

# Can rank-order tournament theory or the late selection hypothesis be applied to Japanese large firms? —Case studies in two Japanese large firms in the late 1990s—

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## 「ランク・オーダー・トーナメント理論」または 「遅い昇進仮説」は日本の大企業に適用され得るか ～1990年代後半における日本の大企業事例から～

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### ABSTRACT

This paper aims to discuss whether rank-order tournament theory or the late selection hypothesis can be applied to Japanese large firms. The balance of person-related wages and job-related wages were changed in many firms in the late 1990s. Is late selection carried out in these firms? What do the personnel managers think of their wage systems in the context of these theories? The case studies will be addressed, and they offer insights into these research questions.

### 要 旨

本論文は「ランク・オーダー・トーナメント理論」または「遅い昇進仮説」が日本の大企業に適用され得るかを論じることを目的とする。1990年代後半に属人的賃金と職務的賃金のバランスが多くの企業で変化した。「遅い昇進仮説」はこれらの企業で実施されているのであろうか。人事管理部門のマネジャー達はこれらの理論をどのように捉えているのであろうか。事例研究から、これらの問いを考察する。

This paper aims to discuss whether rank-order tournament theory (e.g. Bull *et. al.*, 1987; Ehrenberg and Bognanno, 1990; Lazear and Rosen, 1981) or the late selection hypothesis (e.g. Drago and Garvey, 1998; Levine, 1991; Meyer 1991; Prendergast, 1992) can be applied to Japanese large firms. The balance of person-related wages and job-related wages in two Japanese large firms in the late 1990s will be considered. The author interviewed personnel managers of Rocket Parcel and Sun Steel (real names are disguised) in 1998. The information is from both interviews and the companies' confidential documents in the year.

The reason for the selection of the firms is as follows. In order to consider the typical wage systems of Japanese large firms, two very different firms were

contrasted. These firms are different in terms of length of history, type of industry and methods of recruitment. Rocket Parcel is a parcel delivery firm which grew rapidly over the last three decades, while Sun Steel is a steel company with a long history. In Rocket Parcel, recruitment is not limited to new graduates, while managers rely on internal promotion. In sharp contrast, Sun Steel is heavily weighted towards recruitment of new graduates from high schools and universities.

Moreover, these case studies offer insights into our research questions. Can rank-order tournament theory or the late selection hypothesis be applied to Japanese large firms? The rank-order tournament theory argues that the larger the prize (wage dispersion between a winner and a loser) the greater is the incen-

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tive. In contrast, the late selection hypothesis posits that due to little or no dispersion in wages and promotion among peers, employees keep hoping for future promotion, and thus competition and work incentives are promoted. Is late selection carried out in these firms? What do the personnel managers think of their wage systems in the context of these theories?

### 1. Rocket Parcel

Rocket Parcel, which was established in the 1910s, is a leading parcel delivery company in Japan, and it has expanded rapidly in the last 30 years. Due to the nature of its business, there are many temporary staff. Standard employees number only 38,000 approximately, but total employees (including temporary staff) number 75,453 (54,009 men and 21,444 women). Most (73,071) employees work for the express parcels department, and the staff at head office numbers is 288. Drivers (34,289) and workers (25,006) are the majority, and there are fewer white-collar workers (2,537 managers and 12,289 clerical staff). There are 20 or 30 women managers. The turnover rate of temporary staff is high (43.3%) but that of standard employees is only 5.3%. The recruitment practices of Rocket Parcel are different from a typical Japanese large firm, and are not limited to new graduates. However, there is no recruitment of managers from outside. They are all promoted from the internal pool of human resources. It is common that lorry drivers with work experience enter the firm as standard employees. The standard employees are allowed to change their job track subsequently (e.g. from a driver to clerical staff). The pay system for temporary staff is completely different from that of standard employees. The temporary staff are paid hourly and they do not have access to promotion. The following account describes the personnel system for standard employees.

Rocket Parcel's personnel manager emphasised that their pay system is not a typical seniority-pay system, but a merit conscious system. That is because: (1) all employees are initially placed in the same job grade regardless of job track or educational qualification; (2) there is no custom that a peer-cohort is promoted by equal amounts in the early stages of their careers; (3) there is no guideline on promotion by age. It is understandable that there is no clear concept of peer-cohort in the firm because new graduates are not in the majority. However, *the Personnel system handbook, 1997* (Rocket Parcel, 1997) states clearly that person-related wages are necessary for a stable life.

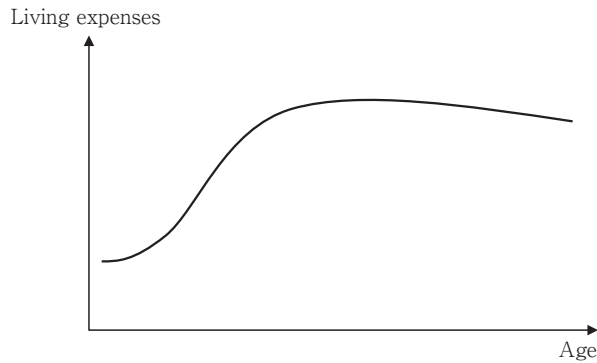
“Only when your life is stable, you can provide good quality of service to customers. Thus, we assume your life-time employment, and base your salaries on: (1) life stability (seniority) and (2) job performance (merit)”. (Rocket Parcel (1997) *Personnel system handbook: 1997*, p10)

Moreover, the handbook shows the image of the company's age-wage profile with cartoons of marriage, childbirth, children's school entrance and their graduation, which are closely related to the increase in living expenses. That shows minimum living expenses increasing with age until the end of children's education. Subsequent to children's school graduation, living expenses decrease slightly. The age-wage profile is illustrated in Figure 1, but the cartoons are disguised.

It should be noted that Rocket Parcel states clearly that a concern with living expenses is the basis of pay design, and this idea supports upward sloping age-wage profiles. In Rocket Parcel, person-related wages consist of age pay, family allowance, length of service pay, regional allowance and employee pay (which is a job grade with regular promotion and merit promotion). The personnel officer argued that their personnel system is merit conscious and not like a typical Japanese firm with a seniority pay system. However, Figure 1 shows that his argument is based on the assumption that minimum living expenses must be guaranteed. This is exactly what International Metalworkers' Federation-Japan Council and the Japanese Electrical Electronic and Information Unions request from management (Harada, 2015). It is interesting that the personnel manager believes that the pay system of Rocket Parcel is not of the seniority type. It is conceivable that these two apparently contradictory points demonstrate how deeply the concept of family wage is accepted in Japan. Since a guarantee of minimum living expenses is such a common idea, the personnel manager does not pay attention to it. Because it is a socially accepted idea, Rocket Parcel uses Figure 1 to persuade their employees that the wage system is fair. In these respects, the firm offers interesting evidence that it is a very common understanding that wages must meet minimum living expenses which increase with age, therefore involving upward sloping age-wage profiles.

This section will analyse the components of monthly salary and identify why monthly salary increases with age in the company.

Standard employees receive monthly salaries, which are composed of two types of pay whose concepts are “stability: the basis of life” and “job: incen-



**Figure 1** Income to meet living expenses which change with life stage

Source: Rocket Parcel (1997) *Personnel system handbook: 1997*, p10

tives”. Thus, they are regarded as person-related wages and job-related wages in our terms. In these categories, there are a number of pay components and overtime pay as shown in Table 1.

The person-related wages apply to all standard employees, regardless of status (managers or non-managers) or job track. Person-related wages rise gradually and never fall. Employee-level pay (*shain kyu*) is determined by a table with 21 grades with 5 ladders each (105 ranks in total). All new standard employees are placed in the bottom level regardless of educational qualification or job experience. Subsequently, their employee-level pay increases according to the result of personal assessment. The assessment focuses on the person’s contribution to teamwork, not on job performance, and the assessment is carried out by supervisors, colleagues and subordinates (“360-degree” assessment). Because subordinates assess supervisors, it is necessary to retain confidentiality in order to increase the credibility of the personal assessment. Thus, a networked portable computer (a portable POS system) is used, and results of evaluation are read only by the Personnel Department. Personal as-

essment is carried out twice a year and job grades are reviewed once a year. All managers must have formal training for personal assessment once a year.

In the evaluation of non-managers, there are three rankings, which determine the amount of increase in job-level (e.g. mark A: 3 ladders up, mark B: 2 ladders up, mark C: 1 ladder up). It should be noted that even if the assessment is marked C, the lowest mark, there are always some cash increments until 55 years of age.

Age pay and length of service pay also increase gradually until 50 years of age and 55 years of age, respectively. Household allowance is determined by family size and the adjustment to the average cost of living which varies by region. Thus, when the number of dependent family members increases, household allowance rises.

These components in person-related wages increase with age, and represent the background concept, “stability: the basis of life”. However, it should be noted that employee-level pay (*shain kyu*) takes into account merit, while Rocket Parcel categorises it as “stability: the basis of life” (person-related wages). Therefore, in practice it can be classed as one of the components of job-related wages.

The personal assessment for non-managers is undertaken by a number of line-supervisors and a branch director. The main factors of personal assessment are sales, service to customers, general attitudes and safety (e.g. whether there is any accident or speeding whilst driving). While the assessment of employee-level pay in person-related wages focuses on input to work, the evaluation of pay for job grade focuses on output of work. The Personnel Department does not specify any proportions of marks (e.g. mark A: 10% of employees, mark B: 20% , mark: C 70%). Thus, in theory there could be large variances in marks. But, in practice there is a tendency that most people are evaluated as “ordinary” level (mark B). It means that most people are promoted regularly and their pay therefore increases. After non-managers are assessed within their branch, there is no further adjustment according to the sales ranking of the branch within the region.

There are 5 marks which can be given (A, B+, B, B-, C). The number of ladders which an employee can climb is determined by mark, and it varies by status. For example, mark A means 4 ladders up for upper managers, but 3 ladders up for non-managers. If a manager is marked B- or C, there are no increments on the job ladder whatever the stage of career.

Managers are also assessed by a number of people who know their work. But, the assessment factors are

**Table 1** Components of monthly salary

<b>Person-related wages</b>
Employee-level pay ( <i>shain kyu</i> )
Age pay
Length of service pay
Household allowance
<b>Job-related wages</b>
Pay for a job grade
Piece rates (non-managers only)
Pay for a job title and licenses
<b>Overtime pay</b> (non-managers only)

Source: Rocket Parcel (1997) *Personnel system handbook: 1997*, p3

**Table 2 Model monthly pay of a standard employee at 30 years old**

<b>Person-related wages:</b>	100,000	(employee-level pay)
	23,600	(age pay)
	20,500	(length of service pay)
	68,000	(household allowance)
<b>Subtotal:</b>	212,100	(84.8%)
<b>Job-related wages:</b>	31,000	(pay for a job grade)
	4,000	(piece rates)
	3,000	(pay for a job title and licenses)
<b>Subtotal:</b>	38,000	(15.2%)
<b>Total:</b>	250,100	yen

Source: 1998 Case study

different from those of non-managers, and include managerial tasks. It should be noted that managers' assessment has two stages. First, they are marked at their branch, and next their marks are adjusted according to the sales ranking of the branch within the region. Therefore, managers' performance is evaluated according to whether they are "relatively" better or worse within a region. This two-tier-evaluation appears to aim to promote competition between branches and suggests that this is what managers' primary responsibility should be.

Piece rates are an incentive pay system solely for non-managers. For instance, a lorry driver (the most common job in Rocket Parcel) receives piece rates according to the number of parcels which are collected and delivered, the parcels' weights and the distance of delivery, for example.

In job-related wages, pay for a job grade and pay for a job title and various qualifications (e.g. a lorry driver's license) are common for all standard employees, but piece rates apply only to non-managers. Like ordinary large Japanese firms, Rocket Parcel has a job-ability-grading system (*shokunou shikaku seido*), in which job grades, job demarcation and titles are loosely connected. In Rocket Parcel, there are 30 job grades which consist of 1-3 ladders (80 ranks in total). The speed of promotion varies by merit. Even in the same job grade, some have job titles; others do. Because job-title is accompanied by extra accountability, there is additional pay for a job title.

Table 2 shows the model monthly salary of a standard employee at 30 years old. The monthly salary is composed of 84.8% person-related wages and 15.2% job-related wages. Due to the confidential nature of the information, the personnel manager let the author know only the broad categories ("stability: the basis of life" and "job: incentives", namely person-related wages and job-related wages) 7 types of cash amounts belong to. The description in brackets following the cash amounts are added as the author's esti-

mates. For instance, it is considered that employee-level pay and pay for a job grade will be relatively higher than the other payments in each category.

The proportion of person-related wages is significantly high (84.8%) at Rocket Parcel. On average, it is 39.9% among large firms with 10,000 employees or more, according to Japanese Trade Union Confederation (1998). At Rocket Parcel, employee-level pay in person-related wages takes into account merit through personal assessment, like pay for a job grade in job-related wages. In most Japanese large firms, job-related wages increase both by merit and seniority. Thus, if we put employee-level pay into job-related wages, person-related wages fall to 44.8% in the monthly salary. It is, however, still higher than the average figure.

Since this is the case, why does the personnel manager consider that the pay system of Rocket Parcel is merit conscious? As we have seen, he claimed that this was so because: (1) all employees are initially placed in the same job grade regardless of job track or educational qualification; (2) there is no custom that a peer group is promoted by an equal amount during the early part of their careers; (3) there is no guideline on promotion by age. However, in practice most people are marked B and climb up the job grade ladders steadily. It may be that the personnel manager is comparing the current pay system with past systems of Rocket Parcel, rather than with other firms' pay systems.

Considerable amendments to the system were carried out in 1972, 1983 and 1995-96, and the current pay system has been implemented since April 1996. In 1972, a job-ability grading system (*shokunou shikaku* system) was introduced, and the proportions of pay elements which were simply determined by seniority (i.e. age pay and length of service pay) decreased. The newest amendments in 1996 also aimed to decrease the seniority elements, in order to reduce total labour costs which were increasing with an age-

ing population. Rocket Parcel was established in the 1910s, but it is only in the past 20 years that the firm was expanded dramatically. Therefore, the average age of employees had been young, and the firm could afford salaries with high proportions of seniority elements until 1996. The personnel manager's opinion must be understood in this context. In the history of Rocket Parcel, the proportion of person-related wages has never been lower, and thus he considers Rocket Parcel has a merit conscious pay system. When the pay system was altered in 1996, this real reason was not made explicit. Instead, management explained to employees that:

*"The new wage system, which reflects individuals' merit more, was created for fairness".*

According to the personnel manager, the union of Rocket Parcel has been co-operative with the management. This is typical in Japanese large firms. Normally, the protection of employment is the first priority of unions. As described above, the turnover rate of standard employees is 5.3%, and the great majority tend to stay in the firm for a long period. In addition, Rocket Parcel has dramatically expanded in the past 30 years, and thus it is considered that the level of salary has steadily increased. Under these circumstances, it is very unlikely that an enterprise union would be hostile to management.

The monthly salary at Rocket Parcel is determined by merit and seniority, and person-related wages are relatively large. In person-related wages, there are components which have no relation to job-skills or ability (e.g. age pay, pay for length of service and household allowance). As Figure 1 shows, Rocket Parcel has a concept that wages should meet individual needs at all life stages. These components in person-related wages increase until 50 or 55 years old when normally children become independent. In this corporate culture or tradition, it is understandable that the personnel manager says:

*"The seniority wage system provides employees with a sense of reassurance. In my opinion, it is important because there is no absolutely objective assessment. If so, it is better not to differentiate employees' wages significantly".*

Rocket Parcel offers an interesting example. It is not a typical Japanese firm, because recruitment is not limited to new graduates. However, the firm has a very traditional view regarding pay systems, with the philosophy that wages should meet individuals' needs.

As a result, its age-wage profile shows an upward slope. In its model of monthly salary, job-related wages make up less than half. In addition, job-related wages tend to increase with age. Thus, there is an explicit mechanism to create upward sloping age-wage profiles for all standard employees.

In addition to a monthly salary, Rocket Parcel offers all standard employees fringe benefits, cash payment on quitting and a pension plan. Fringe benefits include economical accommodation, financial help for housing loans at low interest rates, saving plans, and a purchasing plan for Rocket Parcel's stocks, for example. The personnel manager says that cash payment on quitting is the same as a "typical Japanese large firm", and did not let the author know its formula. The amount, however, is closely related to monthly salary and length of service.

## 2 Sun Steel: Promotion and pay system

### 2.1 Background

Sun Steel (the real name is disguised) is one of the largest Japanese steel companies. Standard employees are composed of 4,620 white-collar workers and 10,614 blue-collar workers (on 1 May 1998). The business is formed of three sections: steel products: chemical products: engineering and construction services and others. The history of Sun Steel is long and can be traced back to the 19th century. In 1998, the author interviewed personnel managers who were in charge of blue-collar workers, and obtained information on promotion systems of blue-collar workers and the pay system. The same pay system applies to all non-managers (including white-collar workers).

Like most Japanese large firms, Sun Steel has an enterprise union which, in this case, belongs to the Japan Federation of Steel Workers' Unions. Managers are excluded from the union, and all non-managers belong to the union regardless of job track. In practice, most university graduate white-collar workers become managers at approximately 30 years of age, and thus the great majority of union members are blue-collar workers.

The personnel system at Sun Steel represents a typical history of post-war Japan. In the early period, payment methods and status varied considerably by job track, and blue-collar workers were paid daily according to piece rates. In 1970, Sun Steel introduced single status for both white-collar and blue-collar workers. Blue-collar workers obtained standard employees' status (*shain*), and their pay system changed to monthly salary. However, wage tables and promotion were organised separately by job track. In

**Table 3 Promotion ladders at Sun Steel before 1998**

Qualifications (Job grades)	Bands		Titles	
	White-collar	Blue-collar	White-collar	Blue-collar
All employees				
Sanji	<i>Bucho</i>		<i>Bucho</i>	
			<i>Bucho-ho</i>	
	<i>Kacho</i>		<i>Kacho</i>	
			<i>Kacho-ho</i>	
Sanji-ho	<i>Syunin-buin</i>		<i>Kakaricho</i>	
Syu-1		<i>Syunin</i>	<i>Syukan</i>	<i>Syunin</i>
Syu-2		<i>Shokuseki</i>		<i>Sagyoucho</i>
Syu-3		<i>Hanseki</i>	<i>Tanmu</i>	<i>Hancho</i>
Sha-1			<i>Tanto</i>	<i>Tanto</i>
Sha-2				<i>Ippan</i>
Sha-3				
Sha-4				

Source: 1998 Case study

the same year, the custom of the regular increase (*teiki shoukyu* or *teihso*) of monthly salary was implemented. But, person-related wages were substantial and made up 60% of basic pay in a monthly salary. In 1973, an American style “job wage” (*shokumu kyu*) was introduced. But, it was arranged in a Japanese way, and the proportion of person-related wages was retained at the same level and this part went through regular increase. Like most Japanese firms, Sun Steel also modified job wage continuously and job wages faded away. The personnel managers explained that in the 1970s job demarcation changed quickly and the level of jobs improved greatly. Under such circumstances, it was a heavy burden for the personnel department to state changing job demarcations and to price them. In addition, due to job wages, job-related wages could not increase automatically, and the young employees needed to wait a long time for a vacancy in posts. Thus, promotion was not smooth, and many people complained. In 1987, a job-grading ability system (*shokunou shikaku* system) was introduced.

A new personnel system was implemented from January 1999. The aim of this change is to recruit smarter blue-collar workers. Because of technological development and the implementation of sophisticated computer systems in the Production Department, the job of blue-collar workers has become elaborate and difficult. Thus, the company needs to recruit clever people straight from school and train them by OJT (on-the-job training). However, the youngest cohorts of the Japanese population will sharply decrease in the near future, and therefore university will be easier to enter. Hence, it is clear that the gross number of high school leavers, who want to work, will decrease, and it

will be difficult to recruit “smart” blue-collar workers. To remedy the problem, some university graduates might be blue-collar workers in future. The new payment system also aims to attract people with satisfactory levels of work abilities. By improving the status of blue-collar workers, the new system attempts to attract good people from the small population of high school leavers.

The focal points of the new system are (1) to implement new job grades which apply to all standard employees: (2) to increase the proportion of appraisal-based pay to all staff, including blue-collar workers.

First, the current career ladders (until December 1998) and pay tables vary by job track (e.g. white-collar workers and blue-collar workers), and they even belong to different personnel departments. Table 3 shows the relationships of job grades and posts from an upper manager (*Bucho* or Director) to the bottom level. Executives are excluded from the table. Job grades are shown in the “Qualification” column; posts (job titles) are shown in the “Titles” column. Some job grades have names which are shown in the “Bands” column. The bottom 7 job grades (from Sha-4 to Syu-1) are non-managers. Under the old personnel system until 1998, blue-collar workers were not able to be managers. But, in the new system, they can be promoted to managers, *Kacho-ho* in title. In the youngest case, blue-collar workers can be advanced to *kakaricho* in title at 36 years old, while most white-collar workers reach the title at 30 years old.

A managerial track is opened solely for those who are university graduates and recruited by the head office of the company. In sharp contrast, the university graduates who are recruited by local branches/factories have the same career ceilings as high school leav-

ers. The future promotion rule is unclear at this moment. But, the personnel managers said that it is assumed to be similar to the current pattern, which does not show considerable differences in promotion speed among a peer-cohort in the same track, especially in the early stage of careers.

Sun Steel has a typical job-ability-grading system (*shokunou shikaku seido*) in which job grades link loosely to posts. For example, a blue-collar worker at Syu-3 in qualification is “*Hanseki*” in band. He may hold the post of “*Hancho*”, or not. If not, his monthly salary is not affected because he is paid according to his job grade (qualification), Syu-3. Titles are provided when posts are available in the department. In each section or department, the posts may or may not exist. If they do, they may be occupied. Therefore, titles depend on the situation, and are loosely linked to job grades.

Career ceilings also vary by track, and the blue-collar workers could not be managers in the old system. In the new system, in contrast, it is possible. In the most successful case, a blue-collar worker can be a manager at 36 years old. The differences in the speed of promotion and the initial placement in job grades will remain, and therefore a white-collar worker can be a manager sooner at 30 years old. In January 1999, about 500 blue-collar workers are expected to be newly promoted to managers (based on the interview in 1998). It is, however, estimated that the increase in total labour cost will be small. Because overtime allowances are not paid to managers, the salary increase by promotion is offset by the decrease in overtime allowances.

Secondly, in the new system from January 1999, the proportion of appraisal-based pay in a monthly basic payment will increase. Appraisals influence not only salary, but also task allocation and future promotion. Hence, the element of success in working life which depends on merit will be much greater.

This change follows a current trend in Japan. The intention is to increase the proportion of appraisal-based pay and to have greater freedom in terms of labour costs. Seniority-based pay (e.g. the length of service and age) does not have substantial flexibility. When it is necessary to reduce total labour costs, appraisal-based pay is easier to decrease without the resistance or acceptance of the union. Interestingly, the proportion of seniority-based pay and appraisal-based pay in a monthly salary follows the agreement of the Japan Federation of Steel Workers' Unions. The member companies are not urged to do so, however it is a custom of the industry. In particular, large companies, such as Kawasaki Steel, Shinnittetsu, NKK and Sumi-

tomo Kinzoku, always have the same proportion of job-related wages and person-related wages.

## 2.2 Source of recruitment

Sun Steel refused to disclose precise numbers of mid-career recruits. Recently, there has been no mid-career recruitment of white-collar workers. In this company, only when there is an expansion of new business and they need experts in the field, there is mid-career recruitment. In sharp contrast, mid-career blue-collar workers were often recruited. In particular, most blue-collar workers recruited between 1965 and 1975 were mid-career. However, the situation in the labour market changed, and it came to be common to recruit straight from schools. This company has taken only new people straight from high school since 1985, and there is no mid-career recruitment. It is a principle to take almost the same number of staff each year, including all types of workers. However, greater numbers of people were recruited in the economic boom of 1992.

As those who are recruited mid-career are in the minority of both white-collar and blue-collar workers, their salaries do not compare well. In fact, their monthly salaries are lower than those who have been working for Sun Steel since graduation from schools or universities. Accordingly, bonus and quitting payments of mid-career people would also be lower than those who entered the company as new graduates/school leavers.

## 2.3 Promotion system for blue-collar workers

When new graduates enter the firm straight from high schools or universities, there is no wage differential in the first instance, as is normal in Japanese firms. The first placement is determined by job track and educational qualification. White-collar university graduates start from Sha-2 (see Table 3). Blue-collar high school leavers start from Sha-4. In the first 3 years, each peer-cohort is promoted equally by job track. Because the personnel managers think this equal-promotion period is shorter than the average for Japanese large firms, they describe the firm as merit-oriented in terms of promotion.

However, as in normal Japanese large firms, there are timetables for promotion by job track in the early stage of a career. Therefore, all standard employees are automatically promoted to some degree at similar speeds, and the members of a peer group are not significantly differentiated in terms of job grade.

For example, blue-collar high school leavers start their career from Sha-4. There is a promotion guideline from Sha-4 to Sha-1. A peer-cohort of blue-collar

high school leavers is equally promoted for the first 3 years. From the 4<sup>th</sup> year, some differences appear among the members of the peer-cohort. But, most (about 90%) are promoted together to Sha-1 over the following 4 years. This means that they drop 10% of underachievers. During this period, the differences in promotion speed between high-flyers and slow trackers are one year or 2 years only. Thus, small differences among a peer group continue for the first 7 years. However, promotion suddenly becomes competitive, when they move from Sha-1 to Syu-3. There are significant differences in promotion speed to Syu-3 among a peer group. However, most blue-collar workers reach Syu-2 by retirement, while high flyers are advanced to Syu-1.

The personnel managers emphasised that promotion for blue-collar workers is merit-oriented and there is no guaranteed promotion track from Syu-3. However, most people are promoted to Syu-2 in the end by retirement. Promotion does not stop at Sha-1 (the end of the first promotion track) even for slow trackers, and they are promoted slowly but steadily in the long period. Firms do not have an obligation to promote blue-collar workers from Syu-3, because there is no promotion track. So why, then, are they promoted to Syu-2?

Of particular importance is that Sun Steel considers skills and seniority as follows: (1) skills are accumulated by seniority; (2) there are substantial jobs which cannot be evaluated objectively. Thus, it is important to have both seniority and merit parts in salaries in order to persuade employees and obtain high work motivation. The salaries are composed of seniority-based pay (person-related wages) and appraisal-based pay (job-related wages). The proportion of appraisal-based pay will increase in the new system

Consequently, the promotion system for blue-collar employees in Sun Steel is that: (1) there is a period of equal promotion of a peer group for 3 years; (2) subsequently, promotion speed differs among a peer group by a year or two years, but relatively small differences continue for the following 4 years; (3) thus, small differences among a peer group last for 7 years from entry to the firm; (4) however, thereafter, their promotion continues steadily with a rather wider range. But, as we will see below, there is a substantial amount of person-related wages, especially for non-managers (most blue-collar workers), and the wages of Sun Steel are not significantly merit-oriented.

## 2.4 Pay system

There are three types of pay in Sun Steel. The annual income of a Director (*Bucho*) is performance-re-

lated-pay with 100% contingent part. The other managers receive monthly salaries, which are composed of a fixed part and a contingent part. But, there is no person-related wage element, and “monthly” appraisals are reflected in the contingent part of job-related wages. By contrast, the monthly salary of non-managers includes person-related wages.

In the old pay system of non-managers (union members) until 1998, the base pay of a monthly salary was formed by job-related wages (40%) and person-related wages (60%). These proportions are reversed in the new payment system from January 1999. These proportions follow the agreement of the Japan Federation of Steel Workers’ Unions, as described above. But, due to the contingent part in personal assessment, this proportion applies roughly in practice.

Sun Steel explained that the reform of its pay system aimed to enhance job abilities and to stimulate work motivation. However, it is considered that there were also other reasons. For example, this reform leads to greater flexibility in total labour costs, and helps to decrease the element of fixed labour cost which is expected to increase greatly with an ageing population. The new pay system for non-managers (blue-collar and white-collar employees) is organised as follows:

There are 3 types of person-related wages. The first two are based on age and “personal needs”. The third (while theoretically job-related wages) is effectively a scale of regular increments and is seen by Sun Steel as a quasi-fixed element of pay.

### 2.4.1 Person-related wages: Type 1: “Age pay”

There are two types of age pay in Sun Steel. One is called basic pay (*kihon kyu*) and another is additional basic pay (*honkyu kakyu*). But, both are age pay, and we re-name them as “Age pay” and “Personal needs pay” for our convenience. “Age pay” is determined by the employees’ age. If s/he is younger than 18 years old, it is 54,080 yen. After 18 years old, there is an increment of 1,150 yen annually. For instance, an employee at 30 years old obtains base pay with the following formula, regardless of job track or job grade.

$$54,080 \text{ yen} + (30 \text{ years old} - 18) + 1,150 \text{ yen} \\ = 67,880 \text{ yen}$$

This formula applies to employees until 40 years of age. After 41 years of age, the rate is constant, and the same as that of 40 year olds.

### 2.4.2 Person-related wages: Type 2: “Personal needs pay”

“Personal needs pay” is paid to all union members until mandatory retirement at 60 years of age, as Table 4 shows. It is designed to parallel living expenses which increase with age. The peak of the annual incre-



**Table 4 Personal needs pay (from January 1999)**

Age	Pay (yen)	Age	Pay (yen)	Age	Pay (yen)
18	1,640	32	21,700	46	44,770
19	2,700	33	24,790	47	45,620
20	3,780	34	27,970	48	46,480
21	5,000	35	31,010	49	43,610
22	6,110	36	32,860	50	40,740
23	7,210	37	34,720	51	37,870
24	8,320	38	36,580	52	35,000
25	9,230	39	38,430	53	32,130
26	10,560	40	40,290	54	29,260
27	11,600	41	41,040	55	26,390
28	12,660	42	41,780	56	23,520
29	13,700	43	42,530	57	20,650
30	14,740	44	43,270	58	17,780
31	18,270	45	44,030	59	14,910
				60	12,040

Source: 1998 Case study

ment is at 48 years old and subsequently it decreases gradually.

#### 2.4.3 Person-related wages: Type 3: “Pay for job grade (A)”

Sun Steel has a typical job-ability-grading system, as described earlier. There are two types of pay for a job grade (*shokunou kyu*), and they vary by personal assessment. The first is “pay for job grade (A)”, which despite its name is actually a form of a person-related wages. Another “pay for job grade (B)” is a genuine job-related pay and will be explained in the next paragraph. In this pay, even if the assessment mark is low, there are still some increments. Sun Steel treats this pay as a regular increase (*teiki shokyu* or *teisho*). The ranges by personal assessment vary from 65 % to 135 % of the base of each job grade, as shown in Table 5.

These three types of person-related wages increase annually with age. They are regarded as person-related wages in this firm, although there is a limited contingent part in “Pay for job grade (A)”. It is notable that “Personal needs pay” takes into account the living expenses of the average man. Its peak is at 48 years of age. It is considered that this is based on the consolidation of the necessary family wage to bring up children in co-operation with a spouse who is supposed to be a housewife. The age of 48 years is supposed to be the time that the expense of children’s education ends. “Personal needs pay” is not enough to guarantee the minimum living expenses, but it is combined with “Age pay”, which continues to increase until 40 years old. Thus, there are substantial wage increments until the age of 40. “Age pay” becomes constant from 41 years old. But, due to the increment

**Table 5 Pay for job grade (A)**

Job grade	Ranges of the pay by length of service
Syumu-1	From (3,600 yen × 0.65) to (3,600 yen × 1.35)
Syumu-2	From (3,050 yen × 0.65) to (3,050 yen × 1.35)
Shitsumu1	From (2,750 yen × 0.65) to (2,750 yen × 1.35)
Shitsumu2	From (2,400 yen × 0.65) to (2,400 yen × 1.35)
Shitsumu3	From (2,000 yen × 0.65) to (2,000 yen × 1.35)
Shitsumu4	From (1,750 yen × 0.65) to (1,750 yen × 1.35)

Note: These are 6 new job grades implemented from 1998, and are replacement for the 7 old job grades (from Syu-1 to Sha-4) shown in Table 3.

Source: 1998 Case study

of “Personal needs pay”, the total of age pay rises until 48 years of age. Moreover, “pay for job grade (A)” increases, even if the assessment mark is low.

Person-related wages (these three types of pay) will comprise 40% of monthly salary, following the agreement with Japan Federation of Steel workers’ Unions in 1998. The next category, “Pay for job grade (B)” (job-related pay) will comprise roughly 60% of salary, as shown in the next sub-section.

#### 2.4.4 Pay for job grade (B) (job-related wages)

The proportion of job-related wages in the new base pay of a monthly salary increased from 40% to 60% from January 1999. Due to personal assessment, pay for job grade cannot be exactly 60% of the base pay in a monthly salary. But, it is designed to be approximately 60%. The performance of employees is evaluated relatively (not absolutely) in each department. The results of personal assessment tend to cluster in the middle range of scores.

In the new pay system, the ranges of “Pay for job grade (B)” varies by job track. The variances of appraisals of white-collar workers (university graduates) and blue-collar workers are from 0% to 200%, and from 50% to 150%, respectively. As shown in Table 6, the job-related wages are calculated as follows:

$$\text{Job-related wage} = (a) + (b) \times x\%$$

Where (a) = Guaranteed price

(b) = Base of appraisal

x = 0-200% for white-collar workers

50-150% for blue-collar workers

Thus, the contingent range is smaller for blue-collar workers than for white-collar workers. The appraisal-based pay is calculated, as shown in Table 6.

In Table 6, the ranges of pay for white-collar employees overlap between job grades, and this is the most common type in Japanese large firms (Harada, 2015). When employees who are at *Syumu-1* and *Syumu-2* reach 56 years of age, the appraisal-based

**Table 6 Pay for job grade (B) (job-related wages)**

Job grade	Guaranteed Price (a)	Base of Appraisal (b)	Variations of appraisal-based pay	
			(a) + (b) × x%	
			White-collar	Blue-collar
Syumu-1	199,900	22,800	199,900-245,500	211,300-234,100
Syumu-2	172,800	22,800	172,800-218,400	184,200-207,000
Shitsumu-1	148,800	21,900	148,800-192,600	159,750-181,650
Shitsumu-2	125,200	21,400	125,200-168,000	135,900-157,300
Shitsumu-3	105,800	17,600	105,800-141,000	114,600-132,200
Shitsumu-4	99,900	9,600	99,900-119,100	104,700-114,300

Note: The appraisals of (b) are: 0-200 % (white-collar workers) ; 50-150 % (blue-collar)  
Source: 1998 Case study

**Table 7 Decrease in pay for job grade (B) (job-related wages)**

	Guaranteed price (a)	Base of appraisal (b)
Worker at Syumu-1	183,200 yen	11,400 yen
Worker at Syumu-2	172,800	11,400

Source: 1998 Case study

pay decreases slightly, as shown in Table 6.7. There are also appraisals, whose ranges are 0-200% (white-collar workers); 50-150% (blue-collar workers). It is regarded that these relate normally to blue-collar workers, since white-collar workers who are 56 years old, are usually managers.

As described before, the great majority of base pay contains person-related wages in a monthly salary despite personal appraisals. Table 8 shows model monthly salaries of two blue-collar employees with an average mark in personal assessment.

Accompanying the changes to the new pay system, the proportion of job-related wages increased in the monthly salary. However, its contingent part is still only very small.

The contingent part of the salaries of Mr ABC and Mr XYZ are only 5% and 8% , respectively. The proportion of the fixed part of pay varies by job grade. Yet, it is still true that age is an important factor in determining the monthly salary at Sun Steel, and salary increases substantially with age over time.

Even in the new wage structure of 1999 which is specifically designed to increase the proportion of contingent pay, the actual amount of contingent pay remains tiny. The pay mechanisms continue to ensure that wage differentials are kept small, and age continues to dominate the determination of absolute levels of compensation. Although Rocket Parcel and Sun Steel are quite different companies with apparently different attitudes to their payment systems, the new outcomes are surprisingly similar.

**Table 8 Model cases of monthly salaries for blue-collar employees**

<b>Mr ABC (a blue-collar employee)</b>
<b>Age:</b> 47 years old
<b>Length of Service:</b> 29 years
<b>Job-Grade:</b> Shitsumu-1
<b>Person-related wages:</b> 50%
Age pay ...122,460
Personal needs pay...45,620 (see Table 4)
<b>Job-related wages:</b> 50%
Pay for job grade (A) and (B) ...166,210
(including contingent part 17,410 yen; see Table 6)
<b>Total base pay in monthly salary:</b> 334,290 yen

<b>Mr XYZ (a blue-collar employee)</b>
<b>Age:</b> 54 years old
<b>Length of Service:</b> 34 years
<b>Job-Grade:</b> Syumu-2
<b>Person-related wages:</b> 45%
Age pay ...138,330
Personal needs pay ...29,260 (see Table 4)
<b>Job-related wages:</b> 55%
Pay for job grade (A) and (B) ...203,230
(including contingent part 30,430 yen; see Table 6)
<b>Total base pay in monthly salary:</b> 370,820 yen

Note: "Pay for job grade (A) " is an annual increment, which varies by job grade and personal assessment, and included in person-related wages above.

Source: 1998 Case study

### 3 Conclusion

The two case studies of Rocket Parcel and Sun Steel show how the factors, which create upward sloping

age-wage profiles are combined in the base pay of monthly salary. The major factor connecting wages and age was a high proportion of person-related wages. Both companies considered that wage dispersion among a peer-cohort on the same job track should be limited by using brief ranking distributions in Rocket Parcel and promotion guidelines in Sun Steel. In particular, the study of Sun Steel showed that the concept of a peer-cohort is used as a management tool in promotion. The personnel managers clearly stated that a peer-cohort is at the core of their promotion management, and late selection is carried out. The case of Sun Steel demonstrates that the late selection hypothesis can apply to blue-collar workers as well as white-collar ones.

In order to rationalise this, the personnel managers of both firms explained that: (1) wages should fulfil the needs of family life, and have to increase with age: (2) there are jobs which cannot be evaluated objectively and large proportions of person-related wages are also problematic: (3) skills improve with age to some degree. It is noteworthy that Rocket Parcel and Sun Steel are very different firms, but the personnel managers' outlook on personnel systems are surprisingly similar.

This paper examines whether rank-order tournament theory (e.g. Bull *et. al.*, 1987; Ehrenberg and Bognanno, 1990; Lazear and Rosen, 1981) or the late selection hypothesis (e.g. Drago and Garvey, 1998; Levine, 1991; Meyer 1991; Prendergast, 1992) can be applied to Japanese large firms. The rank-order tournament theory argues that the larger the prize (wage dispersion between a winner and a loser) the greater is the incentive. On the other hand, the late selection hypothesis posits that due to little or no dispersion in wages and promotion among peers employees keep hoping for future promotion, and thus competition and work incentives are promoted. This paper has out-

lined the dynamics of dispersion and compression in these firms and the role of late selection. It should, however, be noted that the firms did not explicitly say that work incentives are promoted by late selection.

## References

### **【Published materials】**

- Bull, C., Shotter, A. and Weigelt, K. (1987) 'Tournaments and piece rates: an experimental study', *Journal of Political Economy*, vol.95, no.1, February, pp.1-33.
- Drago, R. and Garvey, G. T. (1998) 'Incentives for helping on the job: Theory and evidence', *Journal of Labor Economics*, vol.16, no.1, pp.1-25.
- Ehrenberg, R. G. and Bognanno, M. L. (1990) 'Do tournaments have incentive effects?', *Journal of Political Economy*, vol. 98, no.6, December, pp.1307-1324.
- Harada, J. (2015) 'Wage systems of male standard employees in Japanese large firms from the late 1940s to the 1990s', *Journal of the Open University of Japan*, 33, pp.69-78.
- Lazear, P. E. and Rosen, S. (1981) 'Rank-order tournaments as optimum labor contracts', *Journal of Political Economy*, vol.89, no.5, October, pp.841-864.
- Levine, D. I. (1991) 'Cohesiveness, productivity, and wage dispersion', *Journal of Economic Behavior and Organization*, vol.15, pp.237-255.
- Meyer, M. A. (1991) 'Learning from coarse information: Biased contests and career profiles', *Review of Economic Studies*, vol.58, no.1, January, pp.15-41.
- Prendergast, C. (1992) 'Career development and specific human capital collection', *Journal of the Japanese and International Economies*, vol.6, pp.207-227.

### **【Unpublished materials】**

- Japanese Trade Union Confederation (1998) *Chingin seido kaikaku to roudou kumiai no chingin seisaku no aratana tenkai ni kansuru chousa kenkyu houkokusho*, Rengo Sougou Seisakatsu Kaihatsu Kenkyusho (eds.), March, Tokyo.
- Rocket Parcel (the real name is disguised) (1997) *Personnel system handbook: 1997*, Tokyo.

(2016年10月30日受理)