shifts between four groups played a role in raising the overall average wage then. That is, the ageing and the increase college enrolments moved the labour forces toward the high-wage group with well experience and well education.

The increasing proportion of the high-wage group such as experienced college graduates largely contributed to raising the average wage among the total labour forces.

4   I have benefited from the discussions with Marcus Rebick in order to explain a difficulty in finding employment of newly college graduates after 1992.

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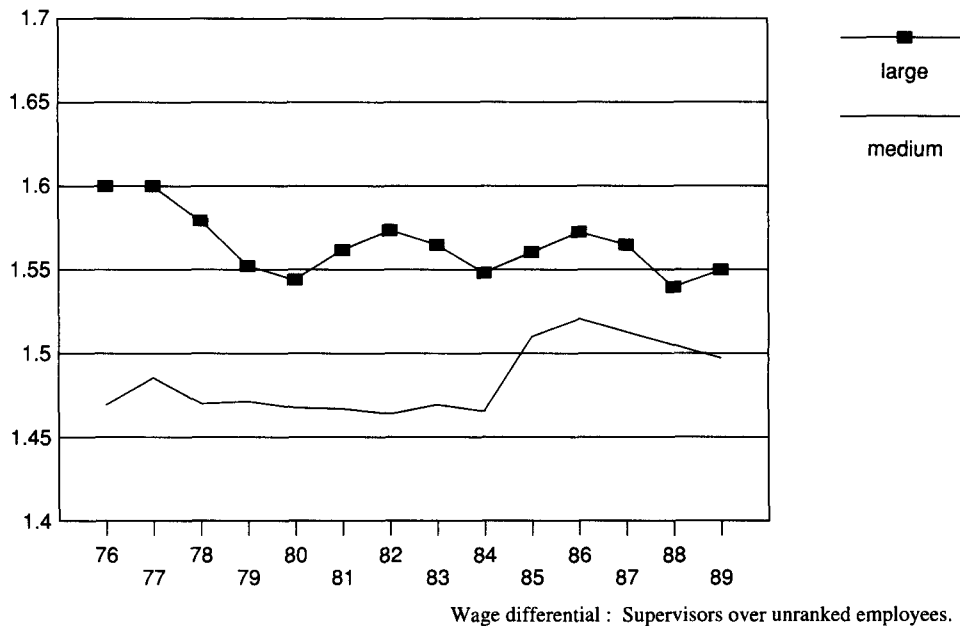Sawyer, Malcom. 1976. Income Distribution in OECD Countries. In *OECD Economic Outlook Occasional Studies*.

Wage differential : Supervisors over unranked employees.

**Fig. 1**

Source : Brunello et. al. (1995)

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