Employment and Wages of Female Japanese Workers: Past, Present, and Future

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Introduction

The last 50 years have been a period of dramatic change for Japanese women in every aspect of their lives. We present their brief history since World War II in Table 1. As the table shows, their progress was conspicuous in political activities, work, and education. But the table also tells us that the progress was not a continuous, steady improvement. For example, in education, their experience was a movement between progress and regression. The regression in women's education includes the inclusion, as late as 1989, of housekeeping as a compulsory subject for female high school students.

Similarly, the experience of women in the workplace has been a mixture of positive and negative. It took 20 years for employment of women outside the home to become common, even though the post-war Japanese Constitution, in 1946, guaranteed women's equal rights in the workplace. During the 1960s and 1970s, it was mostly married women who drove women's progress in the workplace. In 1982, a milestone was reached when as many as one-half of married women were in the labor market. Young educated women made further progress in the 1980s, and finally surpassed their male counterparts in terms of the new graduate employment rate in 1991. The darker side of this progress is that the experience of women in the workplace has often not been a progression toward full equality. For example, despite the rising tide of female workers coming into their offices in late the 1970s, most male

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TABLE 1

FIFTY YEARS OF JAPANESE WOMEN'S PROGRESS

Year	Politics	Work	Education
1945	Right to vote for adult women		Admittance of first female students to universities and colleges
1946	First 39 female lower house members		
1947		Labour Standard Law (equal pay for equal work)	
1959		Tokyo Gas propose female worker compulsory retirement upon marriage	
1960	First female cabinet minister		
1962			Separation of compulsory subject at junior high school by sex
1965		Number of female employees exceeds female family workers	
1969			Female senior high school enrollment exceeds male
1970		Share of married surpass 50% of female employees	
1973			Housekeeping as a compulsory subject for female senior high school students only
1979		82% of managers disprove equal treatment of female workers, a survey shows	
1980	First female ambassador		
1982		Labor force participation of married female surpasses 50%	
1984		Income tax reduction for part-time workers	
1985		Equal Employment Law	
1986	Ms. Takako Doi elected as President of Japan Socialist Party		

1989			Female surpass male for advancement to higher education
1990		70% of firms surveyed plan to introduce double-track career system	
1991	First female mayor elected	Female employment rate surpasses male's among new college graduates	
1994	First female Supreme Court judge	Female employment rate drops to the level of early 1980s	
1997		Revised Equal Employment Law	

SOURCE: Inoue and Ehara (1995); Ministry of Labour, *White Paper of Labour* and *White Paper of Working Women*, respective year.

managers who participated in a 1979 Japan Productivity Center survey disapproved of equal treatment for male and female workers.

It is probably fair to say that the Japanese workplace experienced its first structural change in 1986 when the Equal Employment Opportunity Law (EEOL) of 1985 became effective. The workplace environment changed further in the spring of 1999 when the 1997 revised EEOL took effect. Table 2 shows how the revision changed the effectiveness of the law, thereby making the 1997 version far more powerful in deterring unequal treatment of female workers in the workplace.

Leaving a full examination of the relevance of the EEOL to the enhancement of equal employment at Japanese workplaces to another occasion, we simply show some figures that pertain to changes in the female employment share in various occupations. Table 3 shows the female shares in 20 representative occupations from four broad categories in 1985 and 1995, as well as the percent change in those shares over a 10-year period. We immediately notice from these figures that there exists a strong negative correlation between the female shares and their changes. For example, the correlation coefficient between the 1985 female shares and the 10-year change is –0.697. In other words, these numbers show that there was an extensive infusion of female workers in the 10-year period into occupations where female workers were underrepresented in the past. This movement toward the underrepresented occupations also means a shift in female employment to better-paying jobs. This is indicated by the correlation coefficients between the 1995 wage and the 10-year share change (i.e., 0.949, 0.854, and 0.568, respectively) for three broad categories of professionals, administrators and clerks, and production occupations.

TABLE 2
EQUAL EMPLOYMENT ACT: 1985 AND 1997 VERSIONS

a. Activities affected

Type of activities	1985 version	1997 version
Recruitment	Efforts required to treat equally	All types of discrimination are prohibited
Promotion	Efforts required to treat equally	All types of discrimination are prohibited
Training	Some types of discrimination are prohibited	All types of discrimination are prohibited
Benefits	Some types of discrimination are prohibited	Some types of discrimination are prohibited
Retirement/discharge	All types of discrimination are prohibited	All types of discrimination are prohibited
Health care of pregnant workers	Efforts required for employers	Required for employers
Sexual harassment	No reference	Efforts are required for employers to deter
Preferential treatment of female workers	Permitted	Prohibited with some exceptions

b. Policy initiatives

Policy type	1985 version	1997 version
Arbitration	Only if both parties want	Only one party wants
Penalty	No penalty	Publication of employers who violate laws
Positive action	No reference	Governmental support provided

c. Related law changes

There were some restrictions on female workers' overtime, holiday work, and night work. However, all the restrictions were lifted when the revision of the Equal Employment Law became effective in 1997.

Theme and Structure of the Article. The above-mentioned infusion of female workers into the so-called male occupations as well as women's high educational attainments should have reduced male-female wage differentials in Japan. But the reality of their wages seems to stand in opposition to this supposition, which presents a puzzle we wish to explain. This puzzle motivated this article and we plan to address later in the article.

We first ask where Japanese women stand in terms of educational attainment, job segregation, and pay differences from a comparative perspective. We show that Japanese women are better positioned relative to their counterparts in other countries in terms of educational background and job segregation, but not in terms of pay differentials. We then examine male-female wage differentials in Japan in detail, and present our explanation of these large wage differentials. The last two sections

TABLE 3

CHANGES OF FEMALE SHARE BY OCCUPATION

Professionals	Mean monthly contract wage (1995) (thousands yen)	Female worker share (1985)	Female worker share (1995)	1985/1995 female share change (%)
Medical doctor	778.2	11.0%	13.7%	24.2
Pharmacist	282.2	59.6%	64.6%	8.3
Nurse	267.1	97.0%	96.2%	−0.8
University faculty	614.3	17.6%	20.1%	14.3
Kindergarden teacher	197.7	94.0%	93.2%	−0.9
Administrators and clericals				
Administrative (private)	509.1	1.6%	2.5%	54.2
General worker	266.7	52.2%	58.5%	12.0
Computer operator	218.0	45.5%	57.9%	27.4
Telephone operator	207.7	98.0%	97.8%	−0.2
Typist and stenographer	227.6	95.2%	91.8%	−3.6
Sales and service				
Sales counter clerk	224.4	38.1%	39.4%	3.4
Insurance sales	264.8	66.3%	67.7%	2.2
Guard	214.4	1.9%	3.5%	85.0
Cook	259.6	52.4%	54.5%	3.9
Waiter/waitress	196.7	81.3%	80.6%	−0.8
Production occupations				
Auto assembler	268.1	4.0%	6.8%	67.5
Chemical product worker	291.4	8.3%	9.7%	17.5
Mechanical drawing worker	265.1	21.4%	29.6%	38.2
IC chip production worker	211.8	39.0%	27.8%	−28.7
Sewing machine operator	141.0	89.1%	88.8%	−0.4

SOURCE: Ministry of Labour, 1995; *Basic Survey of Wage Structure*, 1996. Prime Minister's Office, *Population Census*, respective years.

summarize our findings as well as our discussions of the policy initiatives that could mitigate the gap.

The Status Quo of Japanese Female Workers

In this section, we evaluate the status quo of female Japanese workers by looking at their educational attainment, degree of job segregation, and the size of wage differentials by sex.

Educational Attainment of the Japanese Female Labor Force. The quality of the labor force can be measured by various indices, but an index of its

TABLE 4

PERCENT OF UPPER SECONDARY GRADUATES TO POPULATION AT TYPICAL AGE OF GRADUATION: ALL TYPES OF PROGRAMS COMBINED (1996)

Country	Total	Male	Female	Female ranking among 20 countries
Japan	99	96	102	3
South Korea	91	91	91	6
United States	72	69	76	18
Canada	73	70	77	17
Italy	79	76	82	14
France	85	85	86	8
Germany	86	86	86	8
Country mean including others	85 (24)	86 (20)	88 (20)	

SOURCE: OECD (1998: Table C2.3).
NOTES: (1) The ratio can exceed 100 percent because there may be some graduates who are not in the age bracket that is typical at graduation. (2) The number in parenthesis is the number of sample country.

general educational level is one of the most popular ones. We look first at how much of the Japanese female labor force has completed a secondary general education. As the figures in Table 4 clearly show, Japanese females excel in secondary educational attainment relative to their male counterparts. They even surpass their counterparts in other industrial economies.

We then ask how many of those Japanese female high school graduates pursue their education to the tertiary level and, at this higher level, how they fare relative to their male counterparts as well as their international peers. The data in Table 5 shows that even though most of the Japanese female high school graduates choose a nonuniversity type of advanced education, almost 60 percent of the college-age female population completes, not just attends, formal tertiary education. This ratio places them in third place among females in 25 industrial nations. However, their position relative to Japanese males is difficult to determine. In the combined share, they exceed their male counterparts by 9 percent, but the composition of the share is oriented to shorter programs.

Job Segregation. The low job segregation found in the Japanese workplace is confirmed by numerous authors, including OECD (1988), Reubens and Harrison (1983), Roos (1985), and Rosenfeld and Kalleberg (1991). These authors use the most popular index of job segregation, namely, the index of dissimilarity (ID), but it is by no means the only measure. The literature on job segregation measures is abundant, and different authors advocate the superiority of one measure over another, even though different

TABLE 5

PERCENT OF TERTIARY GRADUATES TO POPULATION AT TYPICAL AGE OF GRADUATION: ALL TYPES OF PROGRAMS COMBINED (1996)

	Non university		University		Combined total	
Country	Male	Female	Male	Female	Male	Female
Japan	18	43	31	15	49	58
South Korea	18	22	29	22	47	44
United States	18	27	31	39	49	66
Canada	58	56	26	37	84	93
Italy	2	4	12	14	14	18
United Kingdom	10	13	33	36	43	49
Germany	9	13	18	14	27	27
Country mean including others	14 (21)	17 (21)	20 (25)	24 (25)	34 (25)	41 (25)

SOURCE: OECD (1998), Table C4.2b.
NOTE: The number in parenthesis is the number of sample countries.

measures seem to provide different perspectives.[1] Another element we have to consider in choosing a proper measurement of job segregation is the sensitivity of segregation statistics to the degree of aggregation in occupational classifications.[2] We therefore apply multiple measures with different levels of aggregation to determine the relative position of Japanese job segregation internationally. Table 6 summarizes the result.

Table 6 presents the measurement of job segregation by two representative statistics, the index of dissimilarity and the percent of gender-dominated occupations (TDOM). We chose these because they are both the most commonly used statistics in the inequality indices and the gender domination absolute concept. The table shows Japan's high ranking (low segregation), regardless of the type of measurement and the degree of occupation aggregation. All of this is consistent with the high educational achievement of Japanese female workers relative to their male counterparts. It should be noted that in Japan, educational degrees are often a necessary, though not a sufficient, condition for entry into many selective occupations. These measures indicate that Japanese female workers seem to enjoy relatively less occupational segregation than similar workers in other countries.

Male-Female Wage Differentials. Two commonly cited figures of the relative wages of Japanese female workers—44 percent in 1980 and 41 percent in 1990, from a 1995 United Nations survey—are for women

[1]See Anker (1998:Chap. 5) for a useful summary.
[2]See Anker (1998:Chap. 6) for a comprehensive survey of the data aggregation debate.

TABLE 6

MEASUREMENT OF JAPANESE JOB SEGREGATION

Occupational classification of data	Index of dissimilarity	ID rank order	Total employment in gender-dominated occupations (%)	TDOM rank order
1 digit	0.256	9/26	5	6/26
2 digit	0.458	4/26	37	3/25
3 digit	0.529	3/11	42	2/11

SOURCE: Anker (1998).

NOTES: Index of dissimilarity (ID) is defined as one-half of the summation over all occupations of the absolute differences between the proportion of all females and the proportion of all males in each occupation. This definition is from Anker (1998), who used that of Duncan and Duncan (1955). Percent of total employment in gender-dominated occupations (TDOM) is defined as the percent of all nonagricultural workers in a gender-dominated occupation, which is an occupation where at least 80 percent of the workers are either male or female. Rank orders are numbered from one of least segregation and the number after the slant is the number of sample countries for that particular measure.

TABLE 7

MALE-FEMALE WAGE DIFFERENTIALS IN JAPAN

	1985	1990	1995	2000
A. Monthly contract wage for employers with 10+ employees				
Male (yen)	274000	326200	361300	336800
Female (yen)	153600	176100	217500	220600
Female/male (%)	56.06	53.99	60.20	65.50
SOURCE: Based on *Basic Survey of Wage Structure*.				
B. Monthly contract wage, including bonus, for employers with 10+ employees				
Male (yen)	352342	422383	466650	433667
Female (yen)	192408	223358	274516	277017
Female/male (%)	54.61	52.88	58.83	63.88
SOURCE: Based on *Basic Survey of Wage Structure*.				
C. Monthly total wage for employers with 5+ employees				
Male (yen)	347000	408000	443000	446000
Female (yen)	177000	202000	225000	222000
Female/male (%)	51.01	49.51	50.79	49.78
SOURCE: Based on *Monthly Labour Survey*.				
D. Monthly total wage for employers with less than 5 employees				
Male (yen)	204000	242000	267000	272000
Female (yen)	106000	126000	139000	141000
Female/male (%)	51.96	52.07	52.06	51.84
SOURCE: Based on *Monthly Labour Survey*.				

working in manufacturing. It is important to explore whether these numbers also apply to all industries. We do this in Table 7, the figures for which come from the two most comprehensive wage surveys in Japan, namely, the

Ministry of Labour's annual *Basic Survey of Wage Structure* and the *Monthly Labour Survey*.

Table 7 shows, first, that the wage gap shown in the UN figures is substantially larger than those obtained from two of the most representative wage surveys. Second, the female-male gap widens as the coverage of pay components increases. The figures in Section A of Table 7 are for monthly contract wages only. When we add the monthly equivalent of an annual bonus to the figures in Section A, the gap is widened, as seen in Section B. The gap is widened more in Section C when overtime pay and other payments for nonregular hours of work are included, although the coverage of firm size is somewhat different for Section C. Third, the wage gap at small firms is not much smaller than that at larger firms. Comparing figures in Sections C and D from the same survey, we see that the wage gap is consistently smaller for small firms, although the differences are rather small. Fourth, Japanese wage differentials by gender are large by any measure and show no sign of monotonic improvement in the 1980s and 1990s.

Given this information, how can we evaluate the 1995 UN report's claim that, in the industrial countries, the largest male-female wage differential occurs in Japan? We are aware of the difficulties associated with any international comparison based on an individual country's national database. For example, the UN (1995) does not explain how comparability is secured for their wage table. We are thus forced to obtain some other source to prove the alleged low ranking of Japanese female workers' relative wage. Fortunately, Tachibanaki (1998) provides a handy source for this information even though the coverage of countries in this study is limited to seven industrial countries. These figures are the product of painstaking work by a group of experienced labor economists who took particular care in handling micro data sets from eight industrial economies in order to assure data comparability. Controlling for type of worker, coverage of payment items, and pay period, Japanese female full-time regular workers were estimated to earn as little as 53.9 percent of the wages earned by their male counterparts in 1993. This is far less than the 70.6 percent for the United States and the 71.2 percent for Germany when compared by weekly rate (see Table 8).

These figures, therefore, confirm that Japanese female workers earn far less than their male counterparts—somewhere between 50 and 60 percent—and that this proportion is the lowest for female workers in industrial countries. With this, we have completed our first task for this article, namely, to present reliable factual evidence on the status quo of Japanese women in the workplace.

Low occupational segregation in Japan, as well as women's high educational attainments, is supposed to mitigate, not aggravate, the male-female

TABLE 8
MALE-FEMALE WAGE DIFFERENTIALS IN COMPARATIVE PERSPECTIVE

Country	Year	Sample number	Male wage	Female wage	Wage difference	Gender gap in %
Japan	1993	62,834	6.900	6.282	0.618	53.9
South Korea	1985	538,577	11.289	10.581	0.708	49.3
Australia	1990	6,727	6.264	6.013	0.251	77.8
United States	1991	55,815	6.173	5.825	0.348	70.6
Canada	1990	28,443	6.126	5.662	0.464	62.9
France	1986	52,179	7.750	7.520	0.230	79.5
Germany	1990	2,012	6.860	6.520	0.340	71.2

SOURCE: Tachibanaki (1998).
NOTE: Wages are per week in local currency in logarithm.

wage differential in Japan. But the reality of their wages stands in opposition to this supposition, which presents the puzzle we wish to explain in the following section.

Reconsideration of Educational Attainment and Job Segregation

To answer the puzzle, we first revisit the educational attainment of Japanese female workers and job segregation. We have already noted gender differences in the type of higher education, although a significant portion of both male and female workers has obtained an advanced education. These differences in the type of higher education mean a different choice of study area, which may lead male and female students to different type of occupations.

As Figure 1 clearly shows, most male students chose either engineering or social science fields. But female students' choice is more diversified, with humanities, arts-education, home economics, and social sciences as the four most popular majors. This contrast in choice is reflected in the labor market by the different occupational choices, as Figure 2 shows. A third of male workers are in manual occupations, which makes it the dominant occupation for male workers. For female workers, the most popular choice is clerical occupations, which more than one-third of female workers enter. Other contributors to job segregation are male dominance in managerial and transportation-communication jobs on the one hand, and the high share of females in service occupations on the other. Thus we suspect this differential distribution of occupations explains some, but not most, of the wage differential if those jobs chosen by female workers tend to be low-paid ones.

Table 9 shows that this suspected trend does exist. We examined the correlation between the share of female workers in an occupation and its

FIGURE 1

GRADUATES BY MAJOR AND FEMALE SHARE IN 2001

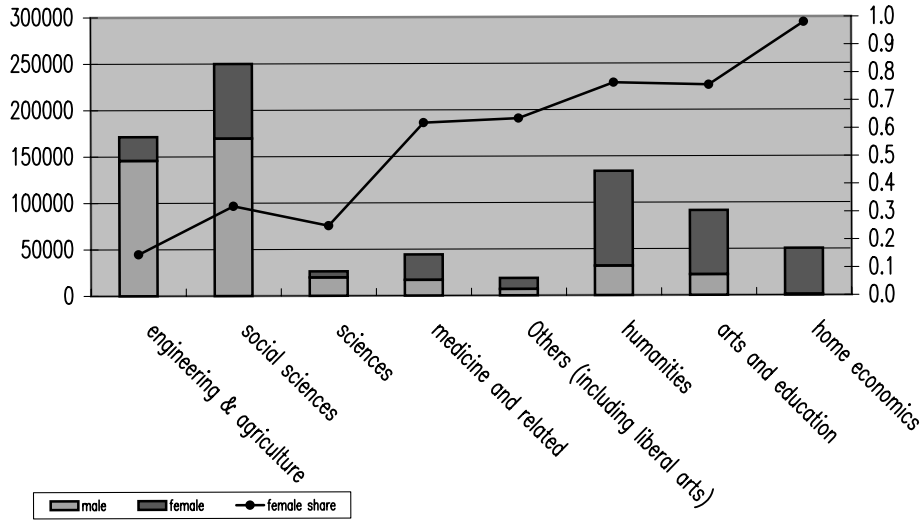
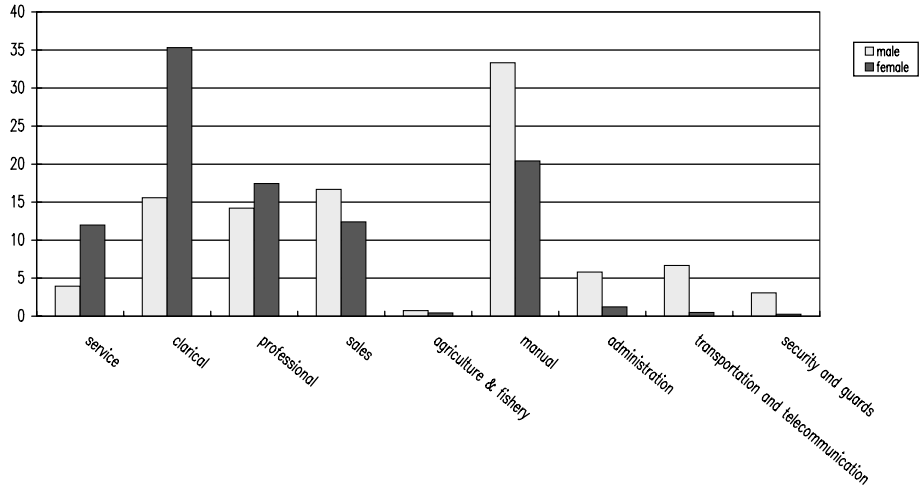


FIGURE 2

OCCUPATIONAL DISTRIBUTION BY SEX IN 2000 (%)



mean monthly contract wage by firm size and type of occupation. Except for gray-collar occupations in large firms, a negative correlation was detected in all categories and they tended to be strong for white- and blue-collar occupations regardless of firm size.

TABLE 9
FEMALE SHARE AND WAGE LEVEL OF OCCUPATION

Firm size	Occupation group	Samples	Correlation coefficient
Large	white-collar	23	−0.54
	gray-collar	14	0.25
	blue-collar	54	−0.25
Medium	white-collar	24	−0.51
	gray-collar	15	−0.20
	blue-collar	67	−0.57
Small	white-collar	24	−0.46
	gray-collar	15	−0.10
	blue-collar	68	−0.66

SOURCE: Ministry of Labour, *Wage Census*, Vol. 3, 2000.
NOTE: Wage level is the mean monthly wage for male and female workers together.

TABLE 10
FEMALE/MALE WAGE RATIO AFTER OCCUPATIONAL DISTRIBUTION ADJUSTED

Firm size		Occupation group	Simple mean of ratio	Adjusted ratio
Large	0.63	white	0.77	0.85
		gray	0.76	0.73
		blue	0.67	0.73
Medium	0.67	white	0.64	0.85
		gray	0.79	0.79
		blue	0.65	0.80
Small	0.67	white	0.64	0.81
		gray	0.70	0.70
		blue	0.59	0.73

SOURCE: Ministry of Labour, *Wage Census*, Vol. 3, 2000.

Given this correlation, we evaluate the impact of this tendency of female workers to work in lower-paid occupations in Table 10. The table shows the expected female wage ratio to male workers if they take up the same occupations as males do. The wage differentials are reduced substantially in all firm-size categories for all three occupation categories. The improvement is larger for those categories that show a strong negative correlation between female share and occupational wage, as suspected.

Three Hypotheses of Large Wage Differentials in Japan

The question that emerges in the previous section is why female workers earn so much less than their male counterparts even after we control for

differences in occupational distribution by sex in Japan. To answer this question we will examine the following three hypotheses. They are what may be called the intermittent labor market experience hypothesis, the segregated career path hypothesis, and the *Nenko* living wage hypothesis. We will explain them one by one below.

Intermittent Labor Market Experience Hypothesis. This hypothesis has its base in the peculiar characteristics of female labor supply in Japan. Female workers have a very high probability of labor market intermission due to marriage, as well as childbearing, which creates a M-shaped labor force participation curve. For example, in 1987 the percent share of job separation due to marriage among female workers between 25 and 34 years of age was 25.8 percent, while the figure in 1997 was slightly larger, 26.1 percent.[3] Given the larger share of unmarried women in their late 20s and early 30s in 1997 compared to 1987, the actual rising trend should be stronger than these numbers indicate. Consistent with this observation, Nagase (1999) found that the recent cohort has a higher probability of being out of the labor force after the birth of their first baby, as is indicated in Table 11.

Another distinctive feature of Japanese female labor market participation is the dramatic drop of regular employment status for women as young as their late 20s, and a continuous decline of that status, as Table 12 depicts.

To offset this drop in the late 20s, there is a surge in temporary employment status, along with a substantial increase in those outside the labor force. Then, in their early 30s, except for a rather stable share of part-timers, all other categories decline considerably, reflecting a discontinuous jump of nonworking women in that age group. It is only in their late 30s that Japanese women return to work, with various employment statuses except that of regular worker. All these numbers confirm the already discussed high labor market detachment of female workers upon marriage and childbearing. The increase in casual work status among middle-aged female workers, along with the monotonic decline of regular status workers, enhances the Japanese female workers' instability of employment mentioned above.

As a result of these two characteristics the mean job tenure difference between male and female regular workers in Japan is one of the largest in the industrial economies.[4] Both Koike (1988) and Wakisaka (1998), as well as others, have noted this tenure difference and its consequential weak skill

[3]Ministry of Labour, *Basic Survey of Employment Structure*, respective years.

[4]See OECD (1993: Table 4.1).

TABLE 11

PERCENT OF OUT-OF-LABOR FORCE FEMALES AFTER ONE YEAR OF FIRST BABY BIRTH

Age at the time of the survey in 1997	Senior high school graduate	Junior college graduate	College graduate
30–34	79%	73%	73%
35–39	74%	69%	70%
40–44	71%	67%	62%
45–49	67%	65%	66%

SOURCE: Nagase (1999).
NOTE: Nagase included in the sample only those females who bore their first baby before age 29, which, thus, controlled for the difference in timing of the first birth.

TABLE 12

EMPLOYMENT STATUS OF JAPANESE FEMALE BY AGE GROUP (1991)

Status/age	20–24	25–29	30–34	35–39	40–44	45–49
Regular	50.6	22.2	7.5	5.2	3.5	3.0
Part-time	4.3	7.2	8.0	13.8	28.3	19.6
Temporary	8.3	25.0	8.3	12.5	20.8	8.3
Other work-type	11.4	11.4	7.1	15.7	14.3	15.7
Not working	25.4	34.2	69.1	52.8	33.1	53.4

SOURCE: Japan Institute of Labour (1992).

accumulation as one of the reasons Japanese female workers earn much less than their male counterparts. Their hypothesis may be called the intermittent labor force participation hypothesis, which is examined by Chapman and Mulvey (1986) and Rummery (1992). We will examine the relevance of this hypothesis to the persistent and large Japanese wage difference by sex in the next section.

Segregated Career Path Hypothesis. This hypothesis is based on one of the salient features of contemporary Japanese human-resource management, a flexible matching of tasks and workers within their specialty field or occupation, not one-to-one matching between a worker and a specific job based on the skill requirement of the job and the skill possession of the worker. To realize this flexible matching and continuous skill development, a personnel and wage management system called the work capability grading system (*shokuno shikaku seido*) is commonly used.

The system consists of two components: work capability evaluation (*satei*) and the grading of each individual worker based on the capability evaluation. In evaluating a worker's capability, broad factors are considered. They include general personal traits, such as attitude toward work,

ability to communicate, attitude toward self-development, and ability to work as a team member, as well as general work-related capabilities such as leadership, creativity, and logistic thinking. All these are considered in addition to the specific skills and knowledge needed for the task assigned to the worker.[5] By weighting the scores of all these elements a single score is assigned for a worker, which in turn specifies the grade of the worker's work capability. The wage and the level of tasks to be assigned are determined accordingly.[6]

These specific as well as general work capabilities are developed by assigning various tasks that are somewhat above the capabilities of a worker. This encourages the worker to learn the skills and knowledge needed to fill the gap, either through on-the-job training or off-the-job training provided by the firm.[7] Therefore, the training assumed by this system is an incremental and time-consuming one requiring a long-term perspective by management as well as a long-term commitment by the worker.

Only those workers who are believed to have a long-term commitment are chosen for these long-term career development tracks, which enables them to rise to higher grades with high wages. Those who are suspected of lacking a long-term commitment are left to be assigned rather routine tasks, which limits their future promotion in grade and pay. Consequently, the gap between those in each of these two tracks has widened so much over time in terms of pay and tasks that we may legitimately state that two career paths exist in an occupation or in a specialty field in Japanese firms.

It is between the genders that these two distinct career paths appear most conspicuously in Japan. Male regular workers are placed on the long-term career development track because they are considered to have made a long-term commitment to the firm. Female workers, on the other hand, are believed to lack such a commitment because of females' frequent intermission of career for marriage and childbearing, and are assigned to a short and limited career path. The hypothesis argues that this system creates very different career and skill development paths and, consequentially, very different pay profiles by gender.[8] While the first hypothesis attributes the

[5]In summer 1999, one of the authors visited the manufacturing subsidiary of a major Japanese automobile firm. He found that the appraisal elements for nonmanagement administration staff included teamwork, people management, knowledge of the company, planning/organizing, problem solving, improvement, impact, flexibility, self management, and job-related skills and knowledge.

[6]See Endo (1994) for a case description of how the *shokuno shikaku seido* determines a worker's pay level.

[7]See Table 3.4 of Brown et al. (1997) for an intriguing list of job sequences for 11 of the production workers they interviewed.

[8]This is exactly what Brown et al. (1997) found in an electrical factory they visited. See their observation on p. 84.

lower pay for female workers to their short tenure, the segregated career path hypothesis believes that it is the difference of accumulated skill between male and female workers with the same tenure within the same occupation.

One explicit means of managing these dichotomous career paths is what is called "double-track personnel management,"[9] which provides two career paths for job applicants, with one leading to a high-commitment, high-return career and the other leading to a low-commitment, low-return career. Employers then allow the applicants to choose either of these paths. By giving the applicants the right to choose, employers can avoid violating the requirements of the Equal Employment Act that was introduced in 1986. The resulting segregated career management by gender may be justified by the economics of statistical discrimination against female workers who have demonstrated their generally weak attachment and commitment to a job.

Nenko Living Wage Hypothesis. We call the third explanation the Nenko living wage hypothesis. The Nenko wage refers to both the pay principle and the wage paid based on this principle. The Nenko wage principle means that long service and hard work by an employee should be rewarded, and that the pay should be determined according to this principle, with particular attention given to the needs of employees.[10] One implicit assumption behind this principle is its application only to male regular workers who start their service at a young age, but not to female employees even if they are in regular status jobs.

The definition of the Nenko wage presented here is a classical one and it is rather difficult to find a firm that pays exclusively based on this principle today. A contemporary interpretation of the Nenko wage is the wage that is based on the mixture of Nenko and other principles. The Nenko wage principle can be realized in the work capability wage system. Under this system, it is a worker's work capability grade that determines the wage. We know that capability evaluation (*satei*) includes elements prone to subjective judgment, as Endo (1994) demonstrated. It is very possible that management systematically gives lower appraisal scores to female workers at their annual evaluation and sets the pay as well as the pay increase lower relative to otherwise comparable male workers. If this kind of manipulation for female workers and a reverse manipulation for male workers were undertaken, it could result in a Nenko living wage for male workers and a rather flat wage profile for female workers. The Nenko living wage

[9]This wording is borrowed from Wakisaka (1998).

[10]The standard definition of the Nenko wage can be found in several places, including the popular handbook of Japanese industrial relations by Shirai (1983).

hypothesis includes this route to wage discrimination as well as the personal factors route.

But why do employers stick to the Nenko living wage principle and pay only male workers more? Is there any rationale for this wage payment system? One explanation purports that the Nenko living wage principle enhances overall work morale and, thus, improves labor productivity. In other words, it simply pays. It is perceived to be a fair and a proper thing to do. This explanation is based on the belief that Japan is a country where roles in a family are still clearly divided along gender lines (i.e., a husband is the primary wage earner and a wife is at home in charge of domestic affairs). A corollary to this thesis is that a man should be paid enough to support a family, while a woman's pay can be minimized since she is not working for a living and is at most supplementing her family budget. This is exactly what Brown et al. (1997), after a three-year investigation of numerous Japanese firms and offices, see as the Japanese socioeconomic system.[11]

This picture of the Japanese family and the meaning of work look somewhat out of date, but factual evidence is abundant to show the relevance of this picture to contemporary Japan. The same Japan Institute of Labour survey used for Table 12 included a question concerning this. Table 13 reproduces its main findings.

There is a choice of "to support a family" in the questionnaire, along with 11 other choices, but it was one of the least frequently cited reasons for female workers. The percentages for that choice are 20.2 percent, 11.6 percent, and 0.0 percent for regular, part-time, and temporary workers, respectively. For male workers, and particularly for those who are married or have been married, it is the paramount reason to work and was chosen by 98 percent and 92.3 percent of the respondents, respectively.

Reflecting this widely accepted perception of a differential meaning of work by sex, labor unions, particularly those whose membership is predominantly male members, set up a wage principle based on the male worker's life-cycle needs. For example, the confederation of Japan Automobile Workers unions publish their wage policy regularly, a principle clearly stated in the following:

> Using the life-cycle needs applicable to auto industry workers as the base, we pursue the wage level, which properly rewards our hard work and consequently places us at the top of all industries. (JAW (1988), translation by the authors)

There have been several attempts to examine this line of explanation, including Sano (1984), Nakata (1997), and Nakata (1998). However, none

[11]Although they use the term "living wage," it appears that they mean exactly the same as the wage paid by the Nenko wage principle. See Brown et al. (1998:37).

TABLE 13
REASONS FOR WORKING, INCLUDING THE FOUR MOST FREQUENTLY CITED REASONS (1991): IN PERCENT

A. Male workers			
	Unmarried workers	Married with spouse	Divorced or separated
Support a family	64.2 (2)	98.0 (1)	92.3 (1)
Save for future	58.8 (3)	60.6 (2)	30.8 (2)
Acquire money for own use	76.3 (1)	40.4	30.8 (2)
Earn money for better life	53.7 (4)	47.7 (4)	30.8 (2)
Men should work	46.3	54.6 (3)	30.8 (2)
B. Female workers			
	Regular status workers	Part-time workers	Temporary-status workers
Support a family	20.2	11.6	0.0
Supplement family budget	26.9	55.8 (2)	41.7 (4)
Save for future	80.0 (1)	49.3 (3)	58.3 (1)
Acquire money for own use	79.3 (2)	69.9 (1)	58.3 (1)
Make friends	55.5 (4)	45.7	29.2
Make use of free time	17.7	48.6 (4)	58.3 (1)
Earn money for better life	58.0 (3)	40.6	29.2

SOURCE: Japan Institute of Labour (1992).
NOTE: Multiple choice was allowed.

of these succeeded in presenting convincing evidence to support the hypothesis, which is why we are reexamining it in this article.

Empirical Examination of the Three Hypotheses

Impact of Intermittent Labor Market Experience of Female Workers on the Wage Gap. To evaluate the relevance of this hypothesis to the wage gap, we examined if the positive correlation between the relative length of female tenure to male tenure and the relative size of female wages to male wages exists, and estimated the expected size of wage gap reduction if both male and female workers had the same tenure. We can do this by estimating a regression coefficient of the female-male wage ratios on the tenure ratios for occupation data. We did so by firm size and occupation group. We used the mean wage and tenure data by sex for each occupation available in *The Basic Survey on Wage Structure*. The result is given in Table 14.

Contrary to conventional wisdom, we find that in some occupational categories, namely, gray-collar workers in large and medium-sized firms as

TABLE 14
FEMALE/MALE WAGE AND TENURE RATIOS

Firm size	Occupation	Samples	Female/male tenure ratio	Female/male wage ratio	Wage ratio after adjusted tenure difference	Change of wage ratio
Large	white	24	0.78	0.78	0.86	0.08
	gray	15	1.09	0.73	0.73	0.00
	blue	68	0.89	0.68	0.69	0.01
Medium	white	24	0.89	0.83	0.85	0.02
	gray	15	1.19	0.83	0.84	0.01
	blue	67	0.80	0.74	0.75	0.01
Small	white	23	1.21	0.87	0.85	−0.02
	gray	14	0.90	0.74	0.76	0.01
	blue	54	0.73	0.74	0.78	0.04

SOURCE: Ministry of Labour, *Basic Survey of Wage Structure*, Vol.3, 2000.

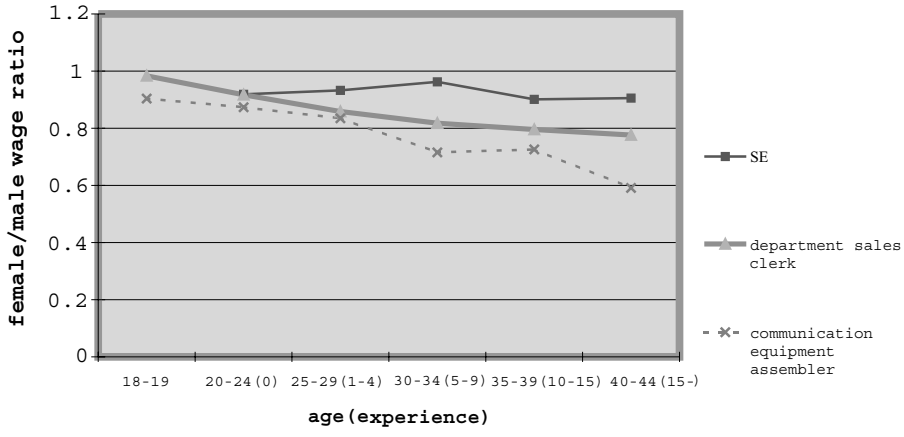
well as white-collar workers in small firms, female workers actually have longer tenure than male workers. This fact itself undermines the relevance of this hypothesis, as it contradicts the basic assumption that female workers have shorter tenure than male counterparts. The regression results also show that for most firm-size and occupational groups, the outcomes contradict the hypothesis. First, among nine firm-size and occupational groups in the table only in four cases does the explanatory variable, i.e., the female-male tenure ratio, have a statistically significant positive impact on the female-male wage ratio. For the other five groups, the relative size of female tenure does not show any relation with the relative wage. Second, even among those four statistically significant cases, the impact of the relative tenure is very limited as the changes of the wage ratio are estimated to be small.

The results in Table 14 thus press us to look further for other explanations of the sizable wage gap even after controlling for occupation and tenure differences by sex.

Impact of Segmented Career Paths on the Wage Gap. This hypothesis predicts that even among those who choose the same occupation, the actual contents of work may be different between male and female workers. Male workers may be given more training opportunities and acquire more skills than female counterparts through double-track personnel management. Accordingly, wages may diverge among male and female workers of the same occupation as they gain tenure and/or experience. We examine the predictions for three occupations in Figure 3. The occupations are system

FIGURE 3

DIVERGENCE OF MALE-FEMALE WAGE FOR STANDARD WORKERS: THREE REPRESENTATIVE OCCUPATIONS



SOURCE: Ministry of Labour, *Basic Survey of Wage Structure*, 2000, Vol. 3.

analyst (a white-collar occupation), sales clerk at a department store (a gray-collar occupation), and telecommunication equipment assembler (a blue-collar occupation). We estimated the change of female–male worker wage ratio as they increase their occupational career without intermission.

It is clear from Figure 3 that a gap does exist even among those male and female workers in the same occupation, and it widens as their careers advance. The gap is smaller for SE and larger for assemblers, with sales clerks in between, which is consistent with what this hypothesis predicts. However, we have to acknowledge that the Nenko hypothesis predicts exactly the same pattern as we see in this figure. Thus we next examine if there is a way we can separate these two hypotheses out from the data.

Impact of Nenko Consideration on Wage Gap. We propose decomposition of the wage gap between male and female workers of same occupation into those we attribute to their age increase and those we attribute to career advancement. If that attributable to age is significantly larger than that attributable to career advancement, we judge that the Nenko explanation is more relevant than the segmented career hypothesis. We calculate the first element by comparing those in the same age but with different career lengths. Specifically, we choose one with no previous experience and another with more than 15 years of experience. The second is estimated by comparing those workers of different age groups but with no occupational

TABLE 15
DECOMPOSITION OF WAGE INCREMENT

Occupation		Age attribute	Experience attribute	Total
White collar	female	0.56	0.20	0.76
	male	0.93	0.07	1.00
Gray collar	female	0.17	0.20	0.37
	male	0.80	0.20	1.00
Blue collar	female	0.19	0.16	0.36
	male	0.76	0.24	1.00

SOURCE: Ministry of Labour, *Basic Survey of Wage Structure*, 2000, Vol.3.
NOTE: 6 occupations for white collar, 5 for gray, and 8 for blue are samples.

experience. We choose those between 20 to 24 years old and those between 40 and 44 years old. Table 15 shows the result of this decomposition.

The figures suggest that it is the age component that creates a large female-male wage gap. The impact of this element is particularly large for gray- and blue-collar occupations, but even for white-collar occupations it explains virtually all the wage gap between female and male workers. Thus the Nenko hypothesis is strongly supported by our data.

The Difficulty of Separating the Three Hypotheses in Practice. Many of our readers may notice that the three hypotheses we examine have a common basic thesis, namely, role division by gender in contemporary Japanese society. The intermittent labor market hypothesis says that female workers quit their jobs to become housewives and/or mothers. The segregated career path hypothesis says that employers do not invest in female workers because they know female workers will soon quit to become housewives and/or mothers. The Nenko living wage hypothesis says that women are paid low wages because their earnings are supplemental to their husbands' wages.

These three hypotheses differ only in the form that this thesis takes in the labor market. The intermittent labor market hypothesis takes the form of a differential equilibrium quantity of labor market experience by gender. The segregated career path hypothesis and the Nenko living wage hypothesis take the form of a differential equilibrium price of marketable goods (i.e., experience and age) in the labor market by gender. Basic economics teaches us that in a market, the price and quantity of goods are interdependent. We also know that goods traded in one market are substitutable for each other if they are not identical. Therefore, it is quite natural that all the labor market outcomes we examine are mutually interdependent. It is then logical that there is some ambiguity left when we try to measure the impact of one of these interdependent variables. This is the case with our three hypotheses.

TABLE 16
AUTO A'S WAGE SYSTEM

Function	Name of components	Share	Formula
Meeting living needs	*Kihon-kyu* (basic pay)	45%	Entry basic pay + annual increment by age and by grade of worker
Rewarding work	*Shikaku-kyu* (grade pay)	20%	Fixed amount by grade of worker
Rewarding work	*Shokumu gyoseki-kyu* (job/performance pay)	30%	Fixed amount by job level + *satei* (work appraisal) point; parameter by job level
Rewarding specifics	*Shoteate* (three allowances)	5%	Fixed amount for each allowance (family dependence, manual work, supervision)

SOURCE: Auto A union publication.

The seriousness of this ambiguity is better understood when we look into the actual personnel practices of Japanese companies. In Table 16 we show the wage system and the standard worker wage profiles at a representative automobile company in Japan, Auto A. We obtained information about Auto A's pay system from Auto A's union and information about the standard worker wage profile from JAW, which surveys member unions' wages every year.

The monthly wage at Auto A consists of three pay components and three types of allowances. Their names, functions, the shares in the monthly wage, and the determination formula are tabulated in Table 16.

The grade of a worker is determined by the annual work appraisal (*satei*) of the worker's capability. For administrative staff, there are six grades and the grade pay ranges from 48200 yen to 77500 yen per month. The job level of a worker is determined by the grade of the worker and the work appraisal. The work appraisal, therefore, determines the grade and the job level of a worker. Since the basic entry pay is fixed for all new graduates of each level of education regardless of gender, pay differences among a cohort with the same educational background who enter Auto A in the same year emerge from the individual differences in accumulated work appraisal results. Lastly, we add that all the jobs at Auto A are bundled into three job groups, namely, administrative and engineering, production, and special. Basically, workers in the same job group are evaluated by the same work appraisal criteria. Given this information regarding the wage system at Auto A, we next examine the age-wage profile for workers receiving standard promotions at Auto A. We show one for male high school graduates and another for female high school graduates in the administrative and engineering job group.

What strikes us about these profiles is a large accumulating difference between male and female wages. Since they start with the same wage, and the annual increment of basic pay by age is the same for male and female workers, this kind of wage differential is only possible if there is a systematic difference of work appraisal results by gender. If female workers are consistently inferior to male workers, then it is possible for them to have systematically lower work appraisal results. However, it is difficult to imagine any plausible reason for Auto A to consistently choose female high school graduates who are inferior to male graduates. Thus, we suspect that female workers are given lower work appraisal points, regardless of their actual work capability, and are promoted more slowly than male workers.

We then wonder why female workers of comparable qualifications are given lower work appraisal points than male workers. Is it because management believes, and the union accepts, that female workers do "not need" to be promoted? Or is it because female workers are only given less responsible and less important jobs, which consequently results in their receiving low work appraisals? If the former is the case, then the Nenko living wage hypothesis applies. If the latter is the case, the segmented career path hypothesis applies. It is only when we can interview the managers and probe for the real reasons that we will be able to determine the right hypothesis for the Auto A case. However, we believe that there is no way to gather such information systematically nationwide. What we can learn from this case is that the observed differential age-wage profiles by gender as well as detailed knowledge about an employer are not enough to determine the proper explanation.

TABLE 17

MONTHLY WAGE PROFILES FOR WORKERS RECEIVING STANDARD PROMOTIONS AT AUTO A (ADMINISTRATIVE AND ENGINEERING GROUP WITH HIGH SCHOOL QUALIFICATIONS)

Age	18	25	30	35	40
Male wage (yen)	158000	218550	293433	348161	440600
Index	100	138	186	220	279
Female wage (yen)	158000	190541	243773	296617	333100
Index	100	121	154	188	211
Male-female	0	28009	49660	51544	107500
	0	18	31	33	68

SOURCE: JAW (1998), *Report on Wage and Working Conditions Survey*.

Concluding Remarks

What Have We Learned from Our Expedition? Japanese women have made substantial progress toward equal treatment in the workplace. They have achieved one of the highest education levels and one of the least segregated occupational composition levels in the world, yet internationally comparable national data place their wages relative to those of men at the bottom of world industrial economies. We thus pursued explanations for these differentials between male and female workers engaging the same occupations at similar employers by examining three hypotheses based on the peculiarities of the Japanese labor market.

We first suspected that the frequent job separations of Japanese women upon marriage and childbirth were the primary reason for reducing their labor market value. However, in each occupation, female workers were found to be as stable as males by the measures of company tenure and the length of occupational experience. Thus, the differentials of these measures only marginally explain the wage differentials.

Calling to mind the common employment practice at large Japanese firms called double-track personnel management, we then examined the possibility of female workers being segregated into a nonpromotion track within each occupation. However, we found that controlling for these factors does not much improve the wage gap.

Finally, we considered the Nenko living wage hypothesis that emphasizes the socially accepted family role division by gender (i.e., the male worker is the primary wage earner for a family and the female worker is a supplemental wage earner with little need of wage promotion). The data showed a clear widening of the gap as workers age, even after controlling for all the conventional variables. The impact of the profile difference by gender was substantial across occupations, and left as much as one-third of the male wage as the differential that may be explained by this consideration.

We would like to offer two qualifications. One is that our data represent a sizable but still specific segment of the entire Japanese labor market and thus care is necessary before generalizing the findings. The other is the necessity to interpret our macro findings about the personnel management practices commonly found in Japanese companies by finding out how these companies manage to pay less to female workers having the same qualifications as male workers, and how they make this acceptable to both individual workers and the unions.

What Can We Say About the Future Prospects of Japanese Working Women? In the course of writing this article, we encountered several startling facts. Sharing these with our readers may lead us to some useful ideas on the future prospects of Japanese working women.

One of our concerns is with the way the Ministry of Labour's official occupational wage data are published. Our wage data source, *The Basic Survey of Wage Structure*, has been conducted every year for the last 50 years, although there have been some important changes. Throughout the survey's history up to 1995, the Ministry published the occupational wage survey results for two separate lists of occupations, one for male workers and the other for female workers. Only small segments of these occupations appeared in both lists, such as the 19 occupations we analyzed, leaving most to appear only either in the male list or the female list. Given the report's popularity as a wage reference for management and unions, this fact is suspected of affecting perceptions about men's occupations and women's occupations. Knowing that the Equal Employment Opportunity Law was enacted as a result of the Ministry's initiative in 1986, the ministry's publication of lists of men's and women's occupations appears self-contradictory, to say the least.

Our second concern is also about the publication of occupational wages, but this time by labor unions. As we saw in the Auto A example, the Auto A union responded to Japan Auto Workers' Union's questionnaire on standard workers' wages by supplying separate numbers by gender. It is an eye-opening fact that there are such large wage differentials between men and women in the same job category who have the same educational qualifications at one of Japan's leading automobile companies, as we noted in Table 17. It is still more startling to learn that both the Auto A union as well as JAW accept this as normal by calling these wages "standard wages." The automobile industry is not alone in publishing separate "standard wages" by gender in union wage surveys. The second largest private union after JAW, namely Denki-Rengo (Japanese Electrical Electronic and Information Union), does this as well, as do many minor industrial unions.

These two episodes raise questions about the effectiveness of labor policies as well as unions' initiatives concerning equal treatment of male and female workers in Japan. We all know that a law without enforcement provisions does not work. This was the situation in Japan with the 1986 EEOL until April 1, 1999. As noted in Table 2, the first version of this law had no means of enforcement; it even had a clause allowing employers to post female-only job ads, a clear contradiction of the principle of equal treatment. Only in 1999 did a revised equal employment law that prohibits female-only postings become effective. Therefore, we may have to wait several more years before

we can discuss, in any meaningful way, the effectiveness of policy initiatives on this issue. The prospects are equally grim for workers' initiatives, particularly for those proposed by labor unions.

Japanese women have come a long way in the last 50 years, but their journey has just begun.

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