Models of Career Advancement in Organizations

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This study evaluates different conceptual formulations of the attainment process in organizations: seniority-based progression, the late selection model, the tournament model, the sponsored model, the gatekeeping model, and the contest model. Using personnel records from a Japanese and US company, we investigate the effect of duration in prior rank, or grade, on the chances of subsequent advancement. Our results show that: (1) Japanese employees must serve a minimum of 10 years before promotion to lower management, supporting the notion of late selection; (2) employees who were promoted late from non-management to lower management had significantly lower chances of promotion to both middle and upper management; and (3) employees who were promoted early did not enjoy any advantage in the attainment process. Similarly, our statistical analyses of the US firm shows that: (1) American employees who were promoted late in the prior grade were disadvantaged in their subsequent advancement in all levels of organization; and (2) early movers in the prior grade did not possess better advancement prospects. These results are not altogether consistent with the tournament model. Instead, the attainment process in the Japanese and US companies is characterized by a two-step process of selection: the gatekeeping model, which filters out a small portion of employees who do not meet the minimum standards, and the contest model, which allows the remaining employees to compete for higher positions without being affected by their earlier performance.

Introduction

This study evaluates diverging conceptual imageries of career progression in organizations. It examines how attainment in the early stage of a career affects later organizational advancement by investigating the effect of duration in prior rank, or grade, on the chances of subsequent advancement. We assess empirically the predictions derived from different conceptual models of the attainment process within organizations. There are six formulations: the seniority-based progression, the late-selection model, the tournament model, the sponsored model, the gatekeeping model, and the contest model. Using detailed personnel records from a Japanese and US company, we examine which conceptual formulation provides an adequate representation of the attainment process in organizations and discuss the implications of the model for human resource allocation within companies.

We begin with a discussion of the different conceptual models of the attainment process and their predictions. The first model emphasizes the importance of length of service in the promotion decision. Shirai (1983, 1992) claims that the Japanese promotion pattern can be characterized as *seniority-based progression* by graduates of different educational tracks. Separate promotion ladders are constructed for high school and college graduates. Among those with the same educational attainment, the seniority principle determines the outcome of the progression. There are features of Japanese companies that allow this type of promotion pattern to take root. First, the ports of entry into the firm are largely restricted to school graduates. Although recruitment of employees with previous work experience is not non-existent, especially of engineers and those with specialized skills, the great majority of employees in large established Japanese firms are recruited immediately following school graduation (Ishida, 1993). Therefore, promotions to managerial positions in a large Japanese company are typically

made from within the organization (Koike, 1988). Recruitment based on school graduates also implies that the age of newly hired employees is fairly homogeneous among those with the same educational level; consequently, length of service and age are highly correlated. Secondly, most large firms set a mandatory retirement age, between 55 to 60, allowing employers to discharge superannuated employees. Thirdly, many large Japanese firms experienced a rapid expansion of their activities, especially during the economic growth period of the 1960s and 1970s, and a number of managerial positions were created. The newly-established managerial positions have generally kept pace with the increased number of hires during this period, so there were enough managerial positions for most college-educated employees. Therefore, according to Shirai (1992), the basic pattern of promotion in Japanese companies is governed by the seniority rule, and very little differentiation is expected among employees who entered the company at the same time.

In contrast to this first view about promotion patterns, which emphasizes seniority, other models recognize competition among the members of the same cohort. The most widely known conceptualization refers to the speed of differentiation among employees (e.g., Tachibanaki, 1992; Tomita, 1992; Takeuchi, 1995; Tachibanaki and Rengo Soken, 1995; Inatsugu 1996). This model is called the *late selection model*, which states that employees in the same entry cohort who share the same educational level typically have a similar career progression during the first few years with the company. However, after this initial period, differentiation among employees becomes visible and promotion rates vary.

Matsushige (1995) examined promotion profiles of male employees who were college graduates in a large Japanese electrical equipment manufacturing company. He showed that no one was promoted to managerial rank in the first ten years of service with the company, and promotion to the rank of section chief began after some 13 years of seniority. According to a survey of 640 Japanese firms in 1989 by the Japan Institute of Labour (Nihon Rodo Kenkyu Kiko, 1993), about two-thirds responded that employees were not differentiated during a fixed interval following entry into the firm. The most

common length of the interval was 'about five years' (63 per cent) followed by 'seven to eight years' (21 per cent) (Nihon Rodo Kenkyu Kiko, 1993: p. 14).

Koike (1993), based on a review of case studies about promotion patterns in Japanese and American companies, claims that differentiation among employees takes place much later in Japanese companies than in American counterparts (see also Nakamura, 1991c). Prendergast (1992) suggests that late selection becomes possible in Japan because opportunities in the external market for former employees are extremely limited. In the United States, highly productive employees can find attractive job options outside the firm, and it is difficult to retain them without providing opportunities for promotion advancement.

It is important to note that the practice of 'late selection' is effectively coupled with the employment policy of 'cross-divisional periodic rotation' (Koike, 1981, 1991; Koike and Inoki, 1987; Yamamoto, 1999). Under these two practices, newly hired employees are rotated frequently, at an interval of three to four years, among related departments and divisions while retaining non-management status (Nakamura, 1991a, 1991b). The employer has a chance to observe the performance of the employees in different divisions, assessing their potential and aptitude. This also enables evaluation of employees by more than one superior. Appraisals by multiple evaluators reduce the chances of arbitrary assessments. The accuracy of information regarding employees' performance and potential is thereby likely to be enhanced (Tachibanaki, 1992; Tomita, 1992; Sato, 1999).

Another advantage of combining 'late selection' and 'cross-divisional rotation' relates to the accumulation of skills among employees. Koike (1991, 1993) claims that the learning of new skills requires at least two to three years of on-the-job training, and periodic rotations enable employees to acquire basic skills in different divisions. By delaying the selection of future upper managers, most employees are given a chance for skill development at an early stage of their career, and, by the time they are considered for promotion, they will have accumulated sufficient skills to occupy a managerial position (Pucik, 1984).

Finally, delayed selection of the managerial elite is likely to increase the motivation and incentives

among employees (Takeuchi, 1995; Yashiro, 1995; Sato, 1999). If employees who become future upper management personnel are selected at the very beginning of their career, such as under a sponsorship model, it would be difficult to motivate those not chosen for promotion. If the selection is not visible during the early stage of career, each employee is motivated to compete for higher attainment. However, Iwata (1977) claims that 'subtle' differences among employees are observed in annual evaluations even in the early years of employment and that they accumulate over several years. Yet the signs of differentiation are often minor – for example, a difference of one month in the promotion to deputy section chief or a difference of a few dollars in monthly salary. It is unclear whether or not such early signs are visible to employees.

The remaining four models (tournament model, sponsored model, gatekeeping model, and contest model) focus on the process of selection of employees for advancement to managerial positions. Competition for promotion in Japanese firms does not usually take place between employees who belong to different cohorts (Dore, 1973; Iwata, 1977). Therefore, many previous studies (Imano, 1991; Nakamura, 1991a, 1991b) have examined the career advancement of employees with the same educational level and entry year. Hanada's (1987) work is one of the pioneering studies of career mobility. He investigated the personnel records of five major Japanese companies and constructed career trees for employees in a specific entry cohort. He contends that the *tournament model* – where employees with faster promotion rates in initial ranks have better promotion prospects in subsequent ranks – characterizes most firms, although there were some variations by industry and types of personnel management.

Pucik (1985) conducted a similar analysis of employees in a large Japanese general trading company. Using career trees and survival curves, he shows that status differentiation became visible only after 14 years of seniority and that employees who were promoted fastest in the 14th year were the winners of the tournament, in the sense that they reached the highest levels in the company. He also suggested that employees who were the first to be promoted had mostly line experience and were probably recognized informally through 'referential

job assignments' (Pucik, 1985: p. 79). The study of white-collar workers in a large Japanese firm in heavy industry by Imada and Hirata (1995) reports automatic progression in the first stage of the career, differentiation of workers by the speed of promotion in the second stage, and the tournament model in the third stage. All these studies suggest the usefulness of the tournament model of career progression in Japanese companies.

The formulation of the tournament model, which was first systematically proposed by Rosenbaum (1979, 1984), implies a continuous competition among the winners and an elimination of the losers from the competition. This type of selection system is sequential, and 'limits assessments to short-term performance outcomes' (Rosenbaum, 1984: p. 287), especially at the early stage of career (Bruderl, Diekmann and Preisendorfer, 1991). Economists are also concerned with some variants of the tournament model, such as wage tournaments, and have examined the relationship between career progression and incentive systems in organizations (Malcomson, 1984; Baker, Gibbs and Holmstrom, 1994; Lazear, 1999). Chiappori, Salanie and Valentin (1999), for example, show in their empirical analysis of a large French state-owned firm that 'early starters' had a better chance of reaching the top executive positions than 'late beginners'. The tournament model also handicaps late bloomers, who are put 'into the category of loser, from which there is limited opportunity to advance' (Rosenbaum, 1984: p. 243). Therefore, according to the tournament model, we predict that employees who are promoted first are advantaged in retaining the right to compete for higher positions, while those who are promoted late have very little opportunity to recover from their poor early performance.

There are other conceptualizations besides the tournament model. Turner (1960) advocated the notions of 'sponsored mobility' and 'contest mobility'. A *sponsored model* determines the ultimate careers of employees as early as possible. It identifies those who are destined for upper management and provides them with specialized training and socialization from the very beginning of their work career. It concentrates its resources on the chosen few who are guaranteed to occupy an elite status in the organization. The label of 'fast track' is sometimes used to identify this small group of future elite. This model

therefore provides a sharp contrast to the late selection formulation discussed above. The sponsored model predicts that a small group of selected employees show the fastest rate of promotion and eventually reach the highest position in the organization.

A *gatekeeping model* (Spilerman and Ishida, 1996) entails a similar selection of employees at the initial career stage. However, the filtering process focuses on the identification of the least competent workers, as opposed to the ablest. Its objective is to enforce a minimum standard of performance and place those who do not meet the standard on a separate track. Therefore, the gatekeeping model predicts that employees who are promoted late at the beginning of their careers will continue to experience late promotion in the subsequent stages of attainment.

Finally, our last model, the *contest model*, suggests that the achievement of the highest rank is delayed and employees have an opportunity to compete with each other throughout their career, and to overcome their poor performance during the earlier stages. 'Contest mobility incorporates this disapproval of premature judgements and of anything that gives special advantage to those who are ahead at any point in the race' (Turner, 1960: p. 858). This model, therefore, predicts that the speed of promotion in a prior status does not have significant effect on promotion chances in the subsequent status.

These six alternative models offer a framework for evaluating the pattern of promotion in the Japanese and US companies. Needless to say, these formulations are not necessarily mutually exclusive, so it is possible that elements from more than one model operate in the promotion decisions of an organization. For example, the late selection model, which implies the absence of differentiation at the very beginning of the career, can be coupled with selection based on either the tournament or the contest model at a later career stage. However, the seniority-progression model, the tournament model, and the contest model are not compatible with one another. We will examine which conceptual formulation gives the most adequate representation of the attainment process in the two companies and discuss the implications of the model for motivating employees and efficiently allocating training resources.

Data and Institutional Setting

The Japanese database is derived from the personnel records of a large Japanese company in the financial and insurance sector. It consists of complete career histories of incumbent employees from the time they joined the firm to the observation time in June, 1993: chronological records of location, status rank, and salary grade level. It also contains personal information on individual employees: gender, date of birth, family composition, and educational background. The data cover regular career-track white-collar employees, excluding clerical workers and non-permanent employees. The US database comes from the personnel records of a large US company in the insurance industry. It contains similar demographic information as well as career histories of employees who were working at the firm in 1971 and complete cohort information on those who joined the firm during the period between 1971 and 1978.

Our analysis is restricted to employees who had graduated from college. In the Japanese company, there are a few employees without a college degree but they are old and were recruited prior to 1963. Since the number of employees with only a high school diploma is small and their pattern of promotion is clearly different from that of college graduates, we excluded them from the analysis. Since we wanted to compare the attainment pattern among college-educated employees in the Japanese company with that of comparable employees in the US company, we restricted the US data to individuals who completed college. There are some employees in the US company with more than college education, and they are retained in the analysis because educational credentials (graduate degrees) are introduced as a control variable in our statistical analysis. We also introduced college quality as a control variable. The names of colleges and universities were coded into college quality scores. The Japanese scores were based on the standardized rank scores (*hensachi*) supplied by the *Obunsha*, a major publishing company which administers mock entrance exams, and the US scores are based on Astin's (1971) college selectivity scale.[1] We rescaled the raw scores by taking into account the mean and the standard deviation.[2] In the US data-set, a dummy variable representing the lack of college names was

introduced, because about 40 per cent of the sample lacked this information.[3]

Employees in the Japanese company are divided into two separate tracks: the career track which leads to managerial positions and the clerical track which offers no possibility of promotion to managerial rank. These two tracks are divided, and recruitment is done separately for each track. All clerical workers are women, some of whom are non-permanent employees who were sent by temporary staff agencies. Almost all employees in the career track are men, although there are a few female workers – less than 1 per cent of all career-track employees. All of the female employees have been recruited following the introduction of the Equal Employment Opportunity Law in 1985. Because these female career-track employees have spent less than seven years in the company, none has yet experienced promotion to the managerial ranks and they were excluded from this analysis of promotion.

In contrast, in the US company, female workers constitute an important share of the company's workforce, both in the clerical and administrative sectors. Slightly over 90 per cent of clerical staff and 46 per cent of administrative staff are women. Furthermore, transition from the clerical to administrative track is facilitated by posting of vacancies within the firm and bidding for the posted position; indeed, almost half of employees in the administrative sector started in the clerical ranks. As we will see later, transfer from the clerical to the administrative track is a prerequisite for achieving promotion to

middle management because clerical jobs have a clear ceiling in promotion chances.

Another clear cross-national difference relates to hiring policy. The Japanese company hires almost exclusively new school graduates who join the company on 1 April of every year, immediately following their graduation.[4] The Japanese company hired individuals with work experience in other firms only during the period of the extreme labour shortage in late 1980s. Furthermore, the number of external hires is very small – less than 1 per cent of all career-track employees – and their attainment within the firm appears to be different from the rest of the employees who entered the firm directly after college. Therefore, these lateral transfers from the external market are excluded from the statistical analysis of promotion patterns in the Japanese company.

In contrast, in the US firm the educational background of newly hired employees shows a wide variation, ranging from high school education to a PhD degree. Furthermore, workers who were recruited from the external market are numerous. Although the personnel records available to us do not contain information on employment history prior to entry into the firm, some 55 per cent of employees were age 25 or older when they joined the company. The analysis of the US data thus includes a variable that indicates whether the employee entered the origin grade directly from outside the company.

Regarding exit from the company – turnover rates – the Japanese and US companies diverge again. Figure 1 reports the proportion of all
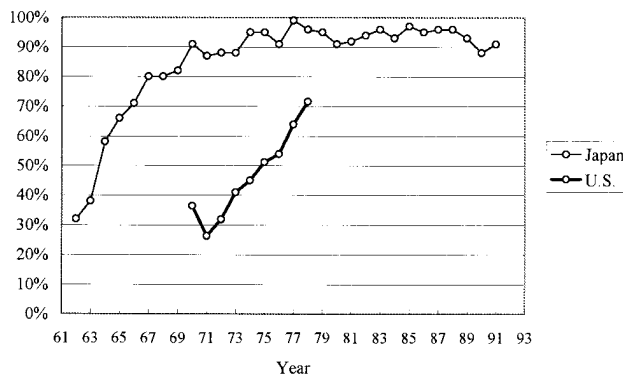
Note. U.S. figures include only college graduates who entered the company after 1970.

Figure 1. *Retention rates as of July 1993 by entry cohort in the Japanese company and as of the end of 1978 in the US company*

Note. Lines indicate correspondence. Bold lines indicate strong correspondence.
Dotted line indicates very weak correspondence.
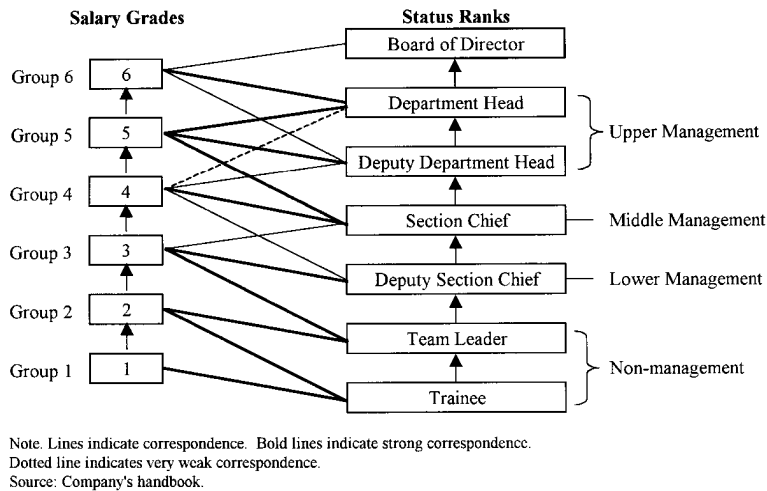Source: Company's handbook.

Figure 2. *Status rank hierarchy and salary grades in the Japanese company*

employees hired in a particular year who were still in the Japanese company in 1993.[5] Even among employees who entered the firm 15 years ago, the retention rate is well over 80 per cent; thus turnover is very low. In contrast, in the US company, the average of retention rates during the first seven years of employment is 51 per cent. Because the Japanese database contains only survivors in the firm, the high retention rate assures that the bias introduced by excluding those who departed from an entry cohort is likely to be small. The US data-set does not suffer from this potential bias because we have career data within the firm for workers who terminated.

The stratification system of the Japanese company is composed of two distinct dimensions. The first is related to a hierarchical structure based on *status ranks* (Spilerman and Ishida, 1996) or 'standard ranks' (Clark, 1979). Examples of status ranks include section chief (*kacho*) and department head (*bucho*). These ranks adhere to individual employees and denote general levels of responsibility and authority, but do not necessarily entail specific job titles or task responsibilities. Ascent in the status rank hierarchy implies greater autonomy and responsibility, control over subordinates, and discretion in decision-making in the firm (Ishida, Spilerman and Su, 1997). The status rank system has been in place since the creation of the company and has undergone very few changes, compared with other organizational features, such as divisions and

departments. The second dimension is related to *salary grades*. These grades are divided into six major groups which are further differentiated into some 30 sub-groups. Each detailed grade, along with the age of the employee, determines the base salary rate for a particular individual. An increase in salary grade means an increase in pecuniary returns. The total annual compensation level is determined by the base salary, performance pay, rank supplements, family and other allowances, and bonus payments.

As shown in Figure 2, the two dimensions are interrelated. For example, the status rank of deputy section chief corresponds primarily to the third major category of salary grade, although some deputy section chiefs are assigned to the fourth major category of salary grade. According to the company handbook, ascent in the status rank hierarchy is defined as 'promotion' (*shoushin*) and increase in the salary grade is considered 'elevation of grade' (*shoukaku*). We will focus, in this paper, on the change of status rank positions and examine the chances of promotion to deputy section chief, section chief, and department head.

In the US company, the primary feature of the stratification system is a hierarchy of salary grade levels (SGLs). There are 20 salary grades below the rank of Vice President, which follows a separate schedule. An employee's annual salary is determined by salary grade, duration in grade, and performance

evaluation. All job titles in the company are allocated to one of 20 grade levels on the basis of a standard job evaluation procedure. Reallocation of a job title to another grade level enables the employer to award his employees without being constrained by the availability of a job vacancy (Spilerman and Petersen, 1999).

In order to have a comparison with the Japanese company with its discrete status rank categories, we will divide the otherwise continuous hierarchy into three key salary grade levels (Ishida, Spilerman and Su, 1997). As shown in Table 1, there is a correspondence between the job classification system and the hierarchy of salary grade levels in the US company. Among the jobs in the clerical line, there is a ceiling at about level 5 or 6. In order to be promoted to SGL 7, an employee must transfer from a clerical position to one of the administrative lines. Therefore, the first key SGL in our investigation is entry into SGL 7, which usually corresponds to entry into the administrative line. The second key SGL entails differences among administrative jobs. Employees who are in SGL 14 or above are considered by the company to be in the ranks of senior management. From Table 1 we can again observe a ceiling for some administrative jobs from which employees must transfer in order to be promoted above SGL 14. Finally, the third key SGL is SGL 21, which corresponds to the Vice-Presidential ranks. In summary, we will investigate the chances of promotion to SGLs 7, 14 and 21.

Analysis

The first set of analyses reports Kaplan–Meier (KM) survival functions for entry into the three key levels of each organization. The survival curve is constructed by using the usual 'product-limit' formula. This formula gives the probability of 'surviving' (without promotion) past the previous time $t_{(j-1)}$, multiplied by the conditional probability of surviving past time $t_{(j)}$. In other words, it gives the probability of remaining in the same rank during a specific time period $t_{(j)}$, given that an employee has not experienced promotion by time $t_{(j-1)}$.[6]

A plot of the KM survival probabilities corresponding to each ordered time in rank in the Japanese company is shown in Figure 3. As the

curve for promotion to the rank of deputy section chief clearly indicates, no one was promoted to deputy section chief until they had at least 10 years (120 months) of seniority. This is a minimum waiting time, and there is no 'fast-track.' Promotions were observed beginning with the 120th month, with a near vertical drop of the step function on the 132nd month, suggesting that most of the promotions occurred after eleven years of service in the company. However, not all promotions are automatic at this level; the two distinct small steps observed on the 120th and the 144th month suggest that the company has begun to make distinctions among employees.

The survival curve for promotion to section chief reveals a similar pattern, but with some notable differences. Rather large steps were observed between specific time intervals. Most of the employees were promoted either at the 48th or the 60th month. Beyond 6 years, the step function begins to level off; the relatively flat section of the curve suggests that an employee is unlikely to be awarded a promotion if he remained in the rank of deputy section chief for more than six years. Unlike the curve for promotion to deputy section chief, where most of the promotions are concentrated in a limited time interval, the step function for promotion to section chief was clearly divided by a few flat sections, suggesting further sorting of employees at this level.

Promotion to department head reveals a greater differentiation among employees. The downward part of the step function extends the period between six and twelve years, with the curve reaching a plateau beyond twelve years. Unlike the previous two curves, there is no obvious vertical drop in the curve. This suggests that promotion is no longer scheduled. Rather, selection can occur at any time during the six-year period.

The features of KM survival functions support the late selection model. There is no promotion to deputy section chief in the first ten years of the employees' career, and most promotions took place after eleven years of service. In order to place our findings about late selection within a broader framework and see how typical the Japanese company is, we present the results from another study. Kobayashi (1995) reports the distribution of age at entry into the ranks of deputy section chief and section chief in various Japanese firms. Table 2 shows Kobayashi's

Table 1. *Job classification and salary grade levels in the US company*

Salary	(1) Secretary/ Steno.	(2) Typist	(3) Figure clerk	(4) Mis. clerical	(5) Claims/ contract	(6) Math/ program.	(7) Sales support	(8) Underwriting/ investment	(9) 'Focus 50'	(10) Misc. admin.
1		18		20						
2	20	14	21	31						
3	43	28	161	75						
4	41	19	25	332	123					
5	35	10	21	222	53	27	11	14	70	
6	22			39	145	64	55	55	54	82
7				11	123	84	97	133	128	138
8					114	212	97	128	131	128
9					78	248	66	123	158	104
10					47	184	60	246	194	135
11					30	154	52	123	196	108
12					31	118	53	162	279	136
13						14	12	14	437	58
14								12	470	40
15									393	21
16									385	
17									244	
18									250	
19									160	
20									160	

Notes: Entries include all college graduates who were in a particular salary grade/job focus combination between 1970 and 1978; the same employee at a different SGL or job focus is treated as a new observation. The company aggregates the original 40 job foci into 11 categories; the category of 'machine operator' is deleted because it includes very few college graduates.
Entries with N<10 are suppressed.
Foci (1)–(4) are classified by the company as 'clerical', foci (6)–(10) are termed 'administrative'.
Employees above SGL 14 are assigned by the company to 'Job focus 50'.
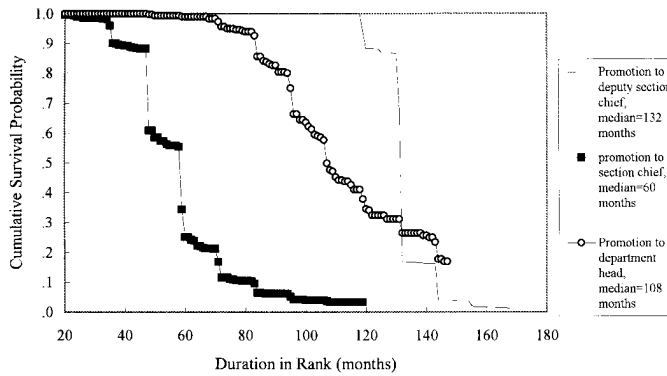
Note. All survival curves are truncated at the time when number of employees exposed to risk is less than 15.

Figure 3. *Cumulative survival curves for three ranks in the Japanese company*

findings along with the figures computed from the Japanese company we examined (a company in the financial/insurance sector). In order to make our figures comparable to those of Kobayashi, we restrict employees in our Japanese company to those who occupied the positions of deputy section chief or section chief at the time of observation in 1993.[7]

The results from our Japanese company are largely comparable to those from the other large firms studied by Kobayashi. Neither the shape of the distribution nor the statistics deviate substantially from those of other companies. The only feature (though not conspicuous) which stands out in our company is the minimum age. The company we studied tends to have a higher minimum age of entry into managerial positions. Consequently, the spread of the age distribution is slightly smaller, as indicated by the coefficient of variation.

In summary, all the companies in Table 2 show a relatively long duration in non-management position as indicated by the modal age of entry into managerial rank. Assuming that most employees entered the company immediately following college graduation at age 22 or 23, the estimated modal duration until reaching deputy section chief, the lowest managerial rank, is about nine to ten years. These results are therefore consistent with the notion of 'late selection'. However, we cannot eliminate the possibility of a 'fast track' in the chemical company in Table 2. The minimum age of

entry into deputy section chief is 25. This company, unlike the firm we studied, might have selected a small portion of employees who were placed in a separate track.

The survival curves for the US data reveal a different pattern. Figure 4 presents the estimated cumulative survival functions for promotion to SGL 7, SGL 14 and SGL 21. The step functions are relatively smooth compared to the Japanese counterparts. In contrast to the survival curves in the Japanese company, where promotions are marked by a relatively fixed schedule, promotions in the US company can occur almost anywhere in rank duration. The lack of a horizontal line at the early sections of the curve suggests that promotion is not conditioned upon reaching a minimum level of seniority. These features indicate that the late selection model does not characterize the US company. Selections among employees take place from the very beginning of their careers.

Of particular interest is the slope of survival curve, which indicates an approximate rate of promotion at different time points. The patterns of the slopes are quite similar for the three promotions.[8] Initially the survival curve is concave, indicating that promotion rates increase with duration in grades. Beyond a certain level, the promotion rates begin to slow down and the curves gradually turn into horizontal lines. The timing at which selection process ended differs slightly across three curves. In particular, almost all promotions to SGL 21 occurred before 48 months of duration, while

Table 2. *Percentage distribution of age at entry into Deputy Section Chief and Section Chief in Japanese companies*

	Financial services		Automobile		Electrical manufacturing		Chemical		Department store	
	DSC	SC	DSC	SC	DSC	SC	DSC	SC	DSC	SC
25							0.9			
26										
27							0.9			
28			2.6				0.9		2.6	
29			5.1				4.7	2.1	10.5	
30			10.3				5.6	2.1	31.6	
31			15.4				25.2	7.4	28.9	4.5
32	24.5		15.4		7.4		35.5	3.2	7.9	
33	46.9		20.5		37.0		19.6	2.1	5.3	
34	20.9		5.1		22.2		5.6	2.1	2.6	9.0
35	4.6		12.8	2.2	25.9	5.0		11.6	7.9	4.5
36	2.0	4.1	5.1	20.0	3.7		0.9	11.6		22.7
37	0.2	22.3	2.6	24.4		15.0		16.8	2.6	27.3
38	0.4	36.1	5.1	31.1		35.0		17.9		22.7
39	0.4	23.4		4.4		15.0		13.7		4.5
40		7.5		11.1	3.7	5.0		2.1		
41		4.3		2.2		10.0		1.0		
42		1.3		2.2		5.0		2.1		4.5
43		0.6				5.0		1.0		
44		0.3								
45				2.2						
46						5.0				
47		0.1								
48								1.0		
49		0.1						1.0		
50								1.0		
Min.	32	36	28	35	32	35	25	30	28	31
Max.	39	49	38	45	40	46	36	50	45	42
Mode	33	38	33	38	33	38	32	38	31	37
Mean	33.2	38.3	33.2	38.4	34.5	39.6	31.8	37.2	32	37.2
Cff. var.	0.031	0.036	0.072	0.048	0.045	0.061	0.071	0.098	0.091	0.056
N	497	800	39	45	27	20	107	95	38	22

Note: DSC=Deputy Section Chief; SC=Section Chief.
Source: Kobayashi (1995) and the Japanese database.

selection process continued until reaching 60 months for promotion to SGL 7, and 70 months for promotion to SGL 14.

The next set of analyses reports the effects of duration in prior rank or grade on subsequent promotion chances. This material is intended for evaluating the different models of attainment process in an organization. In particular, we ask whether employees who were promoted early in the prior rank or grade have a better chance of advancement and whether those promoted late have poorer prospects for promotion to the subsequent managerial rank.

Since we model the occurrence of discrete events in time (promotions), we use Cox's proportional hazard rate model (Cox and Oakes, 1985; Blossfeld, Hamerle and Mayer, 1989; Yamaguchi, 1991). The equation is in the form:

$$h(t) = [h_0(t)]e^{(\beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_p X_p)} \tag{1}$$

where $h(t)$ is the promotion hazard, $h_0(t)$ is a baseline hazard, t is a random variable indicating duration (in months) in the origin rank or grade, the Xs are explanatory variables and the βs are coefficients attached to each variable.[9] Censored observations include departures from the firm and incomplete duration.[10]

We divide the employees according to their duration in prior rank or grade into the following four categories: 'early promotion', 'on-time promotion', 'late promotion', and 'very late promotion'. We first describe the procedure to create these categories with the Japanese data. As to promotion from non-management to deputy section chief, there is no prior rank, so we cannot construct a variable that measures duration in prior rank. For promotion from deputy section chief to section chief, duration in non-management to deputy section chief may be used to operationalize duration in prior rank. As shown in Figure 3, the variance in duration in non-management is very small, and about two-thirds of the employees are promoted to deputy section chief exactly at eleven years of service in the company. These employees are considered to be 'on time' in terms of promotion to deputy section chief. 'Early promotion' is defined as duration less than eleven years (18 per cent of observations). 'Late promotion' refers to twelve years in non-management (12 per cent), and 'very late promotion' to thirteen or more years (3 per cent).[11] As to promotion from section chief to department head, there are two durations

in prior rank: duration in non-management and duration in deputy section chief. Duration in deputy section chief is operationalized as follows: 'early promotion' (one to three years; 14 per cent of observations), 'on-time promotion' (four years; 36 per cent, the modal category), 'late promotion' (five years; 35 per cent), 'very late promotion' (six or more years; 16 per cent).

The procedure to construct duration variables for the US data is more complicated because the grades from which promotions originated may be different. First, for employees whose origin grade is the same as the grade into which they entered the company, we cannot compute duration in prior grade because there is no prior grade for these lateral transfers. Secondly, not only can an employee be promoted to the next immediate grade, but also to two or three grades above the current grade. According to the company's handbook, all job openings in grades 12 through 20 are posted company-wide, and jobs in grades 9–11 are posted locally. For vacancies below grade 11, all employees who were two grades below the posted job can bid for the job. If the posted job is in the grade range 12–20, then employees who were three grades below the posted job were eligible for promotion. Therefore, skipping a grade or two grades is not uncommon; there are many different paths which employees may take to reach the destination grade.[12]

Table 3 shows the distribution of employees by different promotion paths to three destination
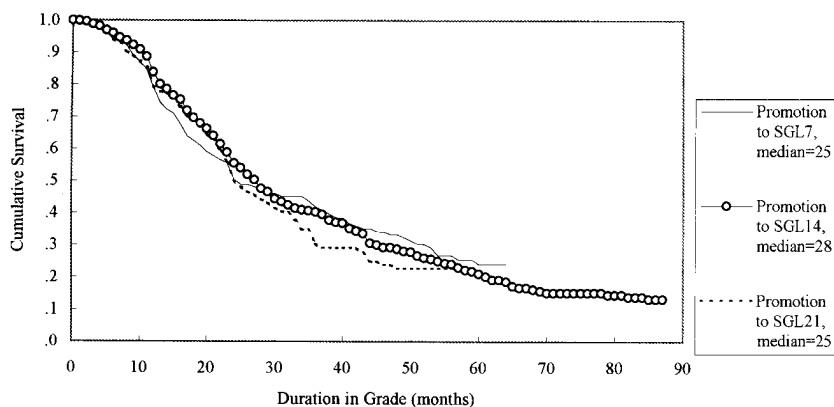
Note. All survival curves are truncated at the time when number of employees exposed to risk is less than 15.

Figure 4. *Cumulative survival curves by three levels of salary grade levels in the US company*

Table 3. *Duration in prior salary grade levels and duration in origin grade levels by promotion paths in the US data*

Path	Prior SGL	Origin SGL	Destination SGL	N	Event	% of event	Duration in prior SGL (months)		Duration in origin SGL (months)[a]	
							Mean	S.D.	Mean	S.D.
Promotion to SGL 7										
1	5	6	7	359	148	41.2	17.3	15.2	19.8	19.0
2	4	5	7	295	22	7.5	19.3	17.8	15.7	6.9
3	4	6	7	40	18	45.0	18.4	12.3	17.3	17.0
4	lateral entry	5	7	213	33	15.5	–	–	14.9	10.5
5	lateral entry	6	7	244	109	44.7	–	–	14.9	9.0
Promotion to SGL 14										
1	12	13	14	344	195	56.7	21.8	15.3	22.3	13.7
2	11	12	14	278	107	38.5	20.5	17.7	20.7	16.1
3	11	13	14	104	50	48.1	21.5	16.4	26.7	21.6
4	10	12	14	222	108	48.6	26.6	22.6	27.0	23.3
5	10	13	14	41	25	61.0	20.4	16.0	34.9	22.2
6	lateral entry	12	14	80	38	47.5	–	–	16.7	10.0
7	lateral entry	13	14	48	19	39.6	–	–	23.8	13.4
Promotion to *SGL 21*										
1	19	20	21	109	50	45.9	24.0	16.7	20.0	12.5
2	18	19	21	75	28	37.3	26.4	20.1	17.8	10.2
3	18	20	21	123	72	58.5	27.2	23.4	16.2	9.9
4	17	19	21	41	23	56.1	26.8	21.6	23.5	12.5
5	17	20	21	24	9	37.5	30.2	25.9	26.9	22.2
6	lateral entry	19	21	15	1	6.7	–	–	17.0	–
7	lateral entry	20	21	27	18	66.7	–	–	20.3	7.8

[a]The calculation of mean and standard deviation of the duration in the origin grade excludes censored cases.

grades in the US company.[13] Duration in prior grade depends on the grades from which employees originated, as well as on the grades they reached. Therefore, we construct four duration categories for prior grade covering the different promotion paths, as shown in Table 4. In this formulation, we define an employee as belonging to the 'early' or 'late' promotion group in reference to those who share a similar promotion path.

Likewise, duration in origin grade, the 'clock' which is used as the dependent variable in the Cox regression, is likely to differ depending on the promotion path. Table 3 also reports the mean and standard deviation for duration in origin grade, and variations in these statistics are evident among groups that followed different paths to the destination grade. Therefore, we control for the promotion paths by including dummy variables in the Cox regression.

Table 5 shows the results of Cox's proportional hazard regressions, in the form of equation (1),

using the Japanese data. The regressions were run separately for two different promotions: (*a*) promotion from deputy section chief to section chief, given that employees reached the rank of deputy section chief, and (*b*) promotion from section chief to department head, given that employees reached the rank of section chief. The regression for promotion from non-management to deputy section chief is not reported because we cannot compute duration in prior rank. To control for the possibility of different promotion chances by entry cohort, we added dummy variables representing the entry cohorts. In addition, as in the US analysis, we control for age at entry into the origin rank.[14]

As to promotion from deputy section chief to section chief, duration in the non-management rank – the prior status – shows a significant effect. Employees who belong to both the 'late promotion' and 'very late promotion' categories show significantly lower chances of advancement than those

Table 4. *Operationalization of duration variables in the US data (in months)*

Path	Prior SGL	Origin SGL	Destination SGL	Early[a]	On-time	Late	Very
Promotion to SGL 7							
(1)	5	6	7	t<=8	8<t<=19	19<t<=35	36<t
(2)	4	5	7	t<=8	8<t<=23	23<t<=36	36<t
(3)	4	6	7	t<=10	10<t<=23	23<t<=36	36<t
Promotion to SGL 14							
(1)	12	13	14	t<=11	11<t<=27	27<t<=41	41<t
(2)	11	12	14	t<=11	11<t<=26	26<t<=42	42<t
(3)	11	13	14	t<=11	11<t<=24	24<t<=41	41<t
(4)	10	12	14	t<=11	11<t<=31	31<t<=51	51<t
(5)	10	13	14	t<=8	8<t<=28	28<t<=38	38<t
Promotion to SGL 21							
(1)	19	20	21	t<=12	12<t<=31	31<t<=45	45<t
(2)	18	19	21	t<=12	12<t<=33	33<t<=43	43<t
(3)	18	20	21	t<=11	11<t<=31	31<t<=49	49<t
(4)	17	19	21	t<=9	9<t<=41	41<t<=55	55<t
(5)	17	20	21	t<=14	14<t<=36	36<t<=47	47<t

[a]The three cut-offs separating the four categories correspond to the 25th, 75th, and 90th percentiles of the distribution in each path.

Table 5. *Cox's proportional hazard regressions of promotion to Section Chief and Department Head on prior duration and other variables in the Japanese company*

Variables	Promotion to Section Chief	Promotion to Department Head
Duration in Deputy Section Chief (on-time)[a]		
Early promotion	−0.160	−0.068
Late promotion	−0.209*	−0.746**
Very late promotion	−0.596**	—[d]
Duration in Section Chief (on-time)[a]		
Early promotion		−0.103
Late promotion		−0.101
Very late promotion		0.119
Age[b]	0.015	0.091
College quality	0.051	0.359**
Entry cohort (1961–2)[c]		
1963–4	−0.252	0.282
1965–6	−0.419	0.467
1967–8	−0.319	0.436
1969–70	0.077	0.467
1971–2	−0.028	
1973–4	−0.034	
1975–6	−0.232	
1977–8	−0.166	
−2LL	12346.5	1778.2
N	1116	297
Percentage censored	10.8	37.0

[a]The omitted category in regressions is 'on-time promotion', which is defined as the mode waiting time (11 years for duration in Deputy Section Chief; 4 years for duration in Section Chief).
[b]Age at entry into origin rank.
[c]The omitted category is 1961–2 entry cohorts.
[d]Because of small numbers, 'Very late promotion' is combined with 'Late Promotion' in the analysis of promotion to Department Head.
*p<0.05, **p<0.01.

who were promoted 'on-time'. Regarding promotion from section chief to department head, duration as a deputy section chief — the rank immediately prior to the origin rank — does not have a significant effect. However, the point to be stressed is that duration in the non-management rank has a long-lasting effect. Relative to employees who were promoted 'on-time,' those who were late in being promoted to deputy section chief — the first promotion decision — have significantly lower chances of promotion later in their carrer, to department head.[15]

According to the prediction of the tournament model, promotion chances in earlier ranks should have continuing effect on subsequent advancement: rapid advancement for employees who were promoted early in prior ranks and delayed advancement for those who were promoted late in prior ranks. Our findings support the latter assessment but not the former. There is no clear evidence of sequential and cumulative advantages enjoyed by early movers. Furthermore, the selection process in the Japanese company is not based on a short-term evaluation. One of the central features of the tournament model is that selections are made early and subsequent selections are also made in a short time interval, thereby allowing the fast-starters to accumulate their advantage at every step of the promotion ladder. This conceptual imagery does not seem to adequately capture the attainment process in the Japanese company (Spilerman and Ishida, 1996).

Table 6 presents the results of Cox's proportional hazard regressions using the US data. For the reasons explained above, these regressions were run separately for three different promotion decisions: promotion to SGLs 7, 14 and 21. In addition to dummy variables representing different promotion paths, we introduce the following control variables: age (at entry into the origin grade), seniority (at entry into the origin grade), gender, ethnicity and educational credentials.[16]

The effects of the duration variables in the US company parallel those in the Japanese company. Promotions to all three levels of the organization are affected by the duration in prior grade: the category of 'very late' consistently exerts a significant negative effect. Employees who were promoted late in the prior grade are disadvantaged in their subse-

quent advancement, compared with those who were promoted 'on-time'. However, exactly like the Japanese company, other duration categories fail to show significant effects. In particular, early movers in the prior grade do not seem to possess better advancement prospects later in their careers. Therefore, the results from the analyses of the US data are not fully consistent with the predictions of the tournament model.

A striking feature of the attainment process in the US company relates to the effects of the promotion paths. Regarding promotion to SGL 7, that is, entry into an administrative line, the sequence from SGL 6 to 7 offers better prospects of advancement than the path from SGL 5 to 7. However, within the same origin grade, promotion chances do not vary by prior grades. There is no noticeable difference between the path SGL 5–6–7 and SGL 4–6–7. Passing through SGL 6 is crucial for the fast transition from clerical to administrative lines. This result suggests that movement from SGL 5 to 7 — skipping a grade — is more commonly a 'catching up process' for delayed workers than an indication of recognition of high talent.

When we examine promotion to SGL 14, we find many divergent paths to reach this grade. Prior career trajectories influence later promotion chances. The fastest path is the sequence SGL 12–13–14, and 31 per cent of all employees in the analysis followed this path. It was the modal category. The second fastest group includes the following paths: SGL 11–13–14, SGL 11–12–14, and lateral entry into SGL 12 followed by 14. This group contains about 40 per cent of all employees. Finally, promotion to SGL 21 is also affected by career trajectory, although the difference among paths is less conspicuous than the difference observed in the case of promotion to SGL 14. The fastest path pertains to SGL 18–20–21, followed by SGL 19–20–21. These two paths account for about 61 per cent of all promotions to SGL 21. Lateral entry into SGL 19 appears to carry a serious disadvantage for promotion to SGL 21, but this is not found for lateral entry into SGL 20. In summary, the results of the US analyses suggest extensive 'path dependencies' in the attainment process. Both duration in prior grade and the specific promotion trajectory followed influence subsequent advancement prospects.

Table 6. *Cox's proportional hazard regressions of promotion to salary grade levels 7, 14, and 21 on prior duration and other variables in the US company*

	Promotion to SGL 7	Promotion to SGL 14	Promotion to SGL 21
Duration in prior grade (on-time)[a]			
Early promotion	−0.046	0.034	−0.330
Late promotion	0.051	−0.154	−0.235
Very late promotion	−0.501*	−0.510**	−0.669*
Seniority[b]	0.002	−0.002*	0.003**
Age[b]	−0.054**	−0.059**	−0.063**
Ethnicity (White)[c]			
Black	−0.139	−0.314	0.113
Asian	−0.999**	−0.886	1.775
Hispanic	0.188	0.354	0.052
Education (Bachelor)[c]			
Graduate courses	0.152	0.142	−0.066
Master/PhD	0.337	0.232*	−0.011
No information about college	1.229	0.711	0.842
College quality	0.166*	0.090	0.090
Female	−0.396**	−0.037	1.033**
Paths to SGL 7 (SGL 5−> 6)[c]			
SGL 4→5	−1.616*		
SGL 4→6	0.256		
Lateral→5	−0.867**		
Lateral→6	0.067		
Paths to SGL 14 (SGL 12→13)[c]			
SGL 11→12		−0.461**	
SGL 11→13		−0.330*	
SGL 10→12		−0.532**	
SGL 10→13		−0.677**	
Lateral→12		−0.382	
Lateral→13		−0.893**	
Paths to SGL 21 (SGL 19→20)[c]			
SGL 18→19			−0.328
SGL 18→20			0.476*
SGL 17→19			−0.198
SGL 17→20			−0.420
Lateral→19			−2.057*
Lateral→20			0.292
−2LL	3677.3	6282.6	2002.4
N	1151	1117	414
Per cent censored	71.3	51.5	51.4

[a]The omitted category in regressions is 'on-time promotion'. The operationalization of the dummy categories is described in Table 3.
[b]Seniority and age are fixed at the starting date of the origin grade.
[c]For dummy variables, the deleted term in regressions is in the parentheses.
*$p < 0.05$, **$p < 0.01$

Discussion and Conclusion

At the beginning of this paper we proposed to evaluate the different conceptual models of the attainment process in an organization. We would now like to examine these models and offer the implications of our evaluation. We first consider *the*

seniority-based progression, in which little differentiation is expected among employees who have the same educational attainment and entered the company at the same time. As shown in Figures 3 and 4, there is significant variation among college graduates in the months before promotion to a higher status. It is also evident that the higher the status rank, the greater

the variation in the time required to achieve promotion. Promotion to top management is not simply a function of seniority but is based on fine distinctions among eligible employees.

Second, we evaluate the *late selection model* which claims that employees with the same educational level and entry cohort have similar career trajectories and are not differentiated in the early portion of their careers. Competition for promotion takes place only after this initial period of common advancement. In the Japanese company, the survival curve (Figure 3) for promotion to the lowest managerial rank, deputy section chief, clearly shows that no one was promoted to deputy section chief during the first 10 years in the company. This finding supports the notion of 'late selection'. There is no 'fast-track', and every employee must serve a minimum of 10 years before becoming eligible for promotion to lower management. In comparison, the US company does not seem to have the same mechanism. However, the hierarchical structure within which promotion takes place is very different, so a direct comparison is difficult to formulate. Nonetheless, newly hired employees in the US company – lateral transfers whose entry grade is the same as their origin grade – do not seem to spend a longer time in this grade than do other employees, as is clear from Table 3. In other words, there does not seem to be a longer waiting time for promotion among new arrivals (let alone a minimum waiting time for promotion), and employees in the US company differ in their rate of promotion from the very early stages of their career.

According to interviews in the Japanese company with managers in the human resource department,[17] during the first ten years as a trainee, before a managerial position is achieved, an employee usually undergoes a change of departmental assignment every three to four years. This is intended as an investment that is made in the training and socialization of young employees. The company has formal training sessions for young employees at several critical stages:

— immediately following entry into the firm;
— at the end of the first year;
— at the beginning of the third year;
— at the beginning of the fifth year; and
— at the beginning of the eighth year.

In addition, whenever an employee is promoted to a higher position, there is a corresponding training session (such as that for new section chiefs). These sessions are intense, lasting from three to seven days, and require overnight stays at the company's training accommodation. Therefore, periodic rotations which cut across departments, coupled with extensive on-the-job and off-the-job training, characterize the first ten years of the employee's career experience in the Japanese company.

The Japanese company, along with many other large firms in Japan, is convinced that the 'late selection model' has a number of advantages. First, delayed selection of employees for the managerial rank keeps motivation high among workers who are in non-management. It leaves open chances for most workers to believe that they may be selected for future elite positions for an extended period of time. This belief is critical in motivating employees because, under the system of 'lifetime employment', weak workers are rarely dismissed; hence it is important that they be kept motivated.

Secondly, the selection of elite employees is based on long-term assessments, rather than on short-term performance measures. Furthermore, as described by the personnel managers, the company utilizes cross-divisional periodic rotations that enable the evaluations of employees by more than one superior in different work settings. Thirdly, late selection leaves open opportunities for late bloomers, who take longer for their ability to become recognized. Multiple appraisals in different divisions increase the chances of identifying late bloomers and reduce arbitrary selection. Fourthly, a relatively long period of non-differentiation helps instil company loyalty and organizational culture, and reinforces cohort bonding and solidarity.

The most serious critique of the 'late selection model' points to the high training costs. Instead of investing in a small and selected number of employees who are destined to become upper-level managers, training is provided to all employees, including those who are not worth the investment. However, since the retention rate is very high even among employees with a long service in the company, the employer does not have to worry about not being able to amortize investments made in employees at the early stages of their career.

Unlike American companies, large Japanese firms do not lose large numbers of employees in the middle of their careers. This low turnover rate is related to the absence of a tangible external labour market for lateral moves by mid-career workers in Japan (Prendergast 1992). Another disadvantage of having a long duration in the non-management status stems from the fact that training of specialists and senior managers is substantially delayed. Since the recruitment of mid-career specialists and corporate leaders from the external market is extremely rare, large Japanese companies must develop the necessary skills. Late selection may hinder such development.

We next evaluate the *tournament model* of attainment which states that winners remain in the race competing for higher positions, and losers leave the race with little chance for further advancement. In Rosenbaum's (1979, 1984) formulation of the tournament model, winners are defined by brief duration in rank. They are the ones who are promoted early and proceed to the next step in the competition. Losers are those promoted late: they are not given the opportunity to recover from their earlier poor performance. Yet, the results of the Cox regressions are not consistent with the tournament model in either the Japanese or the US company. Although employees who were promoted late were disadvantaged in the subsequent competition, we could not document an advantage to winners in either of the companies. There were employees whose duration in a particular rank or grade was shorter than for the rest of employees in the same status. However, there is no clear evidence that the employees with short duration at one level are promoted rapidly from the next rank. The sequential selection of winners – the process of cumulative advantage which is the essence of the tournament thesis – does not seem to operate in either of the companies.

The *sponsorship model* advocated by Turner (1960) does not characterize attainment in the Japanese or the US company, either. There is no selection among Japanese employees in the first 10 years with the company. Furthermore, the absence of cumulative advantage, enjoyed by employees who were promoted early at the lowest rank or grade, suggests that there was no early selection of future elite in the two companies.

Turning to the details of the effect of being promoted late in the prior rank or grade on subse-

quent advancement in the corporate hierarchy, our analysis implies that there is an enduring effect of being a 'loser'. In the Japanese company, the determination of 'laggards' takes place relatively late – after some ten years of service in the company – presumably based on long-term evaluations by multiple assessors. However, once the status of a 'loser' is given to an employee, as exemplified by the long duration in non-management, it has a long-lasting consequence for future promotion: the worker has a significantly lower chance of advancement to both middle and upper management. It should be noted that employees who experienced this late promotion comprise less than 20 per cent of all employees. The selection mechanism is therefore geared towards identifying a small proportion of the least competent employees – those considered 'recruitment errors'. This process resembles a *gatekeeping model* and suggests a filtering process of employees who do not meet the minimum standard (Spilerman and Ishida, 1996). The only difference between the Japanese practice and the 'gatekeeping model' is that the selection of 'losers' does not take place early in the career course in the Japanese company.

By identifying 'laggards', the Japanese company is able to put them on a separate track in which little opportunity for training is offered. Since the proportion of 'laggards' is small, the saving on training costs is likely to be minimal, but the company is able to reduce heterogeneity in ability and commitment to the enterprise, which might otherwise detract from the training and socialization programme. The small proportion of 'laggards' also has implications for the motivational system. Some 80 per cent of employees are still in the race for upper management, and the morale and motivation for superior performance among these employees should remain high.

Furthermore, for these 80 per cent of employees, the effect of duration in lower management on the chances of promotion to upper management is insignificant in the Japanese company. This suggests that there are 'second chances' for promotion to upper management among those who were promoted late to the rank of middle manager. Therefore, except for those who were caught by the gatekeeping operation, the conceptual imagery of the underlying attainment process resembles the

contest model in which the selection of the elite is delayed and all individuals, including those who exhibited marginal early performance, are allowed to participate in the competition.

In the US company, at every critical advancement stage, employees who were promoted late in the prior grade had a clear disadvantage in the subsequent advancement, though there is no evident benefit to employees who were promoted early. Thus, there is a mechanism of weeding out poor performers in the prior grade, although the percentage of such workers is small, about 10 per cent. Consequently, the identification of 'laggards' is not likely to demoralize the majority of the workers who are given opportunity for further promotion. The attainment process in the US company, therefore, is based on a *gatekeeping operation* – screening of the least competent employees, who do not satisfy the minimum standards – and a *contest model* – the continuous competition among the rest of employees – at the successive stages of career advancement.

In conclusion, in both the Japanese and the US company the pattern of promotion is characterized by the *two-step selection process* – the gatekeeping model which screens the least competent workers, and the contest model which allows competition among the rest of employees. However, the two-step selection process operates in different ways in the two companies. In the Japanese company, the identification of laggards takes place only once, before the first promotion, and it has an enduring effect on all subsequent chances of promotion. In the US company, the selection of the least competent takes place at every level in the organizational hierarchy. The difference derives from the fact that there is an external labour market for lateral movers in the United States and therefore an opportunity to replace poor performers at all levels with outside hires. In Japan, because the entry into the firm is restricted to the lowest level of organization and the retention rate is high, the company screens the least competent workers only once at the early stage of employee's career, and takes a relatively long time to make the assessment – hence, late selection. The difference in the structure of the labour market and the organizational hierarchy in the two societies thus seem to influence how the selection mechanism operates in the two companies.

Notes

1. The details of the college quality variable may be found in Ishida, Spilerman, and Su (1997: 870–871).
2. The formula is raw score minus the mean, divided by the standard deviation.
3. The variable, 'no information about college', was coded 0 if an employee had a valid college code and 1 otherwise. Employees without a valid college code were coded 0 in the college quality variable.
4. The Japanese academic year runs from 1 April to 31 March.
5. The Japanese figure is constructed using the personnel records of 2884 male college-educated employees who were in the company in 1993 and the information provided by the company about the number of new hires each year. The US figure is based on the total of 7877 employees who appear in the personnel records from 1970 to 1978, with an average of 3313 employees in a given year. Employees who occupied the position of 'agent contract' were treated as 'employees' of the company.
6. The mathematical expression for the Kaplan–Meier product limit formula can be written as: $\hat{S}(t_{(j)}) = \hat{S}(t_{(j-1)}) \times \Pr(T > t_{(j)} | T \geq t_{(j)})$.
7. Kobayashi uses the label 'sub-section chief' (*kakaricho*) rather than 'deputy section chief' (*kacho dairi*). However, the Japanese company which we studied did not have a rank called 'sub-section chief', and 'deputy section chief' is considered equivalent to 'sub-section chief'. Therefore, we retained the label 'deputy section chief' in the table.
8. The log rank test reports a 0.594 significance level for the difference between the three survival curves, suggesting that promotion patterns are similar at different levels of organizational hierarchy.
9. The origin rank or grade refers to the rank or grade from which the promotion originated. It does not refer to the rank or grade in which the employee entered the firm. For example, in the analysis of promotion from section chief to department head, the origin rank is section chief. The specification of the model is the same as that used in Spilerman and Ishida (1996) and Ishida, Spilerman and Su (1997).
10. Cases that are censored before the earliest event are excluded from the analysis. When we examine promotion to section chief, employees with less than 14 years of service in the company (i.e. those who entered the company after 1978) are excluded because no one was promoted to deputy section chief until at least 14 years of seniority. Similarly, the analysis of

promotion to department head includes only those who entered the firm before 1971.

11. When we say, for example, that 'late promotion' refers to 12 years of service, the category includes employees who were promoted during the 12th year. In other words, it contains those with 144 months to 155 months of service.

12. We did not include employees whose origin grades are three levels below the destination grades in the analysis. For promotion to SGL 7, employees below SGL 5 were simply not eligible to bid for the job. Although it is theoretically possible to be promoted directly from SGL 11 to SGL 14, or from SGL 18 directly to SGL 21, this is quite uncommon in reality. We therefore did not consider these employees at risk of promotion to the destination grades. These different promotion paths may be considered as different career trajectories (Spilerman, 1977).

13. We have to exclude employees who skipped the critical grades (SGL 7, 14, and 21) from our analysis.

14. We did not include seniority as a control; this is because seniority is a linear combination of the age and duration variables.

15. Because the number of employees who belong to the 'very late promotion' category in duration from non-management to deputy section chief is very small, the categories 'late promotion' and 'very late promotion' are combined.

16. Seniority and duration in prior grade are different because there are employees who entered the company at a grade lower than the prior grade. See Spilerman and Lunde (1991), Spilerman and Ishida (1996), and Ishida, Spilerman and Su (1997) for discussion of the effects of educational credentials on promotion chances.

17. The interviews with managers of the human resource department were conducted at the company's headquarters in Tokyo in April and May 1994.

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