The Structure of Employment Terminations among Clerical Employees in a Large Bureaucracy[a]

Trond Petersen, Seymour Spilerman and Svenn-Åge Dahl[b]
University of California, Berkeley, Columbia University, and Center for Applied Research, Norwegian School of Economics and Business Administration

In this paper we study departure rates among clerical employees in a large hierarchical organization, a US insurance company. Two aspects of the turnover process are considered. First, we study how the departure rate is determined by promotion opportunities in the organization. We ask: In structural positions where the promotion rates are low, are the departure rates high, and vice-versa? Second, we distinguish between different types of departures: those that occur for career reasons, such as better job options and higher earnings outside the organization; those that occur for personal reasons, such as having to tend to the needs of one's family; and involuntary departures, that is, dismissals and abolished positions. We attempt to assess which type of departure is most influenced by the presence of promotion opportunities and particular organizational structures. The main findings are: (1) Departure rates are lower in company positions with high promotion rates than in positions with low promotion rates, keeping the level of current achievement constant. This finding suggests that the study of organizational careers and the study of organizational departures need to be integrated. (2) Promotion opportunities in the company have a stronger influence on departures for career-related reasons than on departures for personal reasons. This suggests that organizational opportunity structures are more effective in controlling career-related turnover than in influencing other types of terminations.

[b]Addresses for correspondence: Trond Petersen, Walter A. Haas School of Business, 350 Barrows Hall, University of California, Berkeley, CA 94720, USA; Seymour Spilerman, Department of Sociology, Fayerweather Hall, Columbia University, New York, NY 10027, USA; Svenn-Åge Dahl, Center for Applied Research, Norwegian School of Economics and Business Administration, Breiviken 2, 5035 Bergen-Sandviken, Norway.

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1. Introduction

The central 19th century employment system was, commonly, the piece-rate contract. In the 20th century, a critical invention in employment arrangements has been the contract based on bureaucratic career incentives (see, e.g., Stinchcombe 1974: chaps. 5–6). Attention to the first system was given by Karl Marx, who wrote extensively on piece-rate contracts (e.g. Marx 1867 [1967]: chap. 19), while Max Weber, the central early 20th century sociologist, has elaborated upon bureaucratic employment structures (e.g. Weber 1922–23 [1978]: Pt. 1, pp. 217–226, Pt. 2, chap. 11).

Each arrangement has its own set of purposes and consequences. Here, we focus on the effects of the bureaucratic employment system. Under this structure, rewards are attached primarily to positions as opposed to performance within positions. Individual advancement comes about through promotion from lower to higher ranks on the basis of past performance and future potential. Satisfactory performance in the present is frequently rewarded with a promotion in the future (see, e.g., Stinchcombe 1974: chap. 5; Stinchcombe 1983: 181–183; Rosenbaum 1984: 244).

There are two variants of bureaucratic employment systems. In the early 20th century the reward structures of large organizations were 'technologically driven'. Rewards were directly tied to occupational titles, and mobility (via promotion) meant a change of occupation, which could occur only when there was an appropriate job opening. In recent decades many large corporations have adopted a 'grade level structure', in which job ladders are assigned a series of ranks in a grade hierarchy. Under this system promotion refers to an increase in rank, which may or may not be accompanied by a change in occupational tasks. A grade level structure facilitates lateral job changes within the firm and permits management considerable discretion over the rate of advancement of its employees (Spilerman 1986).

A bureaucratic system, of either kind, has at least three salient implications.[1] First, it has motivational properties. It provides employees with incentives to perform well, in order to increase the likelihood of a future promotion (e.g. Stinchcombe 1974: 125; Williamson 1975: 78). Bureaucratic career incentives share this effect with other types of incentives, such as piece-rates and production bonuses, which are used widely among blue-collar employees. Second, along with the motivational effects, systems based on bureaucratic career incentives also tend to reduce turnover by making it costly for the employee to leave an organization (see, e.g. Doeringer & Piore 1971: 29–30, 57–58; Osterman 1984; Granovetter 1986: 25).[2] Good performance in the past can be observed and assessed by the current employer, but not easily by prospective employers. Earning a future promotion is therefore to a large extent contingent on remaining in the same organization.[3] Third, under a bureaucratic system, the structure of the organization – that is, the way in which career and job ladders are put together – influences employee behavior, as it constrains or facilitates opportunity (e.g. Doeringer & Piore 1971: 50–51, 58).

In this paper we address the second of these three aspects of the bureaucratic employment system. We assess the effects of promotion opportunities on turnover patterns. The relationship between promotion prospects and termination patterns,

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on which much of the internal labor market literature has focused, has received little sustained research. Few studies have attempted to ascertain how promotion opportunities influence turnover decisions.[4]

In doing this, we address promotion and departure patterns at large, but we also differentiate between various types of departure. For example, we distinguish between career-related, personal, and involuntary departures. The motivational properties of the bureaucratic career system should have their strongest effects on departures for career-related reasons, whereas the effects on departures for personal reasons should be weaker.

This paper extends the literature in two ways. First, we assess the relationship between departures and the opportunity structures of the organization. In particular, is the turnover rate lower in positions in which the rate of promotion is higher? Second, we investigate in considerable detail the specific reasons for departures and the determinants of those reasons.[5] To this end, in the empirical analysis we use a unique longitudinal data set on a single hierarchically organized bureaucracy. We utilize information about the timing of each move, as well as the type of move – promotion or departure – by employing a hazard rate model.

The paper is organized in the following way. In section 2 we briefly review the relevant literature and develop the research questions for empirical investigation. In section 3, the personnel records of a large United States insurance company are described. Section 4 discusses the statistical method, a multi-state hazard rate model. In sections 5 and 6 we outline the results.

As in all studies focusing on a single organization, we face the well-known problem of generalizability of the findings. Clearly we can extrapolate to the career prospects and departure patterns of all workers *within* the organization in the recent past and present, but what can be said about general labor market processes? It is because this company, like many large corporations in the second half of the 20th century, utilizes a reward structure that is based on formal procedures of job evaluation/compensation design (with a constructed hierarchy of grades) that we expect our results to generalize to other large corporations. Paraphrasing (and taking liberties) with Geertz (1973: 22): We do not study this particular organization, we study *in* this organization. The ideas, concepts, and categories we formulate are general. We attempt to appraise the ideas in the context of a single organization.

2. Promotion opportunities and turnover

Besides providing incentives for working diligently in order to increase the likelihood of a future promotion, career ladders are widely acknowledged to have the effect of reducing turnover, a consequence that may be beneficial to management as well as to employees (see Becker 1975: chap. 1; Doeringer & Piore 1971: 56–61; Williamson 1975: 77–78). The arguments for this effect are straightforward.

From the employer's point of view – complementing a worker's calculations, as noted in the introductory section – there are at least three relevant factors. First, there are costs to terminating employees, related both to the termination decision itself and to hiring replacement workers (Doeringer & Piore 1971: 30). Reducing turnover lowers these costs. Providing employees with internal promotion oppor-

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tunities and with other firm-specific benefits tied to length of service serves to reduce turnover.

Second, most jobs take time to learn because they are idiosyncratic with respect to the knowledge required, the machinery used, or with respect to familiarity with co-workers on which an employee might rely for satisfactory job performance – for example, auxiliary workers such as set-up crews and support personnel. Once an employee has been trained and has learned the idiosyncracies of the job, the costs of instruction and socialization are not recoverable. Only if the employee remains in the organization can the employer reap the benefits from the learning period (Doeringer & Piore 1971: 15–16). Hence, an employer is interested in reducing turnover because it saves the costs of training replacements. This, of course, presumes that the firm pays the costs of training, which it usually does when the training imparts firm-specific rather than general labor market skills.

Third, at the time of employment, management is uncertain about the actual skills of the employee. These skills are revealed as the employment relationship endures (Williamson 1975: 77–78). Management will be interested in retaining employees with good skills, abilities, and revealed performance. One way to retain such employees is to promote them to higher positions. The allure of higher positions can not only entice employees to work hard but may also convince them to stay with the organization.

For these three reasons, an employer will be interested in reducing turnover. This can be done by providing promotion opportunities. It is important to note that the employer may also retain employees by paying a wage that is higher than what could be obtained elsewhere. There are drawbacks to this solution, however. Large wage differentials within the same rank create sentiments of inequity among employees, whereas large wage differentials between salary grade levels are easier to justify. In most white-collar employment, in contrast to blue-collar jobs under piece-rate systems, it is difficult to tie the wage to current output, for the simple reason that performance is not easily observed or measured, at least not in the short run. Rewards, therefore, tend to be based on past performance – observed, judged, and evaluated over a long period. A long observation period can mitigate disagreements over what constitutes satisfactory versus inadequate performance. A second drawback with paying high wages to reduce turnover is that this does not motivate superior performance, only performance 'good enough' to retain one's job (see, however, Akerlof & Yellen 1986). The career ladder, in contrast, provides incentives to work hard in order to obtain a future promotion, in addition to its effect on reducing turnover. As a control system, career ladders may therefore be more effective.

Employees also have an interest in internal labor markets and promotion systems. They are provided with employment security and, with respect to advancement, are sheltered from the competition of workers outside the firm. Researchers have yet to settle the question of whether internal labor markets emerged as a result of management initiatives or from pressures of workers and their unions (e.g. Elbaum 1984; Jacoby 1985), but the benefits of this arrangement to both workers and employers are clear.

From the employee's point of view, the decision to remain with an organization, with its prospects of future rewards, will involve some trade-offs between the

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likelihood of getting promoted within the organization and opportunities elsewhere. The better the promotion prospects within the firm, the more likely the employee will find it worthwhile to remain in the organization.

On the basis of this discussion, we should expect that one consequence of promotion ladders is that when promotion opportunities are high, turnover rates are low and vice-versa. Thus, the central hypothesis we investigate is:

Hypothesis 1: In structural positions within the company where promotion chances are high, departure rates will be low, and vice-versa. Thus, an inverse relationship is postulated between the promotion and departure rates.

The bulk of the literature on departures does not distinguish between different types of job-quits. Yet, employees leave for a variety of reasons. Some of the reasons are related to career opportunities, others are not. From the viewpoint of an employer, the structure of promotion opportunities is likely to have its greatest impact on departures for career reasons, while its impact on the other two types of termination we consider – personal reasons and involuntary departures – will be more limited.

An employee who considers terminating employment for some personal reason will obviously consider the prospective rewards of remaining in the organization. The higher the current rewards and the better the promotion prospects, the less likely one will be to leave for personal reasons, since career development is foregone, at least in the short run. However, the effect of internal promotion opportunities is probably weaker for personal than for career-related departures. In the case of the latter, the employee compares two career prospects – the current job and some alternative – whereas in the case of departures for personal reasons, the comparison is between career prospects in the current position and something that has nothing to do with a job, such as taking care of one's family.

Our second hypothesis, therefore, is the following:

Hypothesis 2: Differences in promotion prospects will have their greatest impact on departures for career reasons, lower effects on departures for personal reasons, and the weakest effects on involuntary departures.

3. Data and variables

The data used in this study are taken from the personnel records of a large United States insurance company. During the 1970s the company employed approximately 16,000 individuals at any given point in time. We use the personnel records pertaining to the career experiences of every employee who was either in the company as of year-end 1970, or entered between 1971 and December 1978. Detailed information is available about the timing (year, month, and day) of promotions, demotions, and departures. Employees who voluntarily left the company were asked to state the main reason for their departure. Altogether 19 reasons are recorded.

The company is hierarchically organized into salary grade levels, from grade 1 (the lowest) to grade 20 (the highest). The vice-presidential ranks are not included

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in this grade scheme. The hierarchy is explicit in written documents and is clearly perceived by the employees. Internal labor markets are well developed. Vacant positions are posted within the company and employees are encouraged to apply for the jobs. Positions are made accessible to job-seekers outside the organization only when no suitable internal replacement can be found. Further details on the company are given in Spilerman (1986). See also Noyelle (1987: chap. 5) for a discussion of internal labor markets in the insurance industry, and Hartmann (1987) concerning some aspects of the promotion process in a mid-sized insurance company.

We analyze the rates of promotion and departure from the organization by means of survival analysis (Tuma & Hannan 1984: Pt. 2). In the analysis of promotion rates, the dependent duration variable is the number of months an employee spends in a *salary grade level* before a promotion, departure, demotion, or end of study occurs. Demotion, departure, and end of study (December 1978) are treated as censored observations in the analysis of the promotion rate.

In the analysis of departure rates, the dependent failure time variable is the waiting time to a departure from the company or censoring (end of study). It is measured as the number of months that have elapsed since the employee entered the organization. This is in line with previous studies (e.g. Felmlee 1982). We focus on the overall rate of departure, as well as on three specific reasons for leaving the organization: (a) termination for reasons tied to one's career;[6] (b) departure because of personal, usually family, reasons;[7] (c) departure because one was dismissed or the position was abolished. The first two reasons are considered to be voluntary, the third is involuntary.

The rates of getting promoted and of leaving the organization are explained using three sets of covariates: demographic, human capital, and organizational. The demographic variables are race and sex. The human capital variables are educational level, seniority in the company, and the employee's age. In addition, the rates depend on the amount of time that has been spent in the grade level and in the company, thereby allowing for duration dependence. The organizational variables are the division in which the employee works, location (home office versus other city), the salary grade occupied, and whether or not the employee has reached the top grade level of the career ladder. Only jobs spanning grades 1 to 9 are examined in this paper; and within those grades we include only job ladders that reach their top rung before or at grade 9. These jobs comprise lower-level clerical positions, grades 1 to 6, and upper-level clerical positions, grades 7 to 9. A 50% sample of these employees is used. We strategically exclude from the analysis lower-level administrative employees, whose career ladders span grades 7 to 12.

Note that the promotion and departure rates are governed by different 'clocks'. The promotion rate is governed by the time since entry into the current grade level – reflecting the fact that promotion is a *renewal* process: an employee can be promoted more than once. The departure process is governed by the time since entry into the organization. This is so because from an employer's point of view, job-quitting is a one-time event, and the relevant 'clock' starts at the time the worker becomes at risk of leaving the organization; that is, at the start of employment.

In the analysis of the promotion rate, we treat the seniority and age variables as time-dependent, both within and between salary grade levels. We always update

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these variables when a change of salary grade level, career ladder, location, or division occurs. In addition, *within* a salary grade level we update these two variables – age and seniority – every 12 months. Although age and seniority, just like duration in a grade, change continuously with time, we choose to update them only every 12 months when no other change occurs, in salary grade level, career ladder, location, or division. Continuous updating would require calculating the survivor function by means of numerical integration, which is computationally costly.

In the analysis of the departure rates, the age variable is treated in the same manner, as time-dependent, within as well as between, salary grade levels. Seniority in the organization is the dependent failure time variable in that analysis. We also enter duration in the salary grade level; that is, time in grade, as an explanatory variable. This term is treated as time-dependent within a grade, and we update it every 12 months. By simultaneously introducing seniority in the company and duration in a grade we allow for the possibility that these two factors may have different effects. Conceivably, an employee is governed by two 'clocks' – duration in grade and seniority – with possibly opposite effects on the promotion and departure rates.

4. Methods

We formulate a continuous time multi-state hazard rate model. First we specify the overall promotion rate, given the covariates:

(1) $\quad \lambda(t|x(t)) = \lim_{\Delta t \downarrow 0} P\left[t \leq T < t + \Delta t | T \geq t, x(t)\right] / \Delta t,$

where T is a random variable denoting duration in the current grade level, $x(t)$ is the set of covariates that influences the rate, evaluated at duration t in the grade and possibly summarizing the employee's history in the company up to duration t. $P[\cdot]$ denotes a probability.

Equation (1) is an instantaneous transition rate. Its interpretation is roughly this: it gives the probability of getting promoted within the next month, given the covariates in $x(t)$ and given that the employee has spent t months in the grade without receiving a promotion.

The overall rate of promotion is specified as a proportional hazards model of the log-logistic form:

(2) $\quad \lambda(t|x(t)) = \{(\gamma + 1)t^{\gamma} \cdot \exp(\alpha)/[1 + \exp(\alpha) \cdot t^{\gamma+1}]\} \cdot \exp[\beta x(t)],$

where $\gamma > -1$, the parameters β, γ, and α are to be estimated, and t is the number of months spent in the current grade level. The vector β contains a constant term. This specification permits a unimodal shape to the hazard, and is especially suitable for the analysis of promotions. In particular, we presume that in the initial months in a grade, the effect of duration is positive (you are not likely to be promoted immediately upon entering a new grade). The promotion rate reaches a peak and then declines, as it becomes apparent that the employee is being passed over. Thus we expect the hazard for promotion to be bell-shaped (see also McGinnis 1968), which will be the case for a log-logistic model with $\gamma > 0$.

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The overall rate of departure is defined as follows:

$$(3) \qquad \lambda(d|x(d)) = \lim_{\Delta d \downarrow 0} P[d \leq D < d + \Delta d | D \geq d, x(d)]/\Delta d,$$

where D is a random variable denoting seniority in the organization and $x(d)$ are covariates, including age and time in current salary grade, evaluated at seniority d.[8]

Each of the destination-specific departure rates ($r = 1$, 2, or 3), as well as the overall departure rate ($r = 0$), is given a Weibull specification as follows:

$$(4) \qquad \lambda_r(d|x(d)) = \exp[\delta_r x(d) + \psi_r \ln d], \text{ where } r = 0, 1, 2, 3,$$

where $\psi_r > -1$ and d denotes months of seniority in the company. The vector δ_r contains a constant term.

The interpretation of (4) is roughly this: it gives the probability of leaving the company in the next month for reason r, given the covariates in $x(d)$ and given that the employee has already spent d months in the company.

With respect to departures – either for personal or career reasons – our priors are more complex than in the case of promotions. Because time in grade adds to seniority, there may be a negative association between time in grade and the departure rate. However, net of seniority (which is included in the model), the effect could be positive: having been passed over for a promotion an employee may be more willing to leave. We expect a declining hazard with respect to seniority (the dependent failure time variable) as reported in other studies (e.g. Felmlee 1982), which will obtain when $\psi_r < 0$ in the Weibull model. We have no priors regarding the effect of time in grade on the rate of departure.

We stress that the specifications of the above hazard rates make no assumption about independence of the different rates (for discussions of this point see Prentice et al. 1978: 545–547). An objective of this analysis is to investigate how the departure rates are related to promotion opportunities in the company, and any independence assumption would be inappropriate. Specifically, we assess how the departure rates in various structural positions in the company covary with the promotion rates in the same positions. For example, if departure rates are high in positions where promotion rates are low and vice-versa, then the relationship between departures and promotions is negative: the higher the advancement opportunity, the lower the departure rate.

The interpretation of the parameters pertaining to the explanatory variables is the usual: a variable with a positive parameter increases the rate and one with a negative effect decreases it. The parameter estimates are obtained by the method of maximum likelihood, using the procedures described in Petersen (1986a, b).[9]

5. Descriptive statistics

Table 1 presents descriptive statistics for the variables used in the analysis, other than company division and company location. When appropriate, means and standard deviations are reported; otherwise the proportions of employees having a certain value on a variable are given.

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Table 1. *Distribution of variables by salary grade level.*

Variable	Salary grade level				
	1	2	3	4	5
	Means (and Standard Deviations):				
Age[a] (years)	22 (8)	24 (9)	27 (10)	29 (11)	30 (11)
Seniority[a] (months)	0 (1)	6 (10)	14 (25)	29 (44)	52 (63)
Months spent in grade[b]	11 (11)	15 (16)	18 (19)	20 (20)	23 (21)
	Percent:				
Promoted	43.4	47.3	46.6	47.2	49.2
Departed	55.3	47.7	42.8	35.4	24.4
For career reasons	7.8	8.7	9.2	8.0	4.3
For personal reasons	14.4	14.1	12.8	11.7	7.0
Dismissal or position abolished	11.6	6.9	5.7	4.2	2.1
Remained in grade[c]	1.3	5.0	10.6	17.4	26.3
Distribution of employees on the salary grade levels[d]	16.9	21.7	23.7	19.0	12.6
N	3,433	4,386	4,802	3,858	2,560

Variable	Salary grade level				
	6	7	8	9	1–9
	Means (and Standard Deviations):				
Age[a] (years)	31 (11)	32 (11)	32 (9)	32 (8)	26 (10)
Seniority[a] (months)	65 (73)	78 (81)	85 (80)	115 (102)	21 (43)
Months spent in grade[b]	26 (24)	26 (23)	25 (19)	29 (21)	18 (19)
	Percent:				
Promoted	44.8	47.0	63.8	58.3	46.7
Departed	25.0	19.1	7.1	4.2	40.8
For career reasons	3.8	2.8	1.6	0.0	7.6
For personal reasons	7.2	4.9	1.6	1.4	11.9
Dismissal or position abolished	3.2	2.5	0.8	0.0	6.0
Remained in grade[c]	30.2	33.9	29.1	37.5	10.5
Distribution of employees on the salary grade levels[d]	3.5	1.4	0.6	0.4	99.8
N	718	284	137	79	20,257

Note. The table gives the distributions for the dependent variables – months in grade and the destination states – and the independent variables (except company division and company location), whose effect coefficients are presented in Tables 2 and 3. Tables 2 and 3 control for several additional variables. See the notes to Tables 2 and 3. The data are taken from the personnel records of a large US insurance company in the period 1970–1978. See Section 3.

[a]Age and seniority are measured as of the date a salary grade level was entered. In order to obtain age and seniority as of the date the employee was last observed in the salary grade level, either because of promotion, departure, or censoring, add to the above entries for age and seniority the amount of time spent in the grade; that is, add the number of years (in the case of age) and the number of months (in the case of seniority).

[b]Number of months spent in the grade before a promotion, departure, or censoring (usually end of study) occurred.

[c]Percentage of employees who neither left the company while in the grade nor were promoted from the grade.

[d]Distribution of the employees considered in this paper, lower- and middle-level clerical employees on the salary grade level structure; it is not a distribution of all the employees in the company on those salary grade levels.

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Table 2. *Estimated effect parameters on the overall promotion and departure rates (standard errors of estimates in parentheses).*

Independent variable	Overall	Promotion[a]	Overall	Departure[b]
Constant	1.0673	(0.1137)	−1.2900	(0.0773)
Constant of hazard[c]	−6.8857	(0.0630)		
Duration (months)[d]	0.9133	(0.0260)	−0.2100	(0.0119)
Seniority (months)[e]	−0.0026	(0.0002)		
Time in grade (months)[f]			−0.0031	(0.0010)
Age (in years)[g]	−0.0172	(0.0012)	−0.0171	(0.0012)
Salary grade level[h]:				
2	−0.2792	(0.0354)	−0.1656	(0.0337)
3	−0.4427	(0.0358)	−0.3025	(0.0353)
4	−0.5954	(0.0389)	−0.5158	(0.0414)
5	−0.6693	(0.0448)	−0.7581	(0.0533)
6	−1.0062	(0.0687)	−0.7752	(0.0857)
7	−0.8541	(0.0977)	−1.0127	(0.1426)
8	−0.8340	(0.1223)	−2.0347	(0.3362)
9	−1.2665	(0.1761)	−2.5656	(0.5926)
Company division[i]:				
Residual	0.4032	(0.1073)	−0.4292	(0.1208)
Corporate	0.4196	(0.0446)	−0.3173	(0.0500)
Group	0.5039	(0.0347)	−0.3647	(0.0302)
Individual	0.4854	(0.0365)	−0.4550	(0.0349)
Investment	0.4594	(0.0587)	−0.3009	(0.0628)
Company location[j]	0.2120	(0.0259)	−0.3991	(0.0324)
− Log likelihood	40592.36		36326.79	

Note. The parameters are estimated by the method of maximum likelihood using the algorithm described in Petersen (1986a). In addition to the variables and effect parameters presented in the table, the rates estimated also control for sex, race (three dummy variables), education (three dummy variables), and whether or not the employee has reached the top of his or her career ladder (one dummy variable). In this table all coefficients are significantly different from zero at the 5-percentage level (two-tailed tests). The data are taken from the personnel records of a large US insurance company in the period 1970–1978. See Section 3.

[a] The estimates are of the proportional hazards version of the log-logistic model in equation (2).

[b] The estimates are of the Weibull model in equation (4).

[c] This is the α_t coefficient in the log-logistic model in equation (2).

[d] For promotions, duration is measured as months since the currently occupied salary grade level was entered. For departures, duration is measured as months since employment in the company started (i.e. seniority). For promotions, the coefficient corresponds to γ_t in equation (2). For departures, the coefficient corresponds to ψ_t in equation (4).

[e] Seniority is measured as months of employment in the company. The variable is updated as a time-dependent covariate every 12 months.

[f] Time in grade is measured as months since the currently occupied salary grade level was entered. The variable is updated as a time-dependent covariate every 12 months.

[g] Age is updated as a time-dependent covariate every 12 months.

[h] Reference category: Salary grade level 1.

[i] Reference category: Agency division.

[j] Home office branch = 1; branch in another city = 0.

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Table 1 shows that the two variables seniority and age (measured at the date a salary grade was entered) both increase from one grade level to the next. Employees higher in salary grade have been longer in the company and are older. The table also shows that the average number of months spent in a grade – before promotion, departure, demotion, or censoring due to end of study – increases with the grade level. It is approximately one year in grade 1, but two and half years in grade 9. As we shall see in Table 2, this pattern reflects both lower departure and lower promotion rates in higher ranks of the company.

In Table 1, we also present, for each salary grade level, the percentages of employees who (a) were promoted from the grade; (b) left the company, irrespective of the reason; (c) left for each of the three departure reasons (career, personal, or dismissal/position-abolished); (d) were still in the grade level at the time the study ended.

We see that the proportions that left the company decline sharply with the grade level. This may reflect, in part, the fact that employees in the higher grades are older, and therefore less likely to depart. In part, it may be the case that the higher grade levels offer these employees comparatively generous rewards and a position that is secure. Changing employment means putting one's current benefits at risk to the vagaries of a new work environment, and senior employees simply have more to lose.

Finally, we see that the proportions promoted from a grade increase with rank in the organization. This reflects, as we shall see from Table 2, the lower departure rates in the higher salary grades, since the promotion rates actually are lower in senior ranks. Most employees in high grades have much invested in the company, in the form of seniority rights and firm-specific skills, and have a low termination rate. This, in turn, translates into a high proportion of workers in these grades eventually getting promoted. But it takes on average a longer time to get promoted in those grades.

6. Analysis of departure and promotion rates

Below we report the results in four subsections: Section 6.1 – the overall rate of promotion; Section 6.2 – the overall rate of departure; Section 6.3 – the two rates compared; and Section 6.4 – a discussion of the various types of departures. We present here only the effects of age, seniority, duration in grade, and several organizational variables, salary grade, division, and company location. In a separate paper we address the role of individual characteristics – in particular, sex and race – on both departure and promotion rates (Petersen & Spilerman 1989). The role of education for promotion is developed at some length in Spilerman & Lunde (1990). To reiterate, in the present paper our focus concerns the role of organizational structures as mediating factors influencing the rates of promotion and termination.

6.1. *Overall promotion rates*

Results for the overall promotion rates are presented in the first column in Table 2.

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Over the nine grade levels the promotion rate declines dramatically with rank, even in the presence of controls for age and seniority. The especially strong (negative) effect of grade 6 reflects the fact that several job ladders terminate with this grade; the particular issue of 'ceiling grades' is investigated in detail in Spilerman & Petersen (1989).

Turning to the other variables, the effects of age and seniority on the overall promotion rate are negative, as reported in a variety of other studies.[10] Concerning duration in current grade, the form of its effect is bell-shaped, since $\gamma > 0$. The rate of promotion increases over the initial months in the grade, then reaches a peak before beginning to decline. According to the estimates, the peak occurs after about 35 months.[11] This is roughly in line with what we know about company policy: usually one is not promoted before about 12 months in a grade, and most likely it will occur after about 24–30 months, after which time a promotion becomes less likely, especially in the lower grades.

6.2. *The overall rate of departure*

The rate of departure declines consistently with the salary grade level, becoming quite small by grades 7 to 9. In spite of the lower rate of promotion in these grades, employees respond with lower termination rates, net of seniority and age. This probably indicates that when relatively high levels of rewards have been achieved within the organization, opportunities outside the company become less attractive. Presumably, the risks of losing the position one has acquired outweigh the potential career benefits from a shift in employment, even though current advancement prospects are poor. It is as if workers accept the 'Peter Principle'. They perceive themselves as having risen to a level *above* what their abilities warrant and this advantage might not be replicated in a new work setting.

Age and seniority have negative effects on the departure rate, which is consistent with the results of other investigations.[12] Time in current grade, which to our knowledge has not been addressed in previous studies, also has a negative effect. This result is perhaps a bit surprising, given the presence of a control for seniority, since it suggests that the longer an individual has *not* been promoted, the less likely the worker is to terminate. It would suggest that employees who are passed over for advancement *perceive themselves* to be marginal workers and are not willing to accept the risks and uncertainties associated with new employment. This post-hoc explanation is a variant of our account of the grade level pattern.

6.3. *Comparison of departure and promotion rates*

We can now address the issues in Hypothesis 1 about the relationship between promotion and departure rates. Location – home office versus branch elsewhere – has a positive effect on the rate of promotion and a negative effect on the rate of departure. This is in line with Hypothesis 1. In structural positions where the rate of promotion is high, the departure rate is low and vice-versa.

The same pattern is found with respect to the effects of division of the company. In the Agency division (the reference category), promotion and departure rates differ significantly from the rates in the other divisions.[13] Compared to the Agency

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division, the other divisions have significantly higher promotion rates and significantly lower departure rates. The Individual division shows a corresponding configuration: it has the second highest promotion rate and a lower departure rate than any other division.

Thus, with certain exceptions (e.g. the parallel effect of grade level on the promotion and departure rates), there is evidence that where promotion prospects are high the rate of departure is low, and vice-versa, as postulated in Hypothesis 1.

6.4. Decomposition of the departure rate

It remains to study the decomposition of the departure rate into its component parts. Table 3 gives the relevant results. The first column shows the rate of departure for career reasons; column two presents the rate for personal reasons; while column three reports the rate associated with dismissals and abolished positions. The first two types of departures are voluntary, while the third is considered to be involuntary.

Departures for career-related reasons decline dramatically with salary grade level. The interpretation of this seems simple. Once high rewards in the internal labor market have been reached, the alternatives elsewhere are not as attractive as those afforded by the present position, together with the security entailed by continuing to work in a familiar context. Apparently, maintaining a relatively favorable position is a powerful consideration; by grade 9, the departure rate for career reasons is practically equal to zero, the coefficient being -85.2 $(\exp[-85.2] \approx 0)$.[14]

Departures for personal reasons also decline with salary grade. As the level of rewards increases, it becomes more costly to quit for personal reasons. The psychical returns from taking care of one's family, from moving to a different community, or from some other personal activity, are likely to be outweighed by the pay-off from continuing current employment. Note, however, that the departure rate for personal reasons declines less steeply with salary grade than the departure rate for career reasons. Terminations for personal reasons are less related to the current work situation and opportunity structure than departures for career reasons. When one departs to further a career, the decision involves a comparison between the current job and a prospective job. When an employee leaves for personal reasons the comparison involves some non-pecuniary activity. Different bundles of considerations enter into each decision, and somewhat different calculuses are likely to be invoked.[15]

An examination of the division effects also provides support for Hypothesis 2. Agency (the reference category) is clearly an outlier for all three departure reasons, since virtually all division effects in Table 3 are negative. The Agency contribution aside, there is greater dispersion among the division effects with regard to career-related quits than for other terminations, suggesting that the particular nuances and opportunity structure of each division have their greatest influence on departures for this reason.

Company location – home office versus branch in another city – has a negative impact on all three departure rates: working in the home office depresses the rate of termination. What is probably tapped here is the greater opportunity in the home

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Table 3. *Estimated effect parameters on rates of different types of departure (standard errors of estimates in parentheses).*

Independent variable	Departure for career reasons		Departure for personal reasons		Dismissal or position abolished	
Constant	-2.4577	(0.2035)	-3.2947	(0.1720)	-2.6715	(0.1794)
Duration[a]	-0.1294	(0.0306)	-0.1939	(0.0229)	-0.2825	(0.0339)
Time in grade[b]	-0.0124	(0.0028)	-0.0104	(0.0022)	-0.0070	(0.0032)
Age (in years)[c]	-0.0423	(0.0036)	-0.0234	(0.0026)	-0.0048*	(0.0033)
Salary grade level[d]:						
2	0.1054*	(0.0833)	-0.0043*	(0.0629)	-0.4469	(0.0827)
3	0.1296*	(0.0830)	-0.1722	(0.0659)	-0.6390	(0.0863)
4	-0.0322*	(0.0948)	-0.2852	(0.0746)	-0.8845	(0.1062)
5	-0.4246	(0.1274)	-0.5800	(0.0981)	-1.4334	(0.1631)
6	-0.5489	(0.2184)	-0.5203	(0.1601)	-1.0593	(0.2331)
7	-0.8124	(0.3748)	-0.6800	(0.2784)	-1.4910	(0.3891)
8	-1.4791	(0.7237)	-1.4454	(0.7276)	-2.7954	(1.0100)
9	-85.2749	(0.0000)	-1.3792*	(1.0340)	-270.7426	(0.0000)
Company division[e]:						
Residual	-1.5460	(0.4124)	-0.4832	(0.2344)	0.3295*	(0.2036)
Corporate	-0.6294	(0.1302)	-0.4578	(0.1049)	-0.2679	(0.1267)
Group	-0.7116	(0.0657)	-0.2980	(0.0530)	-0.5951	(0.0833)
Individual	-1.0033	(0.0832)	-0.4189	(0.0621)	-0.7330	(0.0978)
Investment	-0.3459	(0.1302)	-0.3606	(0.1197)	-0.5366	(0.1763)
Company location[f]	-0.7777	(0.0849)	-0.6387	(0.0648)	-0.3691	(0.0863)
- Log likelihood	9045.8555		13346.9566		7297.37	

* Not significantly different from zero at the 5-percentage level (two-tailed tests).

Note. The parameters are estimated by the method of maximum likelihood using the algorithm described in Petersen (1986a). The estimates are of the Weibull model for all three rates, see equation (4). In addition to the variables and effect parameters presented in the table, the rates estimated also control for sex, race (three dummy variables), education (three dummy variables), and whether or not the employee has reached the top of his or her career ladder (one dummy variable). The data are taken from the personnel records of a large US insurance company in the period 1970–1978. See Section 3.

[a] For departures, duration is measured as months since employment in the company started (i.e. the seniority in the company). The coefficients correspond to ψ, in equation (4). [b] Time in grade is measured as months since the currently occupied salary grade level was entered. The variable is updated as a time-dependent covariate every 12 months. [c] Age is updated as a time-dependent covariate every 12 months. [d] Reference category: Salary grade level 1. [e] Reference category: Agency division. [f] Home office branch = 1; branch in another city = 0.

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office to change jobs while remaining within the firm, since the variety of available positions is greatest in this location. As we have postulated, the effect is strongest for career-related terminations.

There is an additional point to be made with respect to the rate of departure associated with dismissal or position-abolished. This rate declines consistently with the salary grade level. The higher one is in the hierarchy, the less likely one will be dismissed or one's position abolished. There is an interesting twist to this process, though. When we compute the rates for dismissals and position-abolished separately, the following pattern emerges (numbers are not reported here). The rate of dismissals declines dramatically with the salary grade level; above level 5, very few employees are dismissed. However, the rate at which positions are abolished declines less steeply with the grade. A manager in the company explained these patterns quite frankly: when someone has reached a high rank, there is a detrimental effect on the morale of co-workers from dismissing the individual. A politically sensitive way to ease out the unwanted employee is to abolish the job. From the viewpoint of management, therefore, departure due to dismissal and departure due to position-abolished mean the same thing: an unwanted worker is terminated. From the worker's point of view, especially in regard to obtaining subsequent employment, the two departure reasons may have very different consequences.

To conclude, as a qualitative assessment, it seems that organizational structure affects the three reasons for departure in much the same way. In particular, comparing departures for career and for personal reasons, the patterns of contribution of the organizational terms (i.e. coefficient signs) are almost identical. However, the impact of the structure variables is stronger on career-related departures than on terminations for personal reasons, providing support for our conjecture in Hypothesis 2.

7. Summary of findings and implications

In this paper we have examined the determinants of departure and promotion in an insurance company that has a large internal labor market. Our most important findings are the following.

First, the rate of departure declines with rank in the organization, which we explain in terms of the greater benefits of high rank that would be put at risk in a change of employers. This is in accordance with findings from other studies.

Second, we noted that the rate of promotion also declines with the grade.

Third, there is considerable evidence that in structural positions in the company where promotion rates are high, departure rates are low, and vice-versa. This is especially true of company location and division.

As for the different reasons for leaving the company we found that the departure rate for career-related reasons depends more strongly on organizational characteristics than does the departure rate for personal reasons. Nevertheless, the two rates are influenced by organizational structure in much the same way, indicating that decisions to leave for ostensibly personal reasons have a career component as well; that is, the decisions are responsive to opportunity structures.

We can speculate concerning what our findings might mean for the design of

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organizations. As we noted in the introduction, promotion ladders serve two purposes: they motivate employees to perform well and induce them to remain with the comapny. In order for an organizational structure to accomplish both goals there must be opportunities for advancement, and some employees must, in fact, be promoted.

These two goals – providing incentives and retaining employees – may conflict with a third objective: keeping the distribution of personnel over ranks in a reasonable equilibrium. If many employees receive promotions and few leave the organization, then the distribution will change over time, producing an upward shift in average rank. Such a tendency to 'grade inflation' is not a problem in technologically-driven bureaucratic systems, because, as outlined in the intro-duction, promotion is possible only if an occupational position at a higher rank is available. Rather, the problem under that system is one of forecasting and managing the distribution of job vacancies so that there will be an allotment of open positions each year, scattered among the organizational ranks, that could be filled through promotion. Without a more or less constant rate of vacancy creation, an employer will have problems retaining and motivating his workforce for the reasons we have given. The considerable literature on vacancy chains (e.g. White 1970; Stewman & Konda 1983) addresses these sorts of issue, which are pertinent to rigid, techno-logically-driven employment systems.

In bureaucratic structures which employ a grade level hierarchy – superimposed on the technologically determined occupational distribution – the situation is quite different. Here, since rank is specified in terms of a non-functional hierarchy of salary grades, and promotion is defined in terms of an increase in grade level,[16] management retains considerable discretion in rewarding employees with advance-ment. A promotion need not require the presence of an occupational vacancy; rather, a worker can be promoted while continuing to perform the same job.

This organizational invention – the hierarchy of salary grades – has several implications for management. It simplifies the task of motivating employees, since the rate of promotion can be controlled by the firm; advancement is not an immediate consequence of the timing and pattern of departures. (The vacancy chain formulation has little relevance in such an organization.) However, along with this flexibility there arises a problem. Once the distribution of employees over the rank hierarchy is no longer tied to the requirements of the production technology, there arises considerable pressure toward 'grade inflation'. Each manager, seeking to reward, retain, or better motivate his key employees, will periodically petition the personnel department to upgrade the ranks assigned to his unit. Such requests are often granted. In the short run organizational needs are met, but over time there is a tendency for the grade distribution to be shifted upward, with increased wage costs for the firm. Strategies for handling this problem range from periodic reclassification of jobs to intermittent large-scale dismissals of workers in the middle and senior ranks.[17]

The use of a grade level structure should enhance the correspondence between human capital variables and promotion prospects. From the perspective of analyzing individual attainment in organizational settings, merit, as a determinant of advance-ment, should have a stronger effect while vacancy considerations should be less important.[18] While organizational features continue to have considerable impact

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on opportunity – as we have noted in this paper – the grade level formulation loosens the link between rewards on the one hand and technology or organizational features on the other. As a derivative expectation, the increasing use of grade level formulations throughout the economy should decrease the salience of industry as a determinant of career features, at least for clerical and administrative employees, since the determinants of advancement follow more the universal logic of this system than idiosyncratic technological considerations.

Notes

1 Besides these obvious effects, bureaucratic career incentives may also operate as a divide-and-conquer device which alleviates conflict between management and workers, and promotes competition between workers (see Burawoy 1979: chap. 8; Edwards 1979: chap. 8). Whether management intentionally created bureaucratic career incentives as a divide-and-conquer strategy or whether this is just a byproduct beneficial to management, is subject to debate (see Jacoby 1985).

2 Steady salary increases within a given job may accomplish the same end. From the employer's perspective a hierarchy has some additional advantages. First, it serves to filter and select employees for jobs involving higher responsibility, autonomy, and authority, in that workers with superior performance are more likely to be promoted (see Rosenbaum 1984: chap. 2). Second, large salary differences at the same rank may be difficult to legitimize even if they reflect differences in performance, since employees seem to care about local differences and make comparisons with others at the same level (see, e.g., Dessler 1984: 323; Frank 1985: chaps. 2–3). On this second point, see Section 2.

3 There are additional and sometimes alternative means for reducing turnover, such as tying rights and fringe benefits to length of service (see Doeringer & Piore 1971: 30). Abraham & Medoff (1985) provide evidence that, among white-collar employees, merit appears to be the most important determinant of promotion and hence earnings, while among blue-collar employees seniority is more important.

4 Three partial exceptions to this statement are Konda & Stewman (1980), Halaby (1986) and Meitzen (1986). Meitzen (1986), in a study of quit behavior, controlled for whether a job slot allowed for salary increases or not. Halaby (1986), in a study of the intentions or declared likelihoods of looking for other jobs, controlled for whether the employee thought it likely that he would be promoted in the current job. Konda & Stewman (1980) report estimates of promotion and departure probabilities for several grade and seniority levels in a police organization, but do not discuss the relationship between the two, although they postulate an association in the theoretical discussion.

5 This was partially done by Bartel & Borjas (1977), who, using panel data, distinguish between departures for job related and personal reasons. However, they had no data on promotions.

6 As career-related reasons we count departures that occurred because of (i) a desire for higher earnings, (ii) better working conditions, (iii) greater opportunity, and (iv) more interesting and suitable work.

7 As personal reasons for leaving the company, we count departures that were made because the employee (i) wanted to be nearer home or have better transportation, (ii) change of residence, (iii) household duties, and (iv) illness in family.

8 That is, the values if age and time in grade are always within 12 months of their true values, since we update these two variables as time-dependent variables every 12 months.

9 Blossfeld, Hamerle & Mayer (1989) explain (chap. 6, esp. pp. 187–255) and list (Appendix 2, pp. 274–282) the computer program used in the present article. The algorithm was developed in Petersen (1986a).

10 Several studies address how promotion rates within organizations depend on individual resources and on organizational characteristics (Abraham & Medoff 1985; Bielby & Baron 1983; Carroll & Mayer 1986; DiPrete & Soule 1986; Halaby 1986; Hartmann 1987; Medoff & Abraham 1980; Rosenbaum 1984, chap. 3; Sandefur 1981; Skvoretz 1984; Tuma 1985;

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White 1970; White & Althauser 1984; Wise 1975). The studies show that the rate of promotion declines with seniority and with the level of current rewards.

11 The peak in the rate, occurring at month t^*, is computed by this formula:
$t^* = \exp\{(1/(\alpha_1 + 1)) \cdot \ln[\alpha_1 \cdot \exp(-\alpha_0)]\}$.

12 Most studies report that departure rates depend strongly on the level of current rewards, seniority in the organization, and the employee's age; that is, for a given level of individual resources departure rates decline for all three variables (see, e.g., Blau & Kahn 1981; Carroll & Mayer 1986; Felmlee 1982; Flinn 1986; Freeman & Medoff 1984: chap. 6; Kandel & Yamaguchi 1987; Meitzen 1986; Tuma 1976, 1985; Waite & Berryman 1986).

13 In this paper, we do not attach any substantive meaning to the division categories, although some of the divisions differ in socially meaningful ways.

14 Further support for the above interpretation is given by the educational effects, not reported in the tables (but available from the authors upon request). Employees with the highest level of education are much more likely to leave for career reasons than any of the other three educational groups. Given the salary grade level, the better educated employees are precisely the ones who are likely to find attractive employment elsewhere, and hence are more likely to leave.

15 As one would also expect, the departure rate for personal reasons is much higher for women than for men (not reported here, but available from the authors upon request), no doubt reflecting the traditional household division of labor.

16 In the insurance company an advance in rank is treated seriously. Each grade has associated with it a salary range, and an employee's manager can decide to increase a subordinate's salary, but only within the range. Promotion to a higher grade requires the approval of high level management.

17 In the insurance company such a large-scale dismissal, involving several hundred middle-level and senior employees, in fact occurred in late 1978.

18 In the vacancy-driven system a capable employee is promoted only when there is a suitable open position.

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