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# **Voluntary Terminations from Military Service**

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## PREFACE

This report is a review and critique of literature published through 1981 on the causes of voluntary terminations from military service and from civilian jobs. The authors' purposes are to:

- Identify facts, hypotheses, and research methods from civilian labor force studies that might contribute to an understanding of the causes of military voluntary terminations and to a reduction in the military voluntary termination rate.
- Integrate findings of research on this subject which was conducted with different disciplinary perspectives, including those of economics, psychology, and sociology.
- Assess what is known about military voluntary terminations in the context of what is known about civilian quits.
- Determine whether existing military research suggests any new policies that might be used to reduce further the rate at which military personnel voluntarily terminate service.
- Suggest next steps to be taken in future research on this subject.

The report should be useful to defense managers concerned with attrition, nonreenlistment, and officer resignations. It may also be useful to persons concerned with the turnover rates of civilian employees of the Department of Defense, as well as similar rates for civilian employees of other organizations in the public and private sectors.

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## SUMMARY

For the past decade, wide swings in enlisted retention and attrition rates, and in officer resignations, have prompted concern by the services, the Secretary of Defense, and the Congress. This concern has led to numerous studies of why personnel leave the services. The studies differ widely in theoretical perspective, methodology, population analyzed, and findings. This report attempts to integrate and critique these studies in order to make their findings more accessible, to suggest possible new directions for retention and attrition management policy, and to identify new research needs.

## THEORETICAL FRAMEWORK

This report is concerned with voluntary terminations or job "quits" from military service. By the word "quit" we mean a termination of employment by an employee in advance of any implied or explicit time limit on the term of employment with a particular employer. Voluntary terminations from military service include departures in the midst of an enlistment term, terminations through nonreenlistment, and resignations of officers.

To aid in our analysis of the causes and consequences of voluntary terminations, we assembled a theoretical framework from literature on the social psychology of groups, organizational theory, neoclassical economics, and game theory. The core of the framework is Thibaut and Kelley's research on how people evaluate their membership in groups. Their model embodies a rational cost-benefit analysis of behavior, and its key concepts are the *Comparison Level* (CL) and the *Comparison Level for Alternatives* (CLalt). CL indicates how satisfied, in an absolute sense, a person finds membership in an organization. CLalt measures satisfaction relative to the most satisfying alternative to his present organization. Individuals become disgruntled when their CL is low, but they do not leave jobs or terminate from the services unless their comparison level sinks below the comparison level available to them in alternative jobs. We find additional insight in the work of Herbert Simon, who stresses two other points that are useful for understanding labor market phenomena: (1) Perceived, rather than actual, alternatives form the basis of the CLalt (persons may not know that they could get better jobs, or they may incorrectly think that they can do better than their present position) and (2) whereas low

satisfaction may not itself be sufficient to cause individuals to voluntarily terminate, it precipitates search for alternatives. In Simon's view, unsuccessful search for a better job causes the individual to raise the CL for his present position. Taken together, the Simon and Thibaut-Kelley perspectives can be viewed as generalizations of the neoclassical economic model of labor market behavior, although they lack the power of neoclassical economics to analyze optimal behavior of rational actors. Finally, the game-theoretic approach to voluntary terminations is consistent with these other theoretical perspectives and usefully focuses attention on the behavior of both employer and employee in affecting voluntary terminations.

## **DIMENSIONS OF JOB EVALUATION AND COMPARISON**

The framework allows us to evaluate and organize theoretical and empirical studies of quitting from various research domains. We first review literature on voluntary termination from civilian jobs to provide a context for subsequent evaluation of research on termination from military service. In both cases, we begin by considering key questions about the CLalt and then review issues concerning the comparison level. Previous studies in both domains have considered the effects of a variety of factors on voluntary job terminations. These factors include compensation, procedures for resolving disputes between individuals and their supervisors, amenities, conveniences, psychological rewards, working conditions, and individual differences (e.g., education, aptitude, personality, demographic characteristics).

Our reading of existing studies leads to the following conclusions about the influence of these factors on voluntary terminations from military service:

### **Compensation**

Research on civilian job terminations provides substantial evidence that compensation levels influence quit probability, but a number of studies find that the effect of pay on quitting is weaker than the effect of certain nonpecuniary factors. Additional evidence suggests that compensation, nonpecuniary factors, and quit probability may be inter-related in complex ways. For example, the relationship between pay and quits may be simultaneous. Existing studies do not establish these relationships unequivocally.

Research on military terminations reaches similar findings. Pecuniary factors influence the decision to terminate military service,

but there is compelling evidence that nonpecuniary factors may rival or exceed the influence of pay and benefits. It appears that the military compensation system is itself sufficiently complex that personnel systematically undervalue their compensation, that bonuses paid in lump sums are more highly valued than equivalent funds paid out in installments, and that compensation in some forms is more highly valued than equivalent amounts of compensation paid in other forms. Evidence suggests that military personnel prefer some forms of compensation at some points in their careers and other forms at other career stages. Similarly, the effect of remuneration on terminations appears to change over the course of the military career. Most studies suggest that voluntary terminations can be reduced by raising compensation levels, but it also appears that terminations can be reduced by:

- Making personnel aware of the true value of their compensation,
- Using lump sum payments more extensively, and
- Allowing individuals to exercise some choice of the form in which their compensation is paid, and allowing them to change their choice periodically.

### **Job Security and Dispute Resolution Procedures**

Literature on civilian job quits suggests that workers are more likely to quit their jobs when they perceive a lack of job security or organizational attachment to them. There is some evidence to support the hypothesis that quit rates are reduced by the presence of mechanisms for resolving disputes between employer and employee.

Limited research on military terminations suggests that mechanisms for resolving disputes between individuals and the services improve retention of officers and personnel. Procedures for resolving disputes between individuals and their supervisors appear to produce consistent, albeit modest gains in reducing officer resignations resulting from dissatisfaction with duty assignments. Counseling dissatisfied first-term enlistees appears to similarly reduce mid-term attrition.

### **Amenities, Conveniences, Psychological Rewards, and Working Conditions**

These factors are normally measured by job satisfaction survey questions. There is evidence from both civilian and military studies that satisfaction with these characteristics diminishes terminations, but much of this research has focused narrowly on absolute satisfaction

(the CL). One clear finding is that new recruits who enter the services with unrealistic expectations about military life are among the most likely to attrite. Whereas realistic portrayal of service life might impede recruitment in some cases, it appears to foster retention of recruits. Other findings about the net impact of amenities, conveniences, psychological rewards, and working conditions on voluntary terminations from the services are not consistent. It would be useful to know if personnel who express dissatisfaction with military life believe that civilian employment would provide greater satisfaction on the same dimensions. It would also be useful to know how such dissatisfaction develops, and if and how dissatisfaction on these dimensions relates to dissatisfaction with compensation and other aspects of military life.

#### **Individual Differences in Pre-Service Attributes and Demographic Characteristics**

Longstanding interest in screening potential recruits for quality and performance has led to extensive procedures for physical and mental testing and considerable interest in the influence of pre-service individual attributes on performance. The research literature on individual differences is large, and it reaches similar conclusions to its civilian counterpart. It finds that the probability of voluntary termination from the services is increased by:

- History of antisocial behavior, legal difficulties, or poor psychological adjustment.
- Lack of high school diploma.
- Presence of a spouse and dependent children.
- Enlistment before age 18.

Although racial differences in gross termination rates are well known, when other factors are held constant evidence of racial differentials becomes inconsistent and contradictory, as it does in the civilian literature. Race may be a correlate rather than a cause of voluntary termination from military service, and the processes leading to voluntary termination of military service may be more color-blind than crude statistics suggest. Mental ability affects voluntary terminations most unambiguously through impact on educational attainment. A number of studies suggest additional, direct effects of mental aptitude on voluntary terminations, although there is some ambiguity in this finding. Indeed, this research area would profit from a comprehensive accounting of pecuniary and nonpecuniary influences together in a behavioral model of quitting.



## **DIRECTIONS FOR FUTURE RESEARCH**

We conclude that both new data and new analyses are needed to make significant advances in knowledge about the determinants of voluntary termination from military service. Although existing studies set out to examine many interesting hypotheses about voluntary termination, we found the methodology of these studies often to be problematic. Thus, we believe that further advances in understanding the causes and remedies for high rates of voluntary termination from military service require new data and application of statistical methods that explore more fully the relationships among a variety of well-measured job characteristics in a behavioral model of quitting. Progress can be made by gathering data that are longitudinal, contain repeated measures, include information on a wide range of factors, and measure satisfaction of personnel with military work, life, and pay relative to the satisfaction on these dimensions that they believe would be available to them as civilians. It would be very useful to have statistical analyses that combine econometric modeling of compensation and its effects with equally sophisticated modeling of nonpecuniary factors affecting voluntary terminations.



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## I. A FRAMEWORK FOR UNDERSTANDING VOLUNTARY TERMINATIONS

This review was undertaken to assess knowledge about voluntary terminations from the contemporary U.S. Armed Forces based on literature published through 1981. Voluntary terminations include voluntary departures during an enlistment term, terminations through nonreenlistment, and resignations of officers. Although we report the findings and methods of many studies in considerable detail, our purpose is not to construct an exhaustive catalogue summarizing past research. Instead, we attempt to synthesize past findings into a coherent and comprehensive view of voluntary terminations, in the belief that a coherent view of the entire subject is the most useful guide to policy formation and the most efficient way to identify particular issues needing further research. This goal requires a more critical and more interdisciplinary perspective than that of other recent reviewers (e.g., Parsons, 1977; Mobley et al., 1978; Goodstadt et al., 1979). It also requires that we consider the frequently more theoretical academic literature on voluntary terminations, despite the fact that academically oriented empirical research is generally concerned with civilian sector jobs. In the following pages we draw heavily on the literature and theoretical perspectives of economics, sociology, and psychology. In doing so, we try to take a broad view of our subject, and to avoid the narrowness that can result from too strict adherence to the viewpoint of a single discipline.

The plan of this review reflects both our belief that the broadest view of military terminations is the most useful, and our recognition that many readers of this document are interested exclusively in military research: We discuss military studies in a separate chapter that builds upon the conclusions we draw from civilian sector analyses, but stands free of them. In the rest of this chapter, we consider the definition of quits and attempt to resolve some theoretical and methodological issues pertaining to this definition. Next, we consider a framework for conceptualizing the determinants of quits, and we contrast it against other frameworks which have been used for this purpose. In Chapter II, we use our theoretical framework to review and synthesize research and theory on voluntary job terminations which do not pertain specifically to military service. Finally, with the theoretical framework and civilian studies in place as groundwork, Chapter III focuses on voluntary terminations from the U.S. Armed Forces, and considers

policies to reduce the rate of voluntary termination and strategies for understanding why military personnel choose to leave the services.

## DEFINING JOB QUILTS

By the word "quit" we mean a termination of employment by an employee in advance of any implied or explicit time limit on the term of his/her employment with a particular employer. Examples of time limitations that would lead to nonquit termination include seasonal jobs, nonrenewable fixed-duration jobs, time-limited internships, and jobs which last only for the duration of projects in which an employee is involved. Similarly, if a job has a mandatory retirement age associated with it, an employee who retires at that age does not, by our definition, quit that job. However, if retirement is not mandatory, the fact that an employee receives retirement benefits after leaving that job does not alter the definition of quit as it applies to the employee's termination from that job: If it is the employee who requires the termination, then the employee quits the job.<sup>1</sup>

Because our definition of "quit" places strong emphasis on the party who requires a job termination, it is useful to consider recent arguments that it is inappropriate to distinguish between terminations required by employees (quits) and terminations initiated by employers (firings). For example, Bartel and Borjas (1977) have attempted to extend to employment relations Becker, Landes and Michael's (1976) conceptualization of marriage and divorce. According to Becker et al., a divorce occurs when one partner is unsatisfied with the rewards that he or she is getting from the marriage, *and* the other partner would be unsatisfied with the rewards obtained should the first partner get what he or she required. That is, a divorce occurs when there is no solution that would make both partners happy. In the language of the labor market, this perspective assumes that the employment relationship dissolves when the only way to prevent a quit is to establish conditions which would lead to a firing, and the only way to prevent a firing is to establish conditions that would lead to a quit. In employment as in

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<sup>1</sup>Similarly, an employee whose employment ends when he or she is drafted into military service (in the case of civilian employment), sent to jail, or physically disabled has not, according to our definition, quit. Rather, the employment relationship has been ended by forces outside the employee's control which make further performance of the employee role impossible. In contrast, an employee who quits on advice of his/her employer has indeed quit, according to our definition, if the advice did not carry with it the employer's requirement that the employee leave his or her job. Of course, an employee who is given the choice of "quitting" or being fired has been fired, since it is the employer, not the employee, who requires the job termination.

marriage, say Bartel and Borjas (pp. 6-7), relationships fail because the partners enter with imperfect knowledge of each other, and it is only after time passes that each learns if he or she can be happy with the conditions needed to keep the other in the relationship.

While Bartel and Borjas argue theoretically that quits and firings need not be distinguished, we can supply two additional, methodological reasons why one might wish to group all job terminations together: First, as a management practice, it may be easier to induce a quit than to come straight out and fire an employee. Accordingly, some terminations that are reported as quits may in fact be job terminations purposely precipitated by employers, rather than by the terminated employees. Second, when data on job terminations are gathered from former employees themselves, there may be a tendency to report firings as quits, if only to prevent stigmatization as a person who was let go for cause.<sup>2</sup>

However, we think there are compelling reasons to distinguish between quits and firings wherever possible. First, if quits and firings are grouped together for methodological reasons, then the proper strategy is to design better survey instruments. These might include the use of randomized response questions (Pollock and Bek, 1976) to overcome employers' tendencies to report firings as quits and questions that determine who actually required the termination, rather than determining how employer and employee label the event. Second, while treating quits and firings alike has conceptual appeal, we think that the behavioral model underlying this conceptualization is not true to the realities of employment. Bartel and Borjas argue that quits and firings need not be distinguished because the "marriage" between employer and employee breaks down when each knows what the other requires, but the requirements of each fail to satisfy the requirements of the other. However, there is evidence that many quits occur in situations in which employers would be willing to accept the requirements of employees, but do not satisfy them because they are unaware of them (Freeman, 1980). In addition, the viewpoint of Bartel and Borjas implies that some rational process of evaluation and analysis underlies the decisions of employer and employees. However, interviews indicate that rational evaluation is often more an ideal than a reality (Reynolds, 1978, p. 120); emotional impulse may also govern behavior in quit decisions. Finally, we note that even if quits and firings are merely different labels which are applied to the same underlying phenomenon, no harm will be done by distinguishing between them

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<sup>2</sup>See, for a related example, the literature on underreporting of hospitalization for stigmatizing diseases (e.g., Cannell et al., 1968).

in empirical analyses: Should the distinction be false, the process determining quits will be shown to be the same as the process determining firings, and findings will be the same as if quits and firings were grouped together. However, if quits and firings are indeed different, failure to distinguish between the two will lead to erroneous theory and empirical analyses suffering from biased parameter estimates and incorrect conclusions.

### **A FRAMEWORK FOR UNDERSTANDING THE CAUSES OF VOLUNTARY TERMINATIONS**

We now turn to a conceptual framework for analyzing job quits that provides a basis for evaluation of research examining why workers leave their jobs. We draw primarily upon Thibaut and Kelley's (1959) framework for understanding the behavior of people in groups for several reasons:

- It is compatible with the theoretical perspectives of a variety of disciplines and cross-disciplinary areas of inquiry that have addressed the reasons why people leave jobs. These areas include social psychology, sociology, game theory, economics, and management science.
- It has withstood the test of time and is likely to remain serviceable for some time to come.
- It serves as a vehicle for grouping, comparing, and contrasting existing work on quits, and it provides a systematic basis for locating gaps in existing research on the subject.
- Because it is a general treatment of the process which leads people to terminate their membership in groups, the Thibaut-Kelley model is more general than other similar frameworks. This generality will help us locate gaps in the theoretical and empirical research literature on the problem of job quits.

Insofar as it pertains to individuals' decisions to terminate their membership in groups, the core of the Thibaut-Kelley model is contained in one proposition and two concepts. The proposition is that people evaluate their experience in groups according to the costs and benefits involved in maintaining membership in the group. The two concepts concern the way in which those cost-benefit calculations affect group members' satisfaction with the group and their decision to end or continue their membership. The first concept is the comparison level, abbreviated CL; the second is the comparison level for alternatives, abbreviated CLalt. According to Thibaut and Kelley,

CL is a standard by which the person evaluates the rewards and costs of a given relationship in terms of what he feels he "deserves." Relationships the outcome of which fall above the CL would be relatively "satisfying" and attractive to the member; those entailing outcomes that fall below the CL would be relatively "unsatisfying" and unattractive. The location of CL on the person's scale of outcomes will be influenced by all of the outcomes known to the member, either by direct experience or symbolically. It may be taken to be some modal or average value of all outcomes, each outcome weighted by its "salience," or strength of instigation. . . .

CLalt can be defined informally as the lowest level of outcomes a member will accept in light of available alternative opportunities. It follows from this definition that as soon as outcomes drop below CLalt the member will leave the relationship. The height of the CLalt will depend mainly on the quality of the best of the member's available alternatives. . . .

As in the case of CL, the outcomes that determine the location of CLalt will be weighted by the *salience*. [italics in original] (Thibaut and Kelley, 1959, pp. 21-22).

The key point about the CL is that it determines whether workers are happy with their jobs, but it does not determine whether they leave them. The key feature of the CLalt is that it determines whether workers leave their jobs, but not whether they are happy with them. Accordingly, workers sometimes leave jobs that they like, or stay in jobs that they do not like, depending upon the relative magnitudes of the CL and CLalt. We will find this point particularly useful later, for example, when we consider the modest effect of job satisfaction on quitting.

It is worthwhile to compare the Thibaut-Kelley framework to some other schemata which have been applied to understanding quits. Where appropriate and useful, we will add elements of these other theoretical perspectives to the Thibaut-Kelley framework, in the hope of finding a more useful structure for organizing research and theory on job quits.

At least as it applies to the reasons why people *leave* groups, Thibaut and Kelley's work is probably most closely related to Herbert Simon's theoretical analysis (March and Simon, 1958). Though hardly recent, Simon's work strongly influenced some important early multivariate empirical research on job terminations (Stoikov and Raimon, 1968), and, through that work, continues to figure in current studies of quitting (e.g., Blau and Kahn, 1981). Essentially, the Simon framework can be stated as follows:

Each participant and group of participants receives *from* the organization *inducements* in return for which he makes *to* the organization *contributions*.

Each participant will continue his participation in an organization only so long as the inducements offered him are as great or greater (measured in terms of *his* values and in terms of the alternatives open to him) than the contributions he is asked to make. [*italics in original*] (March and Simon, p. 84).

In addition, inducements and contributions are weighted by "utility values" which reduce all inducements and all contributions to a single dimension (March and Simon, p. 85). And, while "the greater the difference between inducements and contributions, the greater the individual satisfaction" (March and Simon, p. 85), dissatisfaction alone does not determine the propensity of individuals to leave an organization. Rather, dissatisfaction is only a cue to begin search for alternatives which will bring greater satisfaction. If search uncovers more satisfying alternatives, a move takes place; if search fails to uncover better alternatives, utilities are adjusted to reduce the difference between inducements and contributions, and therefore to reduce the dissatisfaction (p. 86). The availability of more satisfying alternatives is measured by "ease of movement" (p. 99) from the organization. However, Simon's model is essentially cognitive, and so it is *perceived*, rather than actual, ease of movement that leads to quitting (p. 106).

Clearly, there are strong correspondences between the Simon and Thibaut-Kelley models: T-K's costs and benefits are Simon's contributions and inducements; salience in the T-K model is much like utility in the Simon model; T-K's CL corresponds rather closely to Simon's satisfaction-dissatisfaction continuum; and Simon's "perceived ease of movement" seems to be a close relative to T-K's CLalt. However, there are two differences between these schema. First, while T-K emphasize the difference between the CL and the CLalt, and so draw out the reasons why low satisfaction does not necessarily imply that workers will quit, they do not give explicit attention to the process by which the CLalt is established. In contrast, Simon explicitly treats low satisfaction as a precipitator of search for more satisfying employment. Thus, Simon provides job search as a *behavioral* link between job satisfaction and the decision to quit. He also makes explicit that the strength of this link depends upon the success of the search for alternatives, and not on the degree of dissatisfaction alone. The nature of this link will prove useful later, when we consider the results of empirical studies which compare the effects of job satisfaction measures to the impact of other variables on workers' propensities to quit.

A second and important difference between Simon and T-K concerns the long-run consequences of job dissatisfaction: According to Simon, dissatisfaction tends to produce search, which ultimately raises satisfaction. As in the T-K model, satisfaction is increased by movement to a more satisfying job (if a better job is found). But Simon's model also allows the results of job search to influence the utilities which determine whether or not the individual is satisfied with his or her job. Specifically, when search is unsuccessful, the utilities are adjusted so that the formerly unsatisfying job is defined as satisfying, or at least neutral, on the satisfaction-dissatisfaction continuum. We will consider this point at length later, but for now the key conclusion to draw from it is that Simon's model is quite explicit about the role of utilities in provoking search, and of search in revising utilities. The end result is that workers continually move toward increased satisfaction, whether by quitting jobs and taking better ones, or by redefining their utilities so that "bad" jobs become "good."

Both the Thibaut-Kelley and Simon frameworks can be viewed as general cases of the more narrow (but more commonly applied) neoclassical economic model of individual behavior. According to the neoclassical model, individuals select among employment opportunities to maximize their discounted lifetime earnings. In theory, "earnings" include both wage and nonwage benefits of work. But, as will be clear when we consider empirical economic studies, inclusion of nonwage income (including "psychic income") is rare in empirical economic analysis.<sup>3</sup> Because the neoclassical economic model of job quits focuses on maximization of income, it draws heavily on theories of earnings. Human capital theory has provided the dominant neoclassical mode of analyzing earnings in recent years, and thus has provided one of the dominant theoretical frameworks for neoclassical analysis of job quits. Because calculation of returns to investments in workers' productivity is the focus of empirical (if not theoretical) human capital studies, it is not surprising that much of contemporary economists' theorizing about quitting is conceived in terms of workers' and employers' investments in worker training, the flows of income over time produced by those investments, and the extent to which those investments affect the likelihood that a worker's discounted lifetime earnings are maximized

<sup>3</sup>It is difficult to assess a priori the extent to which empirical analyses are damaged by their exclusion of nonwage rewards of work. On one hand, there is a substantial positive correlation between nonwage and wage benefits, and so there is some justification in using wages as proxies for the total package of employment benefits. On the other hand, there is evidence that in some segments of the economy, the "psychic income" from doing socially useful work frequently does as much or more than pay to bind individuals to their jobs (for example, consider the clergy, career military forces, and other occupations in which service to higher principles is a significant motivation factor).

by quitting a job rather than by staying with it. However, it is widely recognized that information a worker needs to act in accordance with the neoclassical model is not free, and so search for information about the location of jobs which maximize a worker's lifetime discounted income provides a second focus of neoclassically oriented studies of job quits. Whatever the differences between search models and investment models, both grow from the same neoclassical economic roots, and these common origins provide a similarity which overwhelms differences between the two. As will be clear when we consider specific empirical and theoretical studies later, the key element of this similarity is the application of neoclassical economic methods to evaluate the optimality of different courses of action, including quitting and staying.

In comparing the neoclassical framework for analysis of job quits to the social psychological framework of Thibaut and Kelley, we are struck by the total absence in the economic model of any analog to the CL, and by the immensely greater development of methods for application of the CLalt.<sup>4</sup> More specifically, the neoclassical economic model lacks any consideration or conceptualization of the extent to which workers are satisfied (in an absolute sense) with their jobs. Rather, the neoclassical model is driven by the evaluation of net benefits of the current job *relative* to net benefits of alternative jobs: that is, it is driven by the CLalt. If Simon is correct in hypothesizing that a shortage of absolute satisfaction precipitates job search, then neoclassical economic approaches to quitting suffer for ignoring the CL. However, the extent of this suffering is very much an empirical question which must be answered by considering the consequences of ignoring the CL in actual quantitative studies of quitting and quit rates.

Another theoretical perspective which has been brought to bear on the analysis of quitting is the theory of games (Luce and Raiffa, 1967). From this viewpoint, employment is a game in which employer and employee are players, and *combination* of actions by *both* players determines the outcomes (gains or losses) of each. Games are zero sum when gains of one player equal losses of the other. Games are nonzero sum when the total amount of gain and loss is not fixed. Nonzero sum games can be cooperative or noncooperative. In a cooperative game, players are allowed preplay communications for the purpose of making joint, binding agreements (Luce and Raiffa, pp. 88-91). Presumably, the joint binding agreements arrange behavior that will produce higher outcomes for both players than could be obtained in the absence of col-

<sup>4</sup>Insofar as the CL and the CLalt are related, the CL has an indirect analog in the economic framework discussed here. The association between CL and CLalt varies empirically, and can be high or low.



lusion. In a noncooperative game, there is by definition no preplay communication.

For present purposes, the game approach stands out from other conceptual frameworks for studying quits because of the symmetry with which it treats the behavior of employee and employer and because of the emphasis it places on the role of bargaining in affecting the outcomes of both players. Whereas the symmetric treatment of employer and employee behavior is not in principle unique to the game approach, in practice it is only in the game analysis of quits that this symmetry is given thorough treatment. For example, general theoretical notions of economics make much of the need to recognize labor market outcomes as the joint solution of labor supply (worker) and labor demand (employer) functions. Yet it is rare to find a neoclassical quit analysis that does indeed take both employer and employee into account with anything approaching analytic rigor.<sup>5</sup> Similarly, the Simon model is part of a general model of organizations, and so its general approach might be expected to place heavy emphasis on *organizational* factors, or on the determinants of decisions and actions taken in the organization's name by its members. However, when it deals with quits, organizational behavior takes a distant back seat to the psychological processes and extraorganizational labor market conditions that influence an individual's decision to quit or not quit.

For example, consider Figs. 1 and 2 from March and Simon (1958) summarizing the major dynamics of the Simon model. Notice that these causal diagrams include virtually no place for organizational response to the individual who is at risk of quitting. Likewise, while Thibaut and Kelley go so far as to adopt the game-theoretic payoff matrix to indicate the gains and losses to members under different behavioral scenarios, their discussion of the decision to leave a group is framed in terms of the cognitive and evaluative processes of an individual facing a predetermined, unresponsive set of alternatives. In T-K's analysis, negotiation (i.e., establishment of preplay binding agreements) does not find much, if anything, of a place in the process that determines whether or not an individual will leave a group. Thus, the game theoretic approach stands out for (1) its emphasis on both employer and employee in the employee's decision to end the employment relationship, and, especially, (2) its explicit consideration of negotiated agreements which make the employment relationship more satisfying

<sup>5</sup>As mentioned earlier, Bartel and Borjas (1977) take the extreme step of arguing that it matters not whether employer or employee dissolves the employment relationship. Thus, they do put equal emphasis on employees and employers, but they do so at the expense of distinguishing between quits and firings, and for that reason, as explained earlier, we find their treatment lacking.

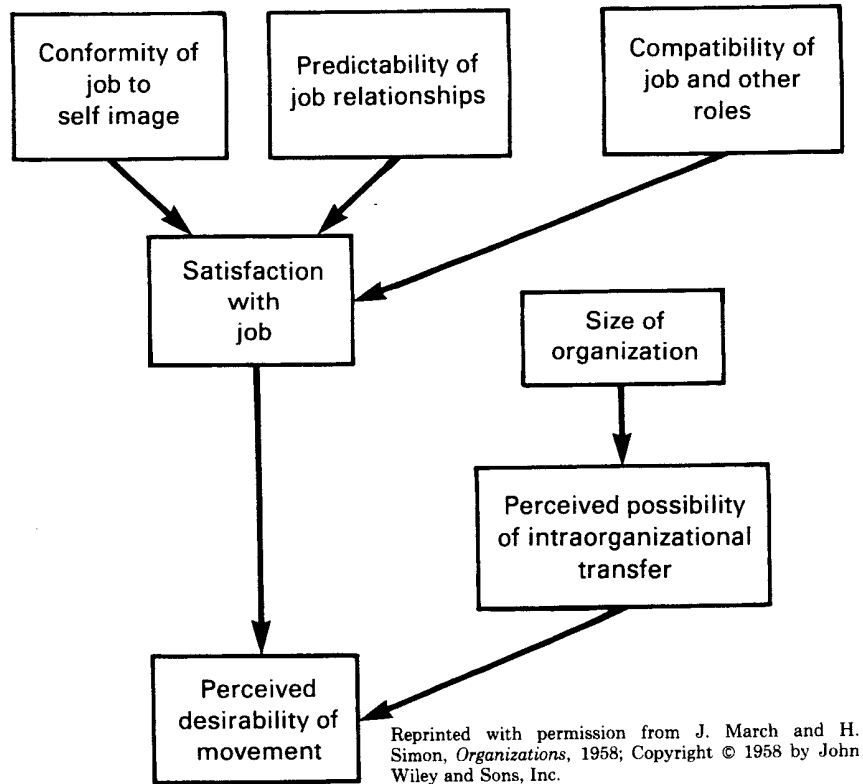


Fig. 1—Major factors affecting perceived desirability of movement

to both parties, and therefore less likely to end in dissolution. However, we find the game approach incomplete as a sole framework for understanding job quits. In particular, while we find the game approach admirably powerful in understanding the optimal behavior of two players in a game characterized by a given payoff matrix, we think that some of the key questions about quitting concern how the payoff matrix is determined for a given employment “game” and which factors lead to changes in that matrix over the course of repeated plays of the game. These factors are addressed by the T-K model and by the Simon model, which gives further consideration to the role of

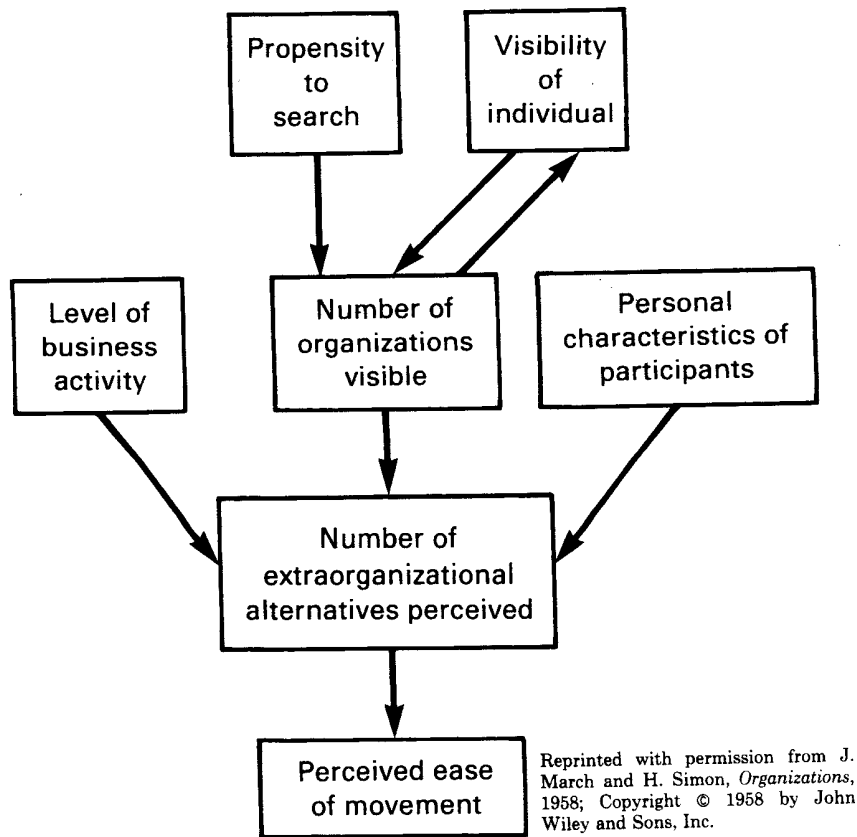


Fig. 2—Major factors affecting perceived ease of movement

unsuccessful job search in altering a worker's evaluation of his or her current job. Similarly, these factors are addressed by the neoclassical economic model, particularly the neoclassical analysis of purely pecuniary factors which affect the payoff matrix for an employment game. The game approach takes the payoff matrix as given, whereas the neoclassical approach shows that the payoffs can be quite complex to calculate, and depend upon a variety of variables that are subject to change (e.g., the discount rate).

In addition, other social science approaches do not integrate well within game theoretic analyses of quitting. So we take from game theory its emphasis on the roles of employers, employees, and the role

of communication between them in affecting quits. We add these features of game analysis to the concepts and propositions that we have found useful in the analytical schema of Thibaut and Kelley, Herbert Simon, and neoclassical economics.

Before going on to discuss empirical studies of quits, we draw on the theoretical perspectives presented in the last few pages to form a framework for organizing those studies. This framework assembles concepts explaining individual behavior from literature on the social psychology of groups, organizational theory, neoclassical economics, and game theory. The core of the framework is Thibaut and Kelley's approach to understanding how people evaluate their membership in groups. Their model embodies a rational cost-benefit analysis of behavior, and its key concepts are the *Comparison Level* (CL), the *Comparison Level for Alternatives* (CLalt), and the *saliency* of various group characteristics to the individual's evaluation of the CL and CLalt. CL determines how satisfied people are with their job, whereas CLalt determines whether or not they leave it. The Thibaut-Kelley model offers less detail on the consequences of these evaluations, and so we add to it an element from Herbert Simon's very similar model of why people leave firms: We hypothesize that while people do not leave a job solely because it has a low CL, a low CL precipitates search for a better job. Further, we adopt Simon's hypothesis that failure of search to provide a better alternative tends to revise an individual's calculus of job evaluation, raising the CL of the present job. Although we find neoclassical economic treatments of quits consistent with the Simon and Thibaut-Kelley models, the neoclassical model lacks several key concepts of the other two perspectives. However, we take from the neoclassical model its well-developed calculus for evaluating the pecuniary costs and benefits of different jobs, and the pecuniary costs and benefits of search for better alternatives to one's present job. Finally, we take from game theory its strong (implicit) emphasis on the interrelatedness of employer and employee behavior in producing job quits. In particular, we focus on the possibility that communication between employer and employee can transform employment into a cooperative venture that lowers the probability of quitting.

This framework allows us to evaluate and organize empirical studies of quitting from the various research domains. In addition, we will use these empirical studies to elaborate and make concrete the broad generalizations which are the basis of the framework developed so far. We begin by considering some key questions about the CLalt, and then move on to consider the comparison level. After that we delve into aspects of quits by members of the U.S. Armed Forces.

## II. VOLUNTARY TERMINATIONS IN THE CIVILIAN SECTOR

In this chapter, we review literature on job terminations in the civilian sector. This literature provides a broad perspective on determinants of quits that permits us to better appreciate the theoretical, conceptual, and methodological contributions of research on military terminations. Our plan in this chapter is to direct our review of civilian job quits to some questions suggested by our theoretical framework. Assuming that workers act rationally in deciding to quit their jobs, the framework developed in the previous chapter implies that a quit occurs only when a worker's present job drops below his or her comparison level for alternative jobs. Thus, it is critical to understand how workers compare their present job and other jobs they perceive to be alternatives to the present one. The first question to ask is "What characteristics of jobs do workers consider when forming the CLalt?" Below, we discuss the job characteristics that have occupied investigators of this question. We then consider whether workers differ in their evaluations of jobs on the comparison level and how workers obtain the information necessary to construct their CLalt.

### CHARACTERISTICS CONSIDERED IN JOB COMPARISON

#### Earnings

Both theorists and applied researchers have long realized that job quality is multidimensional. Yet, in the last 15 years many empirical studies of quits and quit rates have treated pay as the dominant or even exclusive dimension of job quality. For example, job search models, which are as a class the most analytically sophisticated economic models of quitting, almost without exception assume that workers move among jobs solely to maximize their wage rate or expected earnings (see Parsons, 1973, 1977; Lippman and McCall, 1975; Salop, 1973; Stigler, 1961, 1962; Alchian, 1970; McCall, 1970; Mortensen, 1970; Gronau, 1971). (We consider search models in more detail below.) Empirical human capital approaches to quit behavior also focus sharply on earnings as the sole indicator of job quality, in much the same way that more general models of investment look at

financial returns or rates of financial return as indicators of investment quality. (For example, see Parsons 1972; Oi, 1962; Rosen, 1968.)

These emphases may reflect the fact that data on earnings are widely available. However, we are skeptical that wages, earnings, or even expected earnings by themselves can provide adequate indices of job quality: First, even from the monetized viewpoint of economic orthodoxy, a job with unusually high pay may be nothing more than a job with unusually undesirable working conditions, for which there are appropriately large compensating pay differentials. Second, there is much evidence that workers consider a variety of job characteristics in the process of evaluating the quality of jobs and in making job mobility decisions based on those evaluations (see, for example, the review in Mortimer and Lorence, 1979, pp. 1361–67). Finally, there is a significant body of research which suggests that the effect of pay on quitting does not necessarily dominate the effects of other job characteristics, or that the effect of pay may even be spurious. For example, in their industry-level analysis of quit rates in 1963 and 1966, Stoikov and Raimon (1968) find that when business conditions are good, the pay-driven, economic approach to quitting seems to work best, but that when business conditions are slow, pay declines in influence, and other factors such as establishment size and unionism become more important determinants of quit rates. Freeman (1980) finds statistically significant effects of unionism, but does not find statistically significant effects of wage rates on the probability of quitting by men in the well-known National Longitudinal Survey (NLS) Older Males sample data set (these studies get closer attention below).

Some analysts who assert a relationship between quits and pay claim the reverse causal direction for this association, arguing that quit probability causes wage rates (Eagly, 1965; Behman, 1964, 1968, 1969), or that quit rates and wage rates both affect each other (i.e., are simultaneously determined) (Parsons, 1973; Pencavel, 1972; Salop, 1973b). At the heart of these “reverse causation” arguments is the observation that when employees quit, they take with them the training, recruiting, and related investments made in them by their employers. To combat excessive loss of these investments, a rational employer would pay employees with a high quit probability (and consequent short expected tenure) at a lower rate than otherwise equivalent employees with a low quit probability (and consequent longer expected tenure).

While we find tenable the argument that quit probability (and therefore quitting) affects pay rates,<sup>1</sup> we do not find it any more compelling

<sup>1</sup>It is possible that the link between quit probability and wages is more complicated than other analysts have assumed. For example, assume that an employer incorrectly

than the argument that pay affects the probability of quitting. Consequently, we think there is ample reason to be skeptical of any test of the impact of pay on quitting (or of quitting on pay) which does not allow for the endogeneity of *both* variables. As is well known, failure to allow for simultaneous causation among variables which are, in fact, simultaneously determined, produces biased empirical findings. Unfortunately, only one study has taken a simultaneous equations approach to the relationship between quitting and wages (Pencavel, 1972), and it involves an aggregate level analysis marred by questionable instruments. (A simultaneous equation model by Kahn, 1977, does not allow for reciprocal causation between pay and quitting, although it does demonstrate the importance of recognizing reciprocal causation among other employment variables.) So while pay undoubtedly affects quitting, available evidence suggests that the relationship between pay and quits is probably reciprocal, and that failure to include nonpecuniary factors along with pay in an analysis will probably overestimate the effect of pay on quits.<sup>2</sup>

### Security

A second job characteristic which often plays a significant role in empirical and theoretical models of quitting is job security, or its inverse, the probability of being laid off or fired. From a purely financial standpoint, job loss or layoff has the undesirable consequence of interrupting the flow of earnings from employment and, simultaneously, forcing workers to incur the expense of search for new employment. When the lost job involves "worker-financed" investments in firm-specific human capital or pay-affecting seniority, then job loss involves long-term reductions in earnings flow, even for workers who immediately locate new employment without incurring search costs.<sup>3</sup> From the perspectives of sociology and psychology, the

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believes a certain worker to have a high probability of quitting, and pays that worker low wages, which in turn induce the worker to quit soon. The wage rate has induced the quit: Yet, if this situation were enacted often enough to allow regression of pay on quit probability, results would be consistent with the argument that high quit probability induces low wages.

<sup>2</sup>This conclusion begs the question of why so many researchers have used pay alone to measure the goodness of jobs in search and quit models. Although this inquiry cannot answer this question completely, we can speculate that pay is attractive because of its conceptual clarity and because measures of pay are readily available in existing data sources and have attractive measurement properties.

<sup>3</sup>It is possible that laid-off or fired workers find new jobs that are better paying or otherwise superior to their old jobs, but while job loss may be fortuitous for some workers, we are unaware of empirical research that indicates that any but a minuscule fraction of laid-off or involuntarily terminated workers have benefitted from their job loss.

consequences of layoff or firing appear to be even more detrimental: Psychological stress is increased, patterns of time use are distorted, and social relations are disrupted (for a review of these and similar consequences, see Brenner, 1973).

Given the generally undesirable consequences of job loss, workers would seem to have ample reason to prefer a job with low loss probability to an otherwise equivalent job with higher loss probability, and to quit a less secure job to take an otherwise equal, more secure job, should the opportunity arise. Accordingly, risk of layoff or firing is a determinant of the likelihood of quitting (see e.g., Burdett and Mortensen, 1980).<sup>4</sup>

Another plausible link between quitting and job security comes from Simon's work. Simon offers two propositions: First, he argues that a worker's desire to remain an employee of an organization varies directly with the degree to which he perceives the organization to be attached to him. Thus, the greater the layoff or firing rate in an organization, the greater the desire of its employees to quit. Second, Simon argues that workers' perceptions of their ability to leave an organization vary with their perceptions of job opportunities in other organizations. Thus, the greater the layoff and firing rates in other organizations, the less likely workers will be to quit their present jobs. Stoikov and Raimon (1968) have seized on the first argument, but not the second, and, in cross-sectional, industry-level analysis have found the expected positive effect of layoff rates on quit rates. Without making explicit reference to Simon, others have seized on the second hypothesis and have found inverse correlations between quit rates and layoff rates over time (Burt, 1963, p. 81). Burton and Parker (1969) have joined the two hypotheses into an argument that the inverse quit-layoff correlation is the result of workers' extrapolations from economic conditions within their own firms to the availability of jobs at other firms. Stoikov and Raimon, Burton and Parker, and Burt report empirical results consistent with their arguments, though not with each other's.

However, we find none of these empirical analyses terribly convincing. Leaving aside the serious problems of cross-sectional studies aimed at elucidation of dynamic processes (Stoikov and Raimon, Burton and Parker), or of industry studies designed to test hypotheses

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<sup>4</sup>An economist might conceptualize this argument slightly differently: Because risk of job loss is undesirable, there must be a compensating wage differential for it. Therefore, two jobs which differ in their loss probability but not in their money wages do, in fact, differ in their total compensation, since part of the money wage in the high risk job merely offsets the risk of loss, while the money wage in the low risk job is not offsetting risk. As discussed above, the job with lower compensation is expected to have a higher quit probability.



about individual or firm-level mechanisms (Stoikov and Raimon, Burton and Parker, Burt), we think that all of these empirical tests have suffered from an inability to distinguish between layoff rates in general and layoff rates in the employee's firm. Not only does Simon reasonably hypothesize opposite effects of these two rates on quitting, but there is strong reason to believe that these two rates may be correlated sufficiently for one to stand as an inadvertent proxy for the other. To see this positive correlation between firm-specific layoff rates and layoff rates in wider segments of the economy, note that economic conditions affecting the demand for labor in one firm or industry are related to conditions affecting demand for labor in other firms or industries. Thus, when layoffs are high in general, they also tend to be high in a given firm, other things being equal. Because layoff rates in general are an aggregation of layoff rates in specific firms, the layoff rate in any particular firm is a component of the more general rate. The normal and obvious solution to this problem would be to perform a multivariate analysis which includes both firm-specific and industry-wide or economy-wide layoff rates. If Simon were right, the firm-specific layoff rate would have a positive effect on the quit rate, and the economy-wide or industry-wide layoff would have a negative effect on the quit rate. In any case, such an analysis has not been done, probably because of the difficulty in obtaining the necessary data, and so we are left with a set of contradictory empirical studies, each unsatisfying in its own right.

Another issue concerning the relationship between layoffs and quits is the direction of causality between them. Barth (1971, p. 453) argues that firms needing to cut back their work force plan for a certain number of employee terminations per time period and that the difference between the number of quits and the number of needed terminations in a period becomes the number of employees who are laid off, implying that quits have a negative causal effect on layoffs. Barth reports negative coefficients for the quit rate in 21 industry-specific time series models of the layoff rate (pp. 456-459). Making similar arguments at the economy-wide level of analysis, Parsons (1977, p. 205) concludes that quits and layoffs are inextricably intertwined and that an analysis is needed that treats quit and layoff rates as interdependent. At the individual level of analysis, the human capital perspective suggests that an employer wishing to preserve an investment in workers would tend to lay off first those workers with the highest probability of quitting, since quitters would take the firm's investment with them anyway. (In other words, the expected return on investment in those likely to quit is lower than the expected return on investment in those unlikely to quit.) On the other hand, employees too have a

share in their firm-specific human capital, and this investment motivates them to stay in the firm (i.e., to not quit). But this motivation is weighted by their expected probability of not being laid off, since layoff terminates the income flow from their firm-specific investment. In sum, then, there is reason to believe that quit probabilities partially determine layoff probabilities and that the relationship between them may involve causation in the opposite direction too.

### **Advancement Opportunities**

Another factor which has been hypothesized to play a part in workers' decisions to quit or not quit is the extent to which their present job offers advancement possibilities. Twenty-five years ago, Arthur Ross (1958, pp. 914–915) reasoned that large firms tend to have low turnover rates “probably because of abundant opportunities for promotion and transfer.” Burton and Parker (1969, p. 205) reason similarly. Using cross-sectional industry-level data from 1960, Burton and Parker estimate multiple regressions that confirm the expected negative effect of firm size on the quit rate in some models. However, these models produce the opposite effect when expanded to include effects of the layoff rate and other industrial characteristics on the quit rate. In general, the predicted negative effects are not statistically significant in these expanded analyses, and the unexpected positive effects are statistically significant at the 0.01 level. Stoikov and Raimon (1968) find negative coefficients for establishment size in their cross-sectional analyses of quit rates based on 1963 and 1966 industry-level data. However, the coefficient for 1966 is not significant even at the 0.20 level in these analyses, and the statistical model is much like the Burton and Parker models that produced negative size effects, but then flipped to larger, positive effects when additional industrial variables measuring wage and employment rates were added to the analysis.<sup>5</sup> Thus, empirical evidence on the effect of firm size on quit rates is not consistent. Further, these studies were done at a time when only cross-sectional, industry-level data were available. And while such data are better than no data at all, they can be misleading, and have been superceded by longitudinal microdata. So we do not think that there is much trustworthy empirical evidence on the effect of firm size on quit rates.

Perhaps more important than the lack of empirical evidence on the effect of firm size on quit probability is our skepticism that firm size or

<sup>5</sup>Some of the reasoning behind Stoikov and Raimon's inclusion of firm size in their analysis is very similar to Ross's hypothesis and seems reasonable. But some seems tenuous to us, especially their conjecture that the opportunity for nepotism plays an intervening role in the link between firm size and propensity to quit.

establishment size is a strong indicator of advancement possibilities. It can be argued, for example, that advancement opportunities are determined less by an organization's size than by the rate at which the organization is growing, the rate of turnover in its middle- and upper-level positions, and the extent to which success in higher level positions requires experience in lower levels of the same organization.

If, as we suggest, organizational size probably does not measure advancement opportunities, we can still draw two conclusions from studies which attempt to use size to measure the effects of these opportunities on quitting: First, we think it would be worthwhile to properly measure the effects of chances for advancement on quitting. The reasoning underlying these hypothesized effects seems sound, and we suspect that more aggressive, independent individuals—the kind that are likely to be the most valuable to any organization—may be more affected by advancement opportunities than more plodding workers. Second, it is probably worthwhile to devote both thought and empirical research to the reasons why size variables have shown some effects on industrial quit rates.

### **Dispute-Resolving Mechanisms**

One need not go far to find links between organizational size and certain mechanisms which seem to be related to quitting. In a recent paper (Stolzenberg, 1978), we review the empirical and theoretical literature which relates organizational size to organizational structure. In that paper, we conclude that size stands as an effective proxy for a number of interrelated dimensions of structure, including formalization and bureaucratization, both of which bring regular, formalized mechanisms for resolving disputes between workers, and between workers and their supervisors. In a recent application of Hirshman (1970), Freeman (1980) argues that dispute-resolving mechanisms lower the quit rate in two ways: First, these mechanisms are time-consuming, and so, even when ineffective in stopping disgruntled employees from departing, they slow down the rate at which dissatisfied workers leave the firm. Second, these mechanisms succeed in resolving some disputes, and therefore abort a certain number of quits by alleviating the employee's motivation to leave the firm.

Thus, to the extent that size is a cause of, or even just a proxy for the presence of, dispute-resolving procedures in an organization, we expect that employees of large organizations will have a lower quit rate

than employees of small organizations, other things being equal.<sup>6</sup> An alternative hypothesis is that big organizations are more stable than smaller ones, and that this stability tends to attract risk averse workers to large firms. If risk aversion includes a distaste for change, as we expect it does, then one would also expect that bigger employers tend to attract workers who are intrinsically less quit-prone than smaller employers, other things being equal, and that this attraction alone would create a firm-size differential in quit rates.

### **Fringe Benefits**

Although he discusses grievance mechanisms, Freeman's (1980) major concern is unionism. His basic argument is that unions virtually always establish grievance procedures, and these procedures foster cooperation between worker and boss which saves employers money by lowering the quit rate. In arguments that are more elegant, more general, and less concerned with unions, Mortensen (1970; see also Burdett and Mortensen, 1980; and Azariadis, 1975) makes related claims. Mortensen suggests that any mechanism which fosters cooperation between employer and employee reduces the quit rate. To Mortensen, cooperation is behavior that employer or employee would engage in if involved in a cooperative game. That is, cooperation is behavior that maximizes the joint wealth of worker and employer. Cooperation of this sort need not be conscious, volitional, or formalized, as, for example, in the workings of a grievance committee. Drawing on game theory and mathematics, Mortensen argues that certain fringe benefits foster cooperation. In particular, cooperation is fostered by fringes already earned which would be lost if the worker quit, such as accrued vacation time, seniority rights, pension benefits, and sick leave. Mortensen argues that workers who lose nothing by quitting tend to act as if their departure from the firm were costless to their employer, whereas rational workers who lose something by quitting act as if they take into consideration the costs of their termination to the organization they are leaving, and so are less likely to quit than workers who would not suffer these losses.

While Freeman and Mortensen both conclude that unionism reduces quits, they differ somewhat in their assessment of how this reduction is accomplished: To Freeman, unionism opens up communications between worker and boss, helping the two to find grounds for

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<sup>6</sup>As we point out elsewhere (Stolzenberg, 1978), the relationship between size and the structural dimensions likely to affect the presence of dispute-resolving mechanisms is logarithmic, and so one would expect a logarithmic relationship between size and the quit rate, or size and the length of tenure.

agreement. To Mortensen, unionism establishes fringe benefits contingent on continued employment, fringes which induce workers to act *as if* they gave consideration to the costs to their employer of their departure from the firm. Mortensen seems to presume the communications that Freeman emphasizes, and Freeman is too concerned with empirical evidence of the effect of unionism on quits to get deeply involved in the stuff of Mortensen's analysis. The two perspectives are quite compatible and share a common prediction that unionism reduces quits, a common problem of insufficient data to test their hypotheses about the exact ways in which unionism accomplishes this, and a common confidence that an employer could reduce quits without a union if he would do what unions do to alter channels of communications or incentives for cooperating between employee and employer.

The nonwage benefits emphasized by Mortensen are accrued during employment in one time period, but are not paid unless employment is continued into another time period. Nonwage benefits without these employment contingencies include life and health insurance, credit union membership, company automobiles, vacation opportunities, memberships in clubs and buying services, and so on. Some of these options (e.g., health insurance) have become standard conditions of employment in many industries and occupations whereas others are limited to a few sectors or even to a few individuals within an industry, firm, occupation, or job category. Because these benefits are substitutes for goods and services which can be purchased on the open market and carry no contingencies with them, we suspect that they are properly treated as "ordinary" earnings. Benefits of this sort are not taxed, so it probably makes sense to evaluate their worth to the employee at the number of pretax dollars that would have to be earned to pay for comparable benefits on the open market. However, because these services are usually selected by the employer and therefore differ somewhat from the exact mix of benefits that the employee would select, a downward adjustment in the dollar value of these services is appropriate too. The exact size of this downward adjustment is impossible to estimate without direct measurement of employee tastes. We know of no data which contain such measures, and the best we can hope is that errors introduced by failure to adjust for the tax-free status of noncontingent benefits balance errors in the opposite direction introduced by failure to adjust for differences between the employer's and the employee's choice of benefits. In any event, we expect noncontingent benefits to act as wages and to affect the probability that workers quit, much the same as money earnings would be expected to affect quit probabilities.

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### **Amenities, Conveniences, Psychological Rewards and Working Conditions**

Although it seems reasonable that workers prefer jobs with more amenities and conveniences, greater psychological rewards and better working conditions to otherwise equal jobs with lower levels of these characteristics, there is not much sound evidence on the role of these work attributes in employees' decisions to quit or not quit their jobs. The evidence that exists on this subject must be deduced from research aimed at subjects other than quitting, or from surveys indicating that many workers give only secondary consideration to money in deciding whether to leave their job to take another.

If workers do not change jobs for money, current practice is to presume that features of their job besides wages (or nonwage benefits which could be purchased with money) are sufficiently important to keep them from moving. For example, Rees (1966) reports that blue-collar workers tend to make decisions regarding job search on the basis of nonpecuniary factors. Reporting findings from the 1966 wave of the NLS Older Males sample, Parnes et al. (1974, p. 81) write that 39 percent of whites and 37 percent of blacks say that they would not take another job in the same line of work as their present job, no matter how much they could raise their wage by doing so. To us, the prospect of large proportions of the labor force turning down *any* offer of higher pay, regardless of how high, is not credible without further documentation and elaboration. For the survey findings reported by Parnes et al. to be believable, we think it necessary to assume that respondents engaged in hyperbole, or that they presumed that the survey question contained an unstated assumption that no offer they might receive would pay much more than the normal wage range for their current occupation.<sup>7</sup>

With or without these assumptions, it seems that respondents to the NLS were at least attempting to communicate that pay and the things that money buys were not the main criteria they used to compare other jobs to their current job. If we assume that there is a level of pay which is both "reasonable" and sufficient to compensate for the financial impacts of any likely amount of insecurity, lack of nonwage fringe benefits, and/or any shortage of advancement opportunities, then the Parnes et al. finding leaves us with the conclusion that the workers feel that the amenities, the conveniences of established habit, and the psychological rewards of established social relations that one builds into a job over time are important inputs to workers' decisions to leave

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<sup>7</sup>It is possible that this pattern of responses indicates that substantial numbers of respondents did not understand the question.

or keep their present jobs. Consistent with this reasoning is Rees's (1966, p. 562) suggestion that "the presence of a friend in the plant may be an important 'fringe benefit,' making the job more attractive to the worker at no cost to the employer." Similarly, one might regard the convenience of a particular job to its incumbent's family as a factor influencing the probability that the incumbent quits. Following this line of reasoning, David (1972) conceptualizes quit and relocation decisions as products of workers' family as well as work situations. Unfortunately, David's empirical analysis, based on the Panel Study of Income Dynamics, is marred by arbitrary restrictions of sample composition and by statistical models which contain too many variables to be useful, in our opinion.<sup>8</sup>

There is a large literature of psychological research on the effects of job satisfaction on voluntary terminations, and one would expect that it would give additional, more systematic insight into the effects of amenities, working conditions, conveniences, and psychic rewards of a job on its incumbent's probabilities of quitting.<sup>9</sup> Although this work tends to show a modest correlation between job satisfaction and voluntary terminations, nearly all of its findings are based upon bivariate (zero-order) correlations. Given the obvious complexity of employment decisions and the longstanding, commonplace use of multivariate analysis in social and psychological research, it seems appropriate to describe most of these analyses as too simple to be useful for present purposes (see Mobley et al., 1979, for similar complaints).

Although most students of job satisfaction have not produced detailed models of the effects of job satisfaction on the decision to quit, they have considered the satisfaction-quit nexus to explain perplexingly high levels of satisfaction, particularly among incumbents of jobs that these researchers consider dull, brutish, and nasty.<sup>10</sup> From the perspective of the job satisfaction researchers, quits are highly relevant to satisfaction. Cherns and Davis (1975, p. 15) argue that workers tend to report in surveys that they like their jobs because workers who are not

<sup>8</sup>In somewhat related analyses, Tuma and Smith-Donals (1980) examine the interrelations among husbands' and wives' decisions to enter and leave employment. The relevance of their analysis to present concerns is limited by their use of data from the Seattle and Denver negative income tax experiments and by the fact that quits are discernible in their analysis only if respondents quit to become unemployed. Tuma and Smith-Donals conclude tentatively (p. 54) that they find "little evidence that a spouse's employment tends to lower a family head's rate of entering employment and to raise his or her rate of leaving employment." Pencavel (1979) presents analyses of similar phenomena with related data.

<sup>9</sup>Detailed reviews of this psychological research are to be found in Mobley, et al. (1979) and Schuh (1967).

<sup>10</sup>For an insightful review of this literature, see Gruenberg (1980, pp. 247-255).

immediately satisfied with their positions and those who cannot adapt, "leave and are not there to be measured."<sup>11</sup> Whether or not reported levels of job satisfaction are *unreasonably* high, Cherns and Davis's argument suggests to us that researchers wishing to understand job satisfaction should gather longitudinal data in which workers' contentment with their jobs is assessed shortly after they are first hired and again at repeated intervals, up to and including the time of their departure from the organization. This type of research design would serve our own interest by providing better data for understanding the effects of job satisfaction on quitting, and it would also provide students of job satisfaction with data directly relevant to their own concerns, and which avoid some critical failings of the cross-sectional data they typically use to test and develop their hypotheses.<sup>12</sup>

Unfortunately, to the best of our knowledge there are no detailed longitudinal analyses of the effects of job satisfaction on quits. However, the empirical results of Freeman's (1980, p. 653) inclusion of a single overall job satisfaction measure in his logistic models of quit probability<sup>13</sup> suggest significant effects on quitting of various psychological rewards, amenities, conveniences, and working conditions that are the components of job satisfaction measures. We do not now have any empirical basis for disentangling the effects of these job characteristics on workers' quitting. Further, and probably even more relevant, we think that efforts to explain voluntary terminations with job satisfaction data are missing a key point about the role of dissatisfaction in generating job quits: As Thibaut and Kelley pointed out,

<sup>11</sup>Recall our earlier discussion of Simon's suggestion that workers who are dissatisfied with their jobs seek other employment. When efforts to leave the unsatisfying jobs are unsuccessful (or are judged likely to be unsuccessful), Simon hypothesizes that workers adjust their utilities so as to define their job as acceptable. Cherns and Davis appear to be making a very similar argument.

<sup>12</sup>In technical terms not used by job satisfaction researchers, the departure of unsatisfied workers from their unsatisfying jobs implies that cross-sectional samples of employees will tend to be censored. That is, the probability that an individual appears in the sample is a function of his or her level of satisfaction. At the most obvious level, censored sampling provides biased estimates of the means and standard deviations of satisfaction and of variables correlated with satisfaction, a problem which has been recognized in the job satisfaction literature. Slightly less obvious is the fact that censored sampling can, and frequently does, severely bias regression estimates of the determinants of the censoring variable. A point not recognized in the job satisfaction literature is that this censoring bias casts into doubt the analytic findings of virtually all analyses of job satisfaction and its consequences which are based upon cross-sectional (and therefore censored) job satisfaction data. For a full discussion of censoring, see Heckman (1980).

<sup>13</sup>Using data from the NLS Older Males sample, Freeman found statistically significant, and substantively large, effects of job satisfaction on quitting net of union membership, log earnings, years of schooling, age, tenure, and variables representing the existence of a retirement plan, industry, occupation, race, number of dependents, region, size of local labor market, and rate of unemployment in the local labor market.



one may be happy or unhappy with membership in a group, but one does not leave the group unless the alternatives are better. In other words, we feel that this literature focuses on the comparison level, but should instead be focusing on the comparison level for alternatives. Surely there is a correlation between the CL and the CLalt, but that unmeasured correlation only tells us that a large literature dwells at great length on a concept that is related to a more relevant concept that it ignores.

## **JOB VALUES AND WORKER DIFFERENCES IN JOB EVALUATION**

In the above discussion, we considered some of the dimensions along which workers compare their current job to alternative jobs. In brief, we found reason to believe that a variety of job characteristics go into these comparisons. Although pay is indisputably one characteristic, we believe it has been overemphasized in many empirical studies of quitting, while other characteristics have been ignored. We found that quantitative studies of the impact of job characteristics on quit probabilities have to deal with the strong possibility that some of these job characteristics are themselves endogenous and may be both causes and consequences of the likelihood that an employee will quit. And, finally, we noted that this literature has often focused on the CL when the CLalt is the concept that relates job satisfaction to voluntary turnover.

In this section, we consider workers' reactions to the whole range of a job's characteristics (their CL) and how these assessments and decisions to quit a job differ between workers. There is a long tradition of thought and research that postulates or examines worker differences in the subjective evaluation of jobs. In applied studies as well as at the most general level of abstraction, the predominant, though not exclusive, conclusion of this tradition is that workers differ in their evaluations of jobs, and that jobs that are acceptable to some individuals are unacceptable to others. Some of this research views differences in evaluations as resulting from individually held *values*; other research emphasizes *demographic* differences between workers as important in job evaluations.

### **Value Differences in Job Evaluation**

The intellectual roots of studies of worker value differences go back at least to the classics of modern sociology. For example, the Weberian view that social behavior (including work behavior) is

socially rather than objectively evaluated (Gerth and Mills, 1946, p. 58) is the basis for studies by Goldthorpe et al. (1969), Beynon and Blackburn (1972), Russell (1975), and Kalleberg (1977), all of which attempt to understand workers' reactions to their jobs by comprehending the values and needs that they bring with them to their work. To the extent that these values and needs differ from one worker to another, the reactions of different individuals to the same job conditions will vary. While less consciously Weberian, Morse's (1953) early work (and that of others who follow Weber more or less directly) is consistent with this viewpoint as well. Gruenberg (1980) points out that Morse's point of view is also consistent with the Durkheimian notion that the definition of experiences as good or bad (and thus satisfying or unsatisfying) is often a reflection of social constructions which have little basis in objective fact (Durkheim, 1951, p. 249). This Durkheimian conception is consistent with well-known work by Dubin (1956) and Blauner (1964), all of whom focus on the role of groups in socializing individuals to values which do or do not define their work and working conditions as satisfying. Other studies which are less grounded in Durkheimian and Weberian notions have given considerable attention to the ways that psychological differences between individuals lead them to select occupations with very different characteristics (see, for example, Hall, 1975, Ch. 3; Rosenberg, 1957; Davis, 1965; Holland, 1976; Mortimer and Lorence, 1979; Blau et al., 1956), and to evaluate occupations with the same characteristics very differently (see, for example, Kahn, 1972; Belcher and Atchison, 1976; Lawler, 1973). In general, this literature leads to the conclusion that individuals attempt to select occupations with characteristics that are reasonably consistent with their work values.

In contrast to arguments that workers try to select occupations that fit their values, there are longstanding arguments that the employment experience molds workers' values to be consistent with the demands and working conditions of their job (White, 1952; Hughes, 1958; Moore, 1969; Kanter, 1977; Kohn, 1978).<sup>14</sup> Kohn's argument that characteristics of the job mold workers' values is especially persuasive because it is supported by a set of studies impressive for their methodological rigor and consistency of findings over settings. Yet it strikes us as a false contrast to pit the occupational selection hypothesis against the occupational molding hypothesis—surely individuals can select occupations which are consistent with their values *and* have those values

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<sup>14</sup>As Gruenberg (1980) points out, the occupational molding hypothesis is consistent with Marxian theory. However, the consistency is only sometimes self-conscious, and it would be a mistake to characterize this viewpoint as Marxian, as Gruenberg does, since it can be derived from a variety of theoretical perspectives.

molded further by the jobs they hold (see Mortimer and Lorence, 1979). Because values tend to be stable in the short run, we expect that the effects of values on occupational choice will dominate short-run analyses, and that the effect of occupational characteristics on values and other psychological traits will show up only after reasonably long-term exposure to occupational demands and working conditions.

Thus, we would expect that a certain amount of rapid job turnover results from individuals' discoveries that they have selected *occupations* which do not fit particularly well with their job values. In such cases, there would not seem to be much chance that a different job in the same occupation would prove much more satisfying than the current job, and quitting the current job would be merely a necessary condition for moving to another occupation. However, the gradual molding of individual work values toward consistency with occupational tasks and working conditions suggests that individuals who quit their jobs after longer tenure do so not because their values are inconsistent with their occupation, but because they seek a job which is even more consistent with those values than the current job.

Unfortunately, not enough is known about work values to provide a detailed classification of the extent to which individual occupations appeal to each of a reasonably complete set of occupational value dimensions. The problem lies mostly with our knowledge of work values. Attempts to move beyond a very rudimentary schematization of occupational values tend to vary greatly with data examined or the analyst examining them.<sup>15</sup> It does appear useful to distinguish between values pertaining to extrinsic aspects of work, such as the pay and prestige that it offers, and values pertaining to the intrinsic features of employment, such as the satisfaction that comes from doing a job well. Although we know that some workers are oriented more toward intrinsic job dimensions and that other workers are oriented more toward extrinsic job dimensions, we know of no empirical research that usefully ties these value differences to job quitting.

### **Demographic Differences in Job Evaluation**

There is a significant body of literature which considers demographic differences in worker quits as a response to job characteristics. Perhaps the most developed segment of this literature concerns race differences in quit behavior. In 1968, Stoikov and Raimon applied Simon's framework for understanding quits and reasoned that blacks

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<sup>15</sup>Compare, for example, the work of Holland (1976), Kohn (1978), Kalleberg (1977), Gruenberg (1980), and Mortimer and Lorence (1979).

should be less quit prone than whites because discrimination reduces black workers' alternatives to their current job, relative to alternatives available to workers (p. 1288). Stoikov and Raimon's industry-level regression analyses are consistent with their reasoning. Studying the Coleman-Rossi life history data, Sorensen (1975, pp. 468-69) finds that on average black men have fewer jobs and hold them longer than whites. Sorensen's method focuses on voluntary job terminations, and he finds evidence that whites' quit rate is more sensitive to economic conditions than blacks' rate. Ornstein (1976) produces similar findings with the same data. In a later analysis of the Michigan Panel Study of Income Dynamics (PSID) data, Sorensen and Fuerst (1978, p. 550) also report a higher quit rate for whites than for blacks, but in addition they report that blacks are more likely than whites to express an *intention* to quit. Consistent with Stoikov and Raimon's reasoning, Sorensen and Fuerst suggest that blacks' lower actual quit rate is the result of their relatively poorer opportunities for job change which reduce blacks' abilities to realize their intentions. Sorensen and Fuerst also find that blacks and whites differ in the impact of education and income on both actual quitting and quit intentions.

However, many analysts have expected higher quit rates for blacks than for whites, or have *presumed* that blacks are more quit-prone than whites. For example, Flanagan (1978, p. 191) offered the following "learning hypothesis" to explain why young blacks are more likely to quit than comparable whites: "if workers begin with imperfect knowledge of the wage distribution for their skill, and if additional knowledge of the distribution is produced jointly with work experience, quitting will be more probable among workers who discover that their wage is relatively low in the market distribution." According to Flanagan, young blacks underestimate discrimination and therefore overestimate their wage potential and quit more often than whites in the early years of their careers, although these differences do not appear to be large (p. 198). Parsons (1972, p. 1130) reports (without supporting evidence) "common conceptions" of employers that blacks have higher turnover rates than whites. Michael Piore (1975) makes related arguments.

Some recent research stands in contrast to the vast majority of researchers who consider racial differences in quit rates. Blau and Kahn (1981) utilize the National Longitudinal Surveys (NLS) of young men and women to examine race differences in quitting. Blau and Kahn report that blacks and whites have approximately equal quit rates, and, surprisingly, that blacks tend to quit less frequently than whites with comparable personal characteristics other than skin color. The Blau and Kahn study is probably the most methodologically sound

study to date of race differences in quitting among the general population. Thus if research on race differences in quitting were to be summarized in a word, an appropriate word would be "inconsistent."

It does not seem difficult to resolve inconsistencies among these studies. To make this resolution, we place considerably less weight on findings based on aggregate-level analyses, such as Stoikov and Raimon, because aggregate studies are well known to be unreliable and misleading guides to individual behavior. Second, we discount studies which do not take care to hold constant the effects of quit-related variables other than race (e.g., Parsons, Flanagan). Thus, we are left primarily with Sorensen's work and Blau and Kahn's study, both of which lead to the conclusion that blacks and whites have roughly similar (though not necessarily identical) quit rates, but that these rates are produced by different relationships among personal and job characteristics. The key implication of this conclusion is that policies designed to lower quit rates are apt to affect differentially quit rates of blacks and whites, unless those policies explicitly account for race differences in the determinants of quitting.

Gender is a second demographic factor which is held to have significant impact on the extent to which workers quit in response to their job or personal characteristics. Stoikov and Raimon (1968) expect sex discrimination to limit job alternatives of female workers, thereby lowering their quit rates. They also expect that family responsibilities induce more quits among women than men, however, and that the similarity of "women's work" across a wide range of employers allows female workers to switch employers particularly easily, thereby producing more quits to take new jobs by women than men. We are skeptical that occupational discrimination makes anything easier for its victims, and we are especially hard-pressed to understand how employment discrimination might facilitate job mobility of women without doing the same for blacks. So we doubt Stoikov and Raimon's reasoning that occupational discrimination facilitates job mobility of women, and we find their thoughts on quitting by women inconsistent with their own ideas about the causes of quitting by blacks.

In contrast to Stoikov and Raimon, most literature on sex differences in quitting suggests higher quit rates for women than for men. Parsons (1972, p. 1130) cites "common conceptions" that women are more quit prone than otherwise comparable men. An analysis of sex differences in earnings by Landes (1977) attributes much of the relative wage differential between men and women working in the same occupation to sex differences in turnover, but there are certain prob-

lems with this analysis.<sup>16</sup> A study of labor force decisions of married female teachers by Graham (1973) takes the high quit rate of women workers as given, and suggests that female turnover is misunderstood if part-time and full-time employment are not distinguished. Her sample is so specialized that her statistical analyses are little more than anecdotal, however. Armknecht and Early (1972) argue that during the 1960s, women workers stopped drawing the total labor force quit rate upwards and instead started pulling the rate down, as a result of fundamental changes in female quit behavior. Barnes and Jones (1973) criticize this conclusion and argue instead that men and women workers have always differed in the response of their quit behavior to changes in the business cycle, with male quits rising relative to female quits when unemployment falls. More generally, Barnes and Jones argue that women quit to leave the labor force more often than men, due to sex differences in the exigencies of human reproduction. Like Stoikov and Raimon, Barnes and Jones expect that employment discrimination against women limits job alternatives for employed females, leading to fewer quits to assume new jobs by women than by men. Thus, while they seem to be unaware of research on the relationship between birth rates and business cycles (see, e.g., Easterlin, 1978), one can jump from Barnes and Jones' critique to the conclusion that the business cycle affects female quit rates by affecting the fertility decisions of women, which in turn affect the rate at which women quit their jobs to exit the labor force and raise babies. In a better-known piece, Barnes and Jones (1974) use establishment and household data to distinguish between quits to exit the labor force and quits to take another job. They find that women quit more often than men to exit, while men quit more often than women to change jobs. Women quit more often, in any case, and men's quit rates have greater variance than women's, they argue.

By current standards, there are only two studies of sex differences in quitting which are thorough and analytically sound (Blau and Kahn, 1981; Viscusi, 1980). Both of these studies use cross-sectional data from large national samples as input into maximum likelihood analyses of quit probability. Viscusi uses the Panel Study of Income Dynamics, whereas Blau and Kahn use the young men and young women samples of the equally well-known National Longitudinal Surveys of labor market experiences. Viscusi uses logit analysis; Blau and Kahn use

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<sup>16</sup>Among the problems in this study are: the use of a turnover measure which confounds the effects of sex differentials in morbidity (and therefore work absences) with sex differentials in job turnover, the use of microdata to perform aggregate level analysis to test microlevel hypotheses, and a confounding of occupational and employer-related phenomena (p. 527).

probit analysis. Both find virtually the same thing: Sex differences in the probability of quitting a job are not due to differences in how workers respond to a given set of job conditions, but to differences in the job conditions to which men and women are exposed. Indeed, both studies lead to the conclusion that if men and women were in the same types of jobs, women would have a *lower* rate of voluntary job termination than men. Needless to say, these studies fly in the face of prior literature on sex differences in quitting, but Viscusi's and Blau and Kahn's work are superior to prior work. These two studies are consistent with each other, so that we think it reasonable to ignore prior findings and to accept in their place the finding that women's jobs, not women's response to their jobs, produce higher quit rates for females than for males.

We now turn our attention to age, a demographic variable that figures prominently in literature on job quitting. Three basic viewpoints have been advanced to explain the longstanding finding of an inverse relationship between workers' age and their probability of quitting. First, there is a popularly held hypothesis that youth is characterized by impulsiveness, taste for change, poor judgment, and/or limited labor market knowledge, all of which increase the probability that workers quit their jobs. Second, there is a hypothesis based on human capital analysis, which conceives of age as a correlate of job tenure. Job tenure is an indicator of specific capital, which is inversely related to quit probability. We discuss this hypothesis below. Third, there is Burdett's (1978) argument that age propels workers toward the best jobs available to them. The closer each worker comes to the best job he can ever get, the lower the probability that his next job offer will be better than his current job. According to this argument, the older a worker is, the longer he will have to wait for an offer of employment better than his current job. Burdett's hypothesis is attractive because it explicitly recognizes that: (1) the labor market places an entire distribution of potential job offers before each worker, and (2) only some of these potential offers are visible to the worker at any one time.

However, we also note that because one must be a labor force participant to be engaged in job search, Burdett's reasoning is not about years of life, or age, but about years of *working life*, or length of labor force experience. The fact that one must grow older while acquiring more experience guarantees a high correlation between age and experience for workers with more-or-less continuous labor force participation. But in terms of Burdett's reasoning, the resulting negative correlation between age and quit probability is spurious, Burdett's statements to the contrary notwithstanding. As Burdett (1978, p. 219) points out, his reasoning is different from that of human capital theorists, but it leads

to many of the same empirical predictions, not least of which is that quit rates decline with age, other things being equal. Barron and McCafferty (1977, p. 687) explain the human capital view of age as follows:

Over time, a particular worker accumulates training specific to a firm and training specific to an "occupation." Firms offer to workers some of the returns to each type of training to reduce the likelihood of quits. . . .

We shall contend that the level of each type of training depends directly on the length of employment in a particular job or occupation, and that these lengths are an increasing function of the age of a worker.

In brief, a typical worker acquires firm-specific and occupation-specific human capital as he ages, and the employer offers quit-reducing inducements as the worker acquires firm-specific human capital. Thus, in our view, in human capital studies of quits age is little more than an easily measured correlate of a theoretically interesting but unobservable construct: specific capital.

In summing up our conclusions about the effect of age on quitting, we must say that age is a standard feature of empirical quit studies (e.g., Pencavel, 1970; Parsons, 1972; Viscusi, 1980; Freeman, 1980). We are more impressed by the fact that reasoning about age *per se* is often weak, and that close examination indicates that age often finds its way into quit studies as a proxy for something else, such as labor market or firm experience. Reasoning about the direct effects of age on quitting while accounting for these other variables has been modest. Nonetheless, the opportunities for such research are ample and likely to be fruitful.

#### **HOW DO WORKERS OBTAIN THE INFORMATION NECESSARY TO FORM THEIR CL<sub>alt</sub>?**

The comparison level for alternatives is the worker's comparison of his current job to other jobs which are available to him. Rational workers will quit if their present job falls below the CL<sub>alt</sub>. Thus, it is critical to understand how workers formulate the CL<sub>alt</sub>. In particular, we wish to know where workers find out about other jobs, and how they go about drawing comparisons between their current job and other jobs which they believe are available to them.



One need not engage in formal research to know something about the range of jobs for which one is qualified—on-the-job observation, newspapers, radios, family members, and friends all provide information about labor market conditions. However, the conventional wisdom of the quit literature suggests that the source of information about the job market affects the use to which it is put. For example, Stoikov and Raimon (1968, pp. 127–28) suggest that while the level of business activity in a worker's *firm* affects his *desire* to move to another firm, the level of activity in the worker's *industry* affects his *opportunity* to move. Burton and Parker (1969) suggest that the worker's observation of conditions within his own firm is critical, and that the well-known inverse correlation between quit and layoff rate is caused by worker responses to conditions within their own firms. In contrast, Burt (1963, p. 81) attributes the inverse correlation between quit and layoff rates to workers' responses to general economic conditions rather than to the state of their current employer's business. Barth (1971, p.81) sees quit rates as being at least partially driven by workers' inferences from general economic conditions about job opportunities outside their firms. In contrast, Rees (1966) stresses the role of social networks in bringing information about job opportunities to workers. Obviously, there is much disagreement about the informal flow of information about job alternatives to workers. But there seems little chance of resolving these disagreements here, because hardly any empirical evidence has been brought to bear on the subject, particularly for white-collar occupations (but see Ornstein, 1976). At this point, we can say only that the time seems ripe for a systematic study of informal patterns by which workers gather information about job opportunities outside their employer's organization.

In contrast, there has been a great deal of disciplined investigation (mostly theoretical) of the ways in which workers formally search out information about jobs. Much of this literature presumes that workers base their job decisions on pay alone, or on other returns to work which can be transformed into a money metric which is evaluated similarly by all persons. We have already discussed the shortcomings of this perspective. Many of these theoretical analyses also make assumptions which their authors admit are heroic (e.g., that workers hold jobs for their lifetimes, or that they live forever). Others involve assumptions that are merely severe, although not quite heroic (e.g., workers always quit their jobs before searching the market for alternatives).

Parsons (1977) provides a competent catalog of formal job search models. Mortensen (1978) characterizes employment as a dynamic process in which workers and firms attempt to find a suitable match

between persons and jobs. "Because it is not in the interest of either the employer or the worker to wait until the best alternative is located, imperfect matches are formed" (p. 572), and a separation occurs when either or both find a better partner. Mortensen's model relates quit and dismissal probabilities to worker and employer search strategies. Each search strategy has two components: a criterion for accepting alternative opportunities, and a measure of search intensity that determines the frequency with which alternatives appear. (This is similar to Burdett's model involving two reservation wages, one to accept a job and one to stop the search for better jobs; see Burdett, 1978).

Thus, Mortensen's model provides a formal approach to the worker's decision about how intensively (if at all) to search for information about job alternatives. The key question addressed by Mortensen's model is formulation of an employment contract that discourages excessive search activities. He builds upon game theory to address this problem, and provides results consistent with implicit-contract theory. He supports his arguments by showing that his results resolve some apparent conundrums in recent empirical findings regarding quits. In Burdett and Mortensen (1980), Mortensen's model is expanded by using search models to characterize the supply side of the labor market, and implicit contract models to characterize the demand side. To us, this approach seems especially promising, since it recognizes the simultaneity of supply and demand, it involves mathematical rigor, it is consistent with empirical findings from a variety of sources, and it includes on-the-job search and effects of the structure of employer-employee relations on the intensity of that search.<sup>17</sup>

Burdett and Mortensen's models differ sharply from the dominant economics approach to workers' labor market behavior—human capital analysis. According to human capital analysis of job terminations (Parsons, 1972, p. 1122), "quit rates are negatively related to 'worker-owned' specific human capital." "Ownership" is acquired by paying the costs of developing the capital. Since it takes time to develop this capital, the human capital approach predicts a negative correlation between a worker's tenure with a firm and his or her probability of quitting in the current time period; since tenure is acquired only as one grows older, the human capital approach also predicts a spurious correlation between age and quit probability. In contrast, Burdett and

<sup>17</sup>In passing, we mention that it appears that a great deal of job search is done on the job. Matilla (1974) reviews evidence on the proportion of job quitters who have lined up other work before quitting, and finds it to be greater than 50 percent. In an interesting paper which is more about the Phillips curve than about quitting, Salop (1973a) suggests that workers combine their informally gathered information about firms with their formal search efforts in order to focus their formal search efforts on firms where they are most likely to land job offers that they would take.

Mortensen (see especially Burdett, 1978) predict that as one gets older, one gravitates toward the best offer one can get, leading to a negative correlation between years of labor force participation (a strong correlate of age) and quit probability, and a spurious correlation between tenure and quit probability. Interestingly, the human capital model does not require job search to create these correlations, whereas the Burdett-Mortensen models do. We suspect that both models have some element of validity, although the human capital model does seem a bit stark to reflect true labor market processes. Information as well as productivity and investment seem to drive the job assignments and career decisions of workers.

## **SUMMARY**

Studies of quits in the civilian sector of the economy reveal findings that may have implications for voluntary terminations from military service. These findings are summarized briefly below.

### **Compensation**

Compensation is an important component of job quality, and there is substantial evidence that compensation levels exert considerable influence upon quit probability. However, a number of studies find that the effect of pay on quitting is weaker than the effects of non-pecuniary factors in general, and some studies find that particular non-pecuniary variables, such as union membership, have stronger effects on quitting than do remuneration. There is some reason to believe that the relationship between quit probability and pay is complex: Compensation and quit probability may be interrelated, and their relationship may be influenced importantly by other nonpecuniary factors. Further empirical research on these issues remains to be done before the link between quitting and compensation is fully understood.

### **Job Security**

Both theory and empirical studies suggest that workers subjected to a high probability of layoff are more likely to quit their jobs than workers subjected to a low layoff probability. There is reason to believe that the relationship between layoff and quit probabilities is simultaneous, with high quit probabilities raising layoff probabilities at the same time that high layoff probabilities raise quit probabilities. Further, firm-wide, industry-wide, and economy-wide layoff rates are

believed to affect quit rates by furnishing workers with information about their likelihood of finding new jobs or of being laid off from their present jobs.

### **Advancement Opportunities**

It has been hypothesized that good advancement opportunities reduce the probability that a worker quits his or her job. Empirical tests of this reasonable conjecture are old and based on aggregate data that are no longer considered appropriate for testing hypotheses about individual-level processes. It would be useful to have measurements, based on individual-level data, of the size of these effects.

### **Dispute Resolving Mechanisms**

There is some evidence to support the hypothesis that quit rates are reduced by the presence of unions and other formal organizational structures for mediating disputes between employer and employee.

### **Fringe Benefits**

Fringes can be structured to reduce quit probabilities further than would be expected on the basis of their simple monetary value. This reduction occurs, for example, if fringes are paid substantially after the time in which they are earned, and are paid only to persons who are current employees. Vacation benefits often act in this manner. It has been argued that union-enforced seniority rights also act in this way.

### **Amenities, Conveniences, Psychological Rewards, and Working Conditions**

These factors are normally measured by job satisfaction survey questions. There is evidence that satisfaction with these characteristics has considerable influence on quit behavior, but existing studies do not permit comparisons of the effects of these factors to the effects of less subjectively measured job characteristics, such as pay. High average levels of job satisfaction have perplexed a number of researchers.

### **Worker Differences in Quit Behavior**

Younger workers are more likely to quit their jobs than older workers. When job characteristics and human capital variables are con-

sidered, blacks are not more likely to quit their jobs than whites, and women are not more likely to quit than men.

### **Conclusions from the Civilian Literature**

We conclude by considering directions for future theory and research that seem most likely to resolve some of the key questions raised in this section. In so doing, we emphasize issues that will appear in our analysis of research on voluntary terminations from military service. For example, in the next section, we review evidence that voluntary termination decisions of military personnel are more responsive to remuneration paid in some forms than to equivalent remuneration paid in other forms. In this section we presented arguments that certain forms of remuneration and fringe benefits can reduce the probability that individuals quit. These quit-reducing forms of compensation cause workers to act as if they were cooperating with their employer, taking the employer's investments and costs into account in deciding whether or not to leave the firm. If these arguments are true, then judicious choice of compensation schemes would seem to offer fairly straightforward methods for reducing quits and minimizing the expense and disruption of employee turnover. Further, these arguments are sufficiently general to apply equally to military and civilian settings. So it would seem very worthwhile to explore further the potential for certain forms of compensation and fringe benefits to reduce voluntary termination rates without raising the employer's wage bill. An experimental study would be a natural setting for this exploration.

A second issue which will appear again in the military terminations material concerns job satisfaction and its relation to quits. We have pointed out repeatedly that the comparison level for alternatives, rather than the comparison level itself, determines whether individuals quit their jobs. Yet research consistently focuses upon the comparison level and ignores the comparison level for alternatives. Perhaps this focus accounts for the modest association between job quitting and job satisfaction. Or perhaps the weakness of this association is a function of the extreme simplicity of most statistical analyses that attempt to relate job satisfaction to voluntary turnover. There is a clear need for analyses that include adequate measures of the comparison level for alternatives within a reasonably comprehensive model of the decision to terminate, using up-to-date statistical methods.

A third issue relevant to both military and nonmilitary studies of voluntary termination concerns the acquisition of information needed to form the comparison level for alternatives. How do workers find out about the characteristics of other jobs available to them? How

accurate is this information? What precipitates an effort to gather information about alternatives to one's present job? Answers to these questions appear to be critical to understanding the evolution of decisions to quit, yet currently available answers do not have a firm empirical base.

The most straightforward and most important conclusion to be drawn from the research reviewed in this section is that future studies must simultaneously attend to a wide range of factors that appear to affect the quit decision rather than focusing on one to the exclusion of others. That means that studies of the relationship between pay and quitting must also account for nonpecuniary determinants of voluntary termination, and studies of psychological factors in the quit decision must provide reasonable treatments of financial factors and the general state of the labor market. As we have tried to show, single-factor studies tend to be misleading at worst and ambiguous at best. In the next section, we will show that single-factor studies have the same problems when applied to military data as when applied to nonmilitary data, and that certain key weaknesses of the military terminations research literature bear strong resemblances to some, though not all, weak points of nonmilitary quit studies.

### III. TERMINATIONS FROM MILITARY SERVICE

We now turn our attention to voluntary termination from the U.S. military service. The structure of this chapter is similar to that of the previous chapter. We begin by considering the nature of military employment and its voluntary and involuntary termination, including some fundamental differences between employment practices in the military and civilian sectors of the U.S. labor force. We next discuss factors which affect the comparison level and comparison level for alternatives of military personnel. Throughout this discussion, we evaluate the thoroughness of concepts and methods examined in research on military terminations. In the context of conclusions reached in our discussion of civilian job quits, the current discussion helps us recognize where research in military settings has been strong, and how it may be improved.

#### DIFFERENCES BETWEEN TERMINATIONS FROM MILITARY AND CIVILIAN EMPLOYMENT

Perhaps foremost among differences between termination from military and civilian employment is that the law specifically grants civilians the right to terminate a job at any time for any reason, while it specifically and severely limits the conditions under which military personnel can terminate their service with the armed forces. Thus, most service personnel who desire to quit military "employment" must nonetheless remain in the service until their term of commitment is complete. Consequently, the statistical distribution of time from enlistment to time of termination is undoubtedly lumpier and has a higher mean than it would have if military service were governed by the same termination rules as civilian employment. Also, whereas some civilian sector employers avoid firing unwanted workers by harassing them until they quit, Greenberg, Murphy, and McConeghy (1977) report that some dissatisfied Marine enlistees circumvent legal restrictions on quitting military service by "harassing" their supervisors with misconduct, thereby inducing early "involuntary" discharge.<sup>1</sup> This suggests that voluntary terminations from military service may be

<sup>1</sup>Consistent with this finding, Bell and Holz (1975) conclude from a review of literature on military delinquency that the variables which best predict voluntary separation from military service also best predict involuntary separation. This finding is consistent with the view that one frequent way to "quit" the services is to get one's self fired.

especially difficult to identify, because voluntary terminations (quits) may be made to appear as involuntary terminations (firings). For this reason, we must treat all mid-first-term attrition, as well as nonreenlistment of personnel eligible for reenlistment, and other obvious voluntary terminations, as voluntary exits from military service.

A recent experimental program gives an empirical measure of the extent to which restrictions on quitting affect the rates of voluntary termination and enlistee-induced involuntary termination from military service. Guthrie, Lakota, and Matlock (1978), Lau (1979), and Advanced Research Resources Organization (1979) report the impact on terminations from the Navy of an experimental program to allow dissatisfied personnel to terminate before completion of their term of service. Participants in this program were permitted to quit any time between completion of apprenticeship training and 181 days of active duty, or with six months notice subsequently. After 23 months, attrition was much higher for participants in this experimental program (73 percent) than for members of a control group (48 percent). The proportion of honorable to dishonorable discharges was much greater among participants in the experimental program, suggesting that "involuntary" discharges may be induced in the absence of freedom to quit (Guthrie, Lakota, and Matlock, 1978).<sup>2</sup> The absence of a civilian-style option to quit apparently has a significant effect on the level and kinds of terminations from military service.

Before turning to the research literature on terminations, we note that we have not written separate reviews of research on first-term attrition, second-term attrition, resignations of officers, and various other forms of voluntary termination. We do, of course, take care to note that different studies are concerned with different types of voluntary terminations. We are convinced, however, that the general principles which explain voluntary terminations of first-term personnel should also explain voluntary terminations of second-term personnel, for example, and that a general understanding of the principles underlying officers' behavior should also lead to a general understanding of the principles underlying enlisted men's behavior. Obviously, this general understanding should take account of the differences between officers and enlisted personnel, and differences between the circumstances of first- and second-term enlisted personnel. Once that accounting has been made, the same general principles of human behavior should be

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<sup>2</sup>Related programs include the Army's Expeditious Discharge Program, which facilitates administrative discharge of recent enlistees whose military careers show little promise for the Army or for themselves. See Goodstadt, Yedlin, and Romanczuk (1978).



both applicable to, and discoverable from, all voluntary terminations, whether they occur early or late in the military career.

### **FACTORS AFFECTING THE COMPARISON LEVEL AND COMPARISON LEVEL FOR ALTERNATIVES OF MILITARY PERSONNEL**

In this section, we ask what factors affect the evaluation that military personnel make of their "employment" with the U.S. Armed Forces. We begin with compensation, and then move on to other factors.

#### **Compensation**

Military personnel are remunerated according to a system that is considerably more complex than most civilian compensation schemes (see *Report of the President's Commission on Military Compensation*, 1978). In addition to base pay, military personnel may also receive a variety of special and incentive payments such as proficiency pay, reenlistment bonuses, allowances, and deferred compensation known as retirement pay but commonly paid upon termination from active military duty rather than upon actual retirement. In addition to pay, military personnel receive benefits, such as medical care, which are comparable to fringe benefits in the civilian sector. Military personnel sometimes also receive payments in kind such as housing and food, and access to buying services designed to provide them and their families with goods and services below normal retail price.

The complexity of the military compensation system suggests that the total value of income derived from military service may be difficult to calculate, especially by individuals wishing to project into the future as they plan their careers. For example, the present value of deferred compensation is properly calculated with formulae not widely understood by the general public (*Wall Street Journal*, 1982). Similarly, bonuses are expressed as lump sum payments rather than as income streams extending over a period of military service. Accordingly, it is not surprising that a number of analyses of the effects of compensation on termination from military service have distinguished among different elements of the military compensation package rather than considering the total value of military pay. For example, in an analysis of reenlistment intentions of avionics technicians, Perry (1977) distinguishes the effects of base pay from the effects of allowances. His statistics make it difficult to compare the effects of these two sources

of income, although he does report approximately equal standardized regression coefficients of base pay and of allowance variables in analyses of reenlistment intentions. Enns (1975, 1977) examines the relative impacts of variable reenlistment bonuses, proficiency pay, and base pay on terminations at the end of the first term of service. Enns finds that reenlistment bonuses have the greatest effect when paid in a lump sum. Finally, a study by the Air Force Human Resources Laboratory (1974) reports survey findings that deferred compensation (i.e., retirement benefits) has little influence on career decisions by first-term enlistees, but rises to major influence by the seventh year of service. Unfortunately, it is difficult to determine whether this is because the present value of the benefits themselves increase with length of service, because attitudes toward these benefits change over time, or if those with high initial tastes for retirement benefits are also disproportionately inclined to remain in the Air Force.

However, it is more common for studies to amalgamate all sources of military compensation into a single summary measure. For example, Fletcher and Giesler (1981) use factor analysis to combine 67 job satisfaction questionnaire items into three summary scales: pay, job quality, and quality of military life. Kleinman and Zuhosky (1980) use a present-value-of-future-salary model to investigate attrition of Navy pilots. They compare the present value of Navy pilots' future pay to the present value of future pay of more or less comparable civilian pilots. Similarly, studies by Gotz and McCall (1979, 1980a, 1980b) and Chipman and Mumm (1979) use dynamic programming models to calculate the time at which termination from military service maximizes the present value of future income streams accruing to military personnel. The Gotz-McCall methodology presumes that the present value of income from all sources is properly amalgamated in calculation of present values. Related research by Warner and his associates (1978, 1979a, 1979b, 1979c, 1979d) follows a similar strategy in examining terminations from the Navy.

Is it a mistake for researchers to amalgamate all sources of compensation when studying the effects of pecuniary factors on voluntary termination from military service? Available evidence does not lead to a simple answer: It is hard to imagine that dollars from one legitimate source could be preferred to dollars from another. Enns' studies (1975, 1977), however, find that reenlistment behavior is more sensitive to lump sum bonus payments than to equivalent amounts of money divided into several smaller payments. These results suggest that the way in which compensation is paid affects perception of its size.

Indeed, it may be that lump sum payments are more effective than other payments simply because their value is so thoroughly

unambiguous. It is no simple matter to calculate the present value of future compensation, especially when that compensation is as complex as current military pay, allowances, bonuses, and retirement. Thus it is not surprising that Chow and Polich (1980) find that enlistees grossly underestimate the value of benefits and allowances which are part of military compensation. It is even possible that differences in the accuracy of individuals' calculations of the value of their military compensation have been mistaken for individual differences in subjective tastes for military life. For example, Gotz and McCall's models include an individual-specific error term which captures time-invariant errors specific to each individual. These error terms are interpreted by Gotz and McCall as tastes for military service, but it seems plausible and equally consistent with available facts to interpret these individual-specific residuals as reflections of individual errors in computation of the value of military compensation. That is, Gotz and McCall may be finding that some individuals consistently overvalue military compensation, that others consistently undervalue it, and that these errors make the overvaluers act as if they have a taste for military service, whereas the undervaluers act as if they prefer civilian employment. It would be extremely useful to have a study which combined the financial modeling with direct measures of tastes for (i.e., attitudes toward) military service and perceptions of the value of military compensation. From the pure policy perspective, it would seem very useful to know if a given level of compensation could be distributed in a way that would increase perceptions of its value. Although existing research related to this issue suggests that the form as well as the magnitude of compensation affects its value in the eyes of military personnel, we are unaware of any study that provides firm estimates of how the form in which compensation is paid affects its perceived value by its recipients.

Regardless of the extent, if any, to which military personnel prefer one form of remuneration to another, a key issue about military compensation is the degree to which pay rather than other aspects of military life explain voluntary terminations from military service. Evidence on this subject is mixed, with some studies finding that pay is a predominant determinant of attrition, others finding that pay is of secondary importance, and yet others finding that the importance of pay varies over the course of the military career. In a number of studies, nonpecuniary factors are treated as nuisance parameters, are assumed to be captured by error terms, or are presumed to be adequately represented by demographic variables. Not surprisingly, studies that ignore or weakly represent nonpecuniary factors tend to find that pecuniary factors are of prime importance, and that nonpecuniary factors have small effects in influencing voluntary terminations. Studies

of this sort include the present-value-of-future-salary model of Kleinman and Zuhosky, the related studies of Gotz and McCall, and the studies of Warner and his associates. However, other studies have come to similar conclusions after giving more attention to nonmonetary aspects of the military experience. For example, Chow and Polich (1980, p. 14) consider measures of attitudes toward military service as well as pay. They conclude that "the level of military compensation has a substantial effect on the reenlistment rate," more substantial, in fact, than any other characteristics of military service which enter their analysis.<sup>3</sup>

Several other studies find that the impact of nonpecuniary factors on attrition may exceed if not rival that of pay. For example, Burrig, Grissmer, and Doering (1982) find that scheduling conflicts between service commitments and family demands and civilian jobs, as well as attitudes toward reserve participation, are more important than "economic" factors in determining voluntary termination from the Army reserves. Hiller (1982) examined the role of compensation, promotion, location, and job satisfaction in explaining second-term reenlistment in the four services. Whereas compensation measures were found to be good predictors of enlistees' stated reenlistment probabilities, Hiller found that certain location and job satisfaction variables were also important, and that the single best overall predictor of reenlistment intentions was the enlistee's expectation of promotion to the next pay grade. This measure reflects compensation somewhat, of course, but it also encompasses such nonpecuniary factors as career success and nonpay benefits of promotion to a higher level. Cohen and Reedy (1979) examine Navy quarterly reenlistment data in nine major occupational groups over a 20-year period ending in 1977. They find that differences between private sector and military earnings have fairly small effects on reenlistment rates, whereas levels of civilian employment and unemployment have strong effects on Naval reenlistment rates. However, Cohen and Reedy's analysis seems to have confused the causal ordering of some variables in their model, and so their

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<sup>3</sup>Cooper's (1979) fairly simple analysis of attitude survey data from 8140 soldiers delves into a variety of pecuniary and nonpecuniary factors suspected of affecting intentions to terminate from the Army. These factors include "organizational climate" in each soldier's unit and respondents' perceptions of the variety and meaningfulness of the jobs they do. Cooper does not present enough information for us to evaluate her findings or to relate them very well to our concerns here. She appears to find that dissatisfaction with pay is second only to dissatisfaction with time off as a leading determinant of intentions to not reenlist. However, neither factor has a very strong effect on reenlistment intentions in her study.

findings are suspect.<sup>4</sup> Grace (1978) examines data at the very start of the all-volunteer force era and concludes that noneconomic factors are more important than economic issues in decisions of Navy personnel not to reenlist. However, Grace's article provides only an overview of her statistical methodology, and it is not clear if this conclusion would be supported by a multivariate analysis of her data. Perry's (1977) analysis of Rand's Enlisted Utilization Survey attempts to integrate economic and behavioral research on the determinants of first term reenlistment. He finds that the most important factor among a group of variables predicting reenlistment intentions of avionics technicians is military career intention, followed by military job satisfaction (compared with perceived civilian labor market alternatives), marital status, and, finally, pecuniary factors. However, pay may indirectly affect reenlistment intentions by influencing other variables, such as career intentions, which in turn affect reenlistment. Because Perry's analysis does not consider indirect effects of this sort, his results tell us that compensation has a smaller direct affect on reenlistment intentions than do other noneconomic variables. A consideration of both direct and indirect effects might lead to different conclusions. Further, consideration of indirect effects would indicate if, and how much, dissatisfaction with compensation produces dissatisfaction with other aspects of military life and work, or vice versa. The literature on voluntary terminations from military service does not appear to include analyses of indirect effects of pay or other factors on termination, an unfortunate omission, we think.

Finally, several studies find that the effects of compensation on voluntary termination from military service vary over the course of the military career. For example, Chipman and Mumm (1979) add a length of service (LOS) variable to the cost of leaving (COL) in their models of Naval enlisted retention. They state,

The LOS variable can be considered as a surrogate for . . . noneconomic factors that are not represented by the COL variable. The inclusion of an interaction term with the COL and LOS variables proved to be significant in the fitted models (p. 10).

The finding that responsiveness to the cost of leaving changes with age and/or years of service seems reasonable. However, the interpretation of LOS as a surrogate for noneconomic factors seems to be primarily

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<sup>4</sup>The Cohen and Reedy analysis covers both draft and all-volunteer eras. It includes induction (draft) levels as a determinant of reenlistment. We believe this to be problematic because in the draft era, induction levels were a *response* to enlistment and reenlistment shortfalls, and so are properly treated as a consequence rather than a cause of reenlistment rates.

the authors' conjecture. In fact, the COL-LOS interaction would also tend to exist if rational economic actors altered their discount rates as they grew older, perhaps to reflect changing time preferences caused by their decreasing number of future years of life. Other conjectures are equally consistent with the finding, and we once again conclude that those who wish to draw conclusions about the effects of noneconomic factors provide more precise knowledge by including valid models.

In a study by the Air Force Human Resources Laboratory (1974), it was found that in the prevolunteer Armed Forces, pay and retirement benefits were ranked as least important among the factors influencing the career plans of recently enlisted personnel, and most important among factors affecting the career plans of personnel who had been in the services for seven years. However, a more recent study by Fletcher and Giesler (1981) examines attitudes toward Navy life and reenlistment plans, finding that satisfaction with pay is most important among a set of predictors for retaining first-term personnel, whereas nonpecuniary phenomena emerge as important for career sailors. However, Fletcher and Giesler's results are not directly comparable with many other studies, since they measure only attitudes toward pay rather than pay itself. They further suggest that the effect of compensation on voluntary termination from military service may well be stronger at some points of the military career than at others, but more unequivocal analyses are needed.

Before turning to the effects of nonpecuniary factors on voluntary terminations from military service, we summarize our key conclusions on the effects of compensation:

- A large number of studies have examined the effects of military compensation on voluntary terminations from the U.S. Armed Services. Many of these studies also have included presumed or actual indicators of nonpecuniary factors believed to affect satisfaction with military life and, therefore, attrition. The preponderance of evidence is that compensation is an important determinant of voluntary terminations, although some studies have found that pay is less important than other factors, and there is evidence suggesting that the relative importance of pay changes over the course of the military career.
- Research has consistently failed to model the relationships among different aspects of satisfaction with military service, including pay. Consequently, it is difficult to assess the total effect of compensation on individuals' decisions to terminate their military service, or to know if dissatisfaction with nonpecuniary factors also fosters dissatisfaction with remuneration.

- The complexity of the military compensation system seems to affect the way in which military personnel perceive the value of their remuneration, at least in nominal terms. It appears that lump sum payments are overvalued compared with equivalent amounts of pay distributed in several installments. It also appears that pay, allowances, and benefits are severely undervalued by enlisted personnel. It may be productive for future research to distinguish between the effects on attrition of different types of remuneration, in the hope of identifying a mix of pay types that maximizes the perceived value of military pay, and consequently minimizes terminations from the services due to perceived inadequacy of military compensation.

### **Security and Dispute Resolution**

Earlier, we reviewed evidence that job security plays an important role in voluntary terminations from civilian employment: As their probability of being laid off rises, workers grow more likely to quit their jobs. However, these civilian studies are relevant to military personnel only at an abstract level. Past, and continuing, rates of accessions for enlisted ranks provide clear evidence that enlisted personnel need not worry about being declared "surplus employees." Although civilian workers often must fear being laid off, continued military employment is well assured for enlisted men and women who perform satisfactorily and who wish to remain in the service. Thus, it is highly unlikely that lack of employment security is responsible for much enlisted attrition.

In officer ranks, the "up or out" system induces uncertainty that an individual who wishes to remain in the service will be involuntarily terminated. We know of no research, however, that indicates this uncertainty is great enough to create problematic levels of attrition among officers whom the services wish to retain. Accordingly, low job security does not seem to be the cause of much attrition from the U.S. Armed Services.

The mechanisms underlying security and job terminations in the civilian sector have their military analogue, however. As noted previously, a worker's perception of the organization's attachment to him/her may influence his/her desire to remain in the organization. Dispute resolution mechanisms are an aspect of employment that may contribute to employees' perceptions of attachment. There is a limited amount of research that is relevant to the effects of dispute resolution on decisions to leave the services. For example, balancing the residential preferences of individuals against the staffing needs of far-flung

installations appears to be a continuing source of disagreement between military personnel and the services. Arima (1981) reports statistics implying that about 5 percent of the variance in Navy line officers' intentions to retire is explained by these officers' perceptions of the degree to which the Navy considers the officers' preferences when making rotational assignments.<sup>5</sup> In a study that is more obviously concerned with dispute mediation, Greenberg, Murphy, and McConeghy (1977) report that potential attritees tend to respond positively to appeals that they honor their commitment to serve out their enlistment period, so long as the Navy or Marine Corps fulfills the commitment made to the sailor or marine at enlistment time. However, most research on the link between dispute resolution and attrition seems to focus on efforts to end disputes by ending the military service of disputatious enlisted personnel (e.g. Guthrie, Lakota, and Matlock, 1978; Lau, 1979; Advanced Research Resources Organization, 1979). Perhaps the only clear conclusion about linkages between dispute resolution and voluntary terminations is that there has not been enough research to know if further changes in dispute-resolving procedures could reduce quits below current levels. It would seem worthwhile to investigate the matter further, to learn if there are dispute-resolving procedures that are consistent with military organization and the exigencies of war, but capable of increasing individuals' satisfaction with military duty and reducing their likelihood of quitting the service in peace time.

### **Amenities, Conveniences, Psychological Rewards, and Working Conditions**

Both civilian employers and the services attempt to provide amenities, conveniences, psychological rewards, and tolerable working conditions for members of their organizations. Because these phenomena are difficult or impossible to observe directly, it is common practice to use attitude surveys to provide indirect measures of them. Thus in both the services and in the civilian sector, there is a longstanding practice of using survey questions to measure job-holders' satisfaction with working conditions, and with the amenities, conveniences, and psychological rewards obtained from work. Indeed, listings of

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<sup>5</sup>Arima (1981) reports that satisfaction of Navy line officers with their mid-career rotational assignments explains about 11 percent of the variance in 986 surveyed officers' intention to (or not to) terminate from military service. Nearly half the variance in overall satisfaction with rotational assignments was accounted for by respondents' perceptions of the relative emphasis the Navy placed on individual preferences and other factors in making these assignments. Half of 11 is about 5.



“standard” questions in this genre appear periodically and often cover hundreds of pages.<sup>6</sup> The vast majority of these survey questions ask for absolute, rather than comparative, levels of satisfaction.<sup>7</sup> In terms of the theoretical framework discussed in the previous chapter, job satisfaction questions of this type seek information about respondents’ comparison levels, but not about their comparison levels for alternatives—they tell how well respondents like their jobs, but not how they rate their jobs relative to other jobs they believe are available to them. As we pointed out in the last chapter, the relationship between individuals’ outcomes and their comparison level determines if they want to quit their jobs, but the relationship between these outcomes and the comparison level for alternatives determines whether or not they *actually* quit them.

Nonetheless, there is a substantial literature that relates job satisfaction survey data to respondents’ intended or actual voluntary termination from military service. For example, Fletcher and Giesler (1981) relate attitude data from the Navy Occupational Task Analysis Program (NOTAP) to reenlistment decisions. NOTAP is administered to samples of Navy first-term and career personnel in six-year cycles and includes 67 satisfaction questions that Fletcher and Giesler reduce to three broad factors: satisfaction with pay, satisfaction with job characteristics, and satisfaction with military life. Quality of life measures include autonomy, physical work environment, skill utilization, extent of team effort, and quality of relationships with peers, supervisors, and subordinates. The authors report that for first-term personnel, pay satisfaction is the most important factor affecting reenlistment, followed by job satisfaction. For career personnel, the quality of military life factors emerge as important for subsequent reenlistments. Although these findings could occur if different aspects of Navy service changed in salience as personnel grew older, or if civilian-Navy differences in job quality and quality of life changed over the course of the career, they still suggest that satisfaction may play an important role in voluntary terminations and that satisfaction can involve several dimensions of military service.

Greenberg, Murphy, and McConeghy (1977) also report research which relates satisfaction of 1000 respondents on a variety of

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<sup>6</sup>For example, see Robinson, Athanasiou, and Head (1969) for an effort covering more than 450 pages; see also the Surveys of Working Conditions and the Quality of Employment Surveys of the University of Michigan.

<sup>7</sup>For example, “which one of these statements tells best how you feel about your job? Would you say that you are \_\_\_ Completely satisfied, \_\_\_ Well satisfied, \_\_\_ Neither satisfied nor dissatisfied, \_\_\_ A little dissatisfied, \_\_\_ Very dissatisfied” (Robinson et al., 1969, p. 110).

dimensions to attrition in the Navy and Marines. The dimensions include regimentation and discipline, training programs, duty assignments, pay, rank, medical care, interpersonal relations, and administrative problems. A subsample of respondents who were in the midst of being discharged for misconduct were also interviewed, though one wonders if their attitudes were shaped by their discharges, or if their discharges resulted from their attitudes. An interesting feature of this research is that it surveyed supervisors as well as their subordinates about the causes of attrition. Supervisors and non-attriters generally agreed on what causes attrition, although supervisors and attritees disagreed about the role of supervisory harassment in provoking attrition. Unfortunately, the statistical analysis in this study is fairly unsophisticated and leaves many questions unanswered.

Two recent studies focus attention on satisfaction with geographic location and its effects on attrition and failure to reenlist. Buddin (1981) uses data from service records of the 1975 cohort of nonprior service accessions to perform multivariate analyses of post-training attrition in the Army and Air Force. Buddin's analysis includes two general categories of variables: military environment characteristics and individual background characteristics. Military environment variables include duty location, job reassignments, training, and occupational specialty assignments. Individual background characteristics include geographic region of origin, age at service entry, schooling, race, mental ability, and family characteristics. Buddin's data do not include direct attitudinal measures; he infers that net effects of duty location on attrition measure the effects of satisfaction with the duty location rather than the effects of some less obvious correlate of location. Buddin reports a significant effect of duty location on attrition even after controlling for other variables mentioned above. He also finds that the effect of duty location on attrition is stronger in the Air Force than in the Army. These service differences in the effect of location on attrition are difficult to explain. Perhaps the Air Force tends to recruit people who are more concerned with their geographic location than the people who tend to be recruited by the Army.

While Buddin's analysis is based on data that lack direct attitudinal measures, Arima's (1981) study of Navy line officers' reactions to organizational handling of midcareer moves is based on data that do include direct measurement of satisfaction with assignment to duty stations. However, Arima's analysis focuses primarily on satisfaction with the process of making duty assignments, and secondarily on the assignments themselves. As we noted earlier, he finds that about 5 percent of the variance in intentions to continue military service is explained by satisfaction with the duty assignment process. Taken together, the

Buddin and Arima studies suggest that both geographic location of duty assignments and the process by which these assignments are made have modest but significant effects on terminations from military service. Arima's study suggests that sensitive handling of these assignments can minimize the extent to which dissatisfaction over duty assignment leads personnel to terminate their military service. Yet the evidence does not suggest that dissatisfaction with duty assignments is currently a major determinant of attrition or failure to reenlist, either because the services handle duty assignments very well, or because duty assignments have only moderate effects on termination decisions, no matter how well or poorly handled.

Finally, several attitudinal studies have focused on the role of pre-service expectations in shaping reactions to military experiences and consequent wishes to remain in or depart from the armed forces. For example, in an extremely interesting study fielded in 1977 by Landau and Farkas (1978), written questionnaires were completed by 4911 Navy recruits during the fourth day of training. Questionnaires were later matched with service records to ascertain which respondents completed training and which dropped out. Individuals who completed training were more likely than dropouts to have reported that (1) recruiters accurately represented what enlistees would find upon actual enlistment, (2) enlistees expected to have some negative experiences during initial training, and (3) they expected to complete training. Advanced Research Resources Organization (1979) reports similar results with similar data based on the early release option experiment described earlier. In the experimental group subject to this option, attrition was found to be related to a constructed variable measuring the extent to which preenlistment perceptions of the attractions of Navy life are left unsatisfied by actual Navy experience. Using data from the same experiment, Lau (1979) finds that discrepancies between pre-service expectations and in-service experiences had important effects on attrition. Goodstadt, Yedlin, and Romanczuk (1978; see also Goodstadt and Yedlin, 1979) come to similar conclusions on the basis of 119 "depth interviews" with participants in the Army's Expeditious Discharge Program (EDP); EDP was designed to facilitate the early exit of recruits who were proving to be poorly suited for Army life. Guinn (1975) reports similar findings in the armed services of other countries. In short, it appears that if people find that military service does not meet their preenlistment expectations, they are likely to seek rapid return to civilian life.

The literature on expectations has implications for both accessions policy and future research. On the policy level, this literature suggests that candor is the best policy in presenting military life to potential

enlistees. Anything less appears to gain additional recruits at a cost of increased attrition and decreased morale during the first term—probably not much of a bargain. The services seem to have adopted an open policy, and current service policies are aimed at preventing recruiters from misrepresenting military service to potential recruits.

However, the type and amount of information presented to potential recruits may also influence recruits' pre-accession expectations, and the quality of recruits attracted by different informational strategies also needs to be considered. The research literature does not reveal how recruiters may best address recruits' preenlistment expectations of military experience; neither does it suggest how such approaches might affect recruit quality. In addition, the literature on expectations says very little about pre-accession expectations about military life after the first term. For example, we know very little of how officer candidates or newly-commissioned officers expect their careers to unfold. Given the strong effects of unmet expectations on first-term enlisted attrition, it would seem worthwhile to investigate the role of unmet expectations in producing post-first-term departures from military service, especially in the officer ranks.

This concludes our consideration of the effects of amenities, conveniences, psychological rewards, and working conditions. At this point, it seems appropriate to make some observations about the quality of research reviewed in this section, and the confidence which can be placed in its conclusions: Considerable effort has been expended by a variety of researchers to understand the ways in which voluntary termination from military service is affected by amenities, conveniences, psychological rewards, and working conditions encountered by military personnel. These factors are difficult or impossible to measure directly, so it has become standard operating procedure to measure them indirectly, using survey questions which ascertain respondents' evaluations of these aspects of military service. These efforts to relate subjective evaluations to voluntary terminations suggest conclusions about the reasons that voluntary terminations occur, and about the methods and conceptual frameworks which have been used to understand the ways in which these difficult-to-observe factors affect terminations from military service. Methods, conceptual frameworks, and substantive conclusions are not independent, however; the conclusions we draw about the methods and concepts used in this research color our confidence in the substantive conclusions the research suggests. As we pointed out above, we have reservations about the statistical methodology and conceptualization applied in many of these studies, and those reservations lead us to believe that more work on this subject is

needed before firm conclusions can be drawn. We think that two problems with this research are especially serious:

- Failure to measure effects of the comparison level for alternatives. Studies of the relationship between voluntary termination and amenities, conveniences, psychological rewards, and working conditions are almost uniformly and exclusively concerned with the comparison level on these dimensions. That is, they relate absolute levels of satisfaction to quit intentions or quit probabilities. They do not, however, indicate if military personnel think they would be any more satisfied in civilian employment than they are in the armed services. Consequently, studies in this genre may be telling us more about the ways that individuals chafe against the facts of work than about the factors which lead people to quit the military and seek employment in the civilian sector of the economy. To correct this problem, future studies need only ask survey respondents to compare their satisfaction with the military to the level of satisfaction which they think would be available to them in the civilian sector.
- Application of simple statistical methods by most research in this genre. The worst cases present readers with volumes of pair-wise correlations between a measure of intended or actual quit behavior and simple attitudinal variables. Other studies use multivariate methods, but rely exclusively on single-equation models. Because single-equation models do not elucidate relationships among variables that affect voluntary terminations, they do little to reveal the process by which satisfaction or dissatisfaction with military life develops, and mask any indirect effects of satisfaction with one dimension of the military experience on satisfaction with other aspects of military life.<sup>8</sup> In our opinion, useful policy is most likely to be revealed by studies that elucidate the process that produces the outcomes that policy is supposed to manipulate. Less critical, but still bothersome problems occur in studies which use factor analysis to reduce batteries of survey questions to a few manageable dimensions. These factor analyses have no

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<sup>8</sup>For example, perhaps dissatisfaction with nonpecuniary factors exacerbates dissatisfaction with pay. Or perhaps dissatisfaction at one stage of military service predisposes military personnel toward dissatisfaction at later stages. Perhaps dissatisfaction with some aspects of military life is caused primarily by certain background characteristics of military personnel, rather than by particular aspects of the military experience. Hypotheses such as these are not unusual in the contemporary social science literature, and the multi-equation methods for investigating them are well worked out and commonly used.

dependent variable—they merely reduce a large number of variables thought to affect military terminations to a smaller number of composite scales. A more appropriate strategy would be to do this scale construction with methods that do not lose sight of the dependent variables which these scales are designed to explain. Maximum likelihood techniques (see Joreskog, 1973) or canonical correlation methods could be used for this purpose.

In short, there is much useful research still to be done on the way that voluntary terminations from military service are affected by amenities, conveniences, psychological rewards, and working conditions.

### **Individual Differences in Pre-Service Characteristics**

It is a longstanding military policy to screen potential enlistees, draftees, and officers to eliminate candidates who are least likely to successfully adjust to the military. This general concern with screening has led to extensive procedures for physical and mental testing. With the development of the all-volunteer force and growing concerns about race and gender integration of American society, the screening approach has expanded to include research on the effects of demographic and personality characteristics on the probability of attrition from, or reenlistment in, the services. The research literature which considers these matters is large, and one might reasonably expect that studies in this genre have built sufficiently upon each other to support some consensus view of the effects of background factors on attrition. Some consensus emerges from this literature, including: (1) persons with histories of antisocial behavior or poor psychological adjustment are likely to do as poorly in the services as they did in civilian life; (2) persons who are unsuccessful at seeing their high school studies through to completion also tend to be unsuccessful at seeing their military service through to completion. To a lesser extent, it also appears true that, (3) the presence of spouses and dependent children probably increases the probability of attrition and nonreenlistment, and (4) persons who enlist before the age of 18 are more likely to attrite than those who are 18 or older at enlistment. We now examine this literature more closely, considering each of these topics.

**Race.** Examination of race effects in attrition and reenlistment studies normally consists of analyses of black-white differences. Empirical studies of military terminations have come to so many divergent conclusions about race effects that it is nearly impossible to draw firm conclusions about the impact of race on voluntary terminations.

A brief overview of recent research displays the current state of knowledge about these effects.

In a study of attrition by Marine Corps recruits, Youngblood et al. (1980) report bivariate statistics and multiple regression analyses demonstrating that blacks are more likely to attrite than nonblacks. The race effects in their multiple regression analysis are extremely small, however, even if statistically significant. More important, the multiple regression analyses include a measure of recruits' early intentions to attrite as a causal variable (along with race and other factors) in equations predicting subsequent actual attrition. Thus, the authors appear to have included two versions of the same variable in one regression equation, first as the dependent variable, and then as an independent variable. Seen from a slightly different view, this procedure is even more suspect: Including intention to attrite as an explanatory variable means that coefficients of other causal variables in the authors' model indicate the impact of these variables on *deviations* of actual attrition behavior from early attrition intentions, rather than on attrition per se. While it might be useful to understand the effects of race and other factors on changes in attrition intentions, doing so was not the authors' intent.

Studies by Lockman (1977a,b) also yield ambiguous results. For the 1973 cohort of Navy recruits, Lockman reports higher attrition rates for blacks than whites in the first year of service, but an absence of race effects in subsequent years. For the 1974 cohort, he finds no racial differentials even in the first year. In a later study, (1977b) Lockman finds race so highly correlated with schooling that he deletes it from his analysis altogether and declares race differences in attrition only apparent, and not real. These conclusions are consistent with the civilian sector analyses of Blau and Kahn (1981) and Viscusi (1980), and we are inclined to accept them. Frank and Erwin (1978) find lower crude rates of separation for blacks than for whites in the Army, and they state that race differences also appear in a multivariate analysis, although they do not present details. Erwin and Herring (1977) state similar findings, although they too do not give details.

In another study, Fletcher and Giesler (1981) state that multivariate analysis shows that blacks are less likely than whites to extend their Naval service, but that blacks are *more* likely than whites to reenlist. The combined effect appears to be a lower overall voluntary separation rate for blacks than for whites. However, evidence produced in this study is indirect. In particular, nearly all of the variables besides race in their analysis are attitude measures. For example, they measure attitude toward pay, rather than actual pay. We suspect that attitudes toward military service have strong effects on decisions to remain with

or depart from the armed forces. However, we think that race may affect those attitudes, and thereby exert indirect effects (mediated through attitudes) on service terminations.<sup>9</sup> Perhaps these mediated effects are strong and similar to direct effects of race on voluntary separations from military service. Or perhaps the indirect effects run in the opposite direction and cancel out direct effects.<sup>10</sup>

Another Navy study by Greenberg, Murphy, and McConeghy (1977) finds that blacks are more likely to attrite than nonblacks. However, as we noted earlier, the statistical methodology of the Greenberg, Murphy, and McConeghy study is simple, and a more complex analysis of the same data might well produce other results. In other reports, race effects on attrition are reported, although it is not stated which race tends to terminate more often; (see, for example, Atwater, Skrobiszewski, and Alf (1976). An examination of data from the Army and Air Force by Buddin (1981) finds no race effects on attrition except in Army combat arms, where blacks are more likely than whites to attrite. Buddin's analysis does not include attitudinal variables, and so is not directly comparable to many other studies of race effects which focus on attitudinal factors. Finally, Thomason (1979) argues that determinants of attrition or nonreenlistment have different effects in different occupations. Based on an analysis of attrition probability by detailed Navy occupational category, he argues that the Navy can reduce its overall separation rate by assigning individuals to military occupational specialties in which their personal characteristics are only weakly related to termination from the armed services. Presumably he includes race as a basis for making occupational assignments. However, his analysis cannot distinguish self-selection of people into different types of occupations from occupational differences in the workings of a process which affects people of a given type equally. A randomized research design would be needed to resolve this ambiguity.

What can one conclude from all these measurements of the effects of race on voluntary termination from military service? Simple statistics tell us that there are crude race differences in attrition and reenlistment. But studies of these race effects do not reveal unambiguously if race is merely correlated with factors which have true effects on

<sup>9</sup>For example, consider the following hypothetical scenario: Civilian labor market discrimination gives blacks lower paying civilian job alternatives to military service than comparable whites. As a consequence, blacks are more satisfied with their military pay than comparable whites serving at equivalent pay. This greater satisfaction with pay leads blacks to be more likely to re-enlist than comparable whites.

<sup>10</sup>To avoid ambiguities such as this, it is commonplace to use multiple equation statistical analyses. In this case, the first equation would relate race and other variables to attitudes about Navy. The second would relate race, attitudes and other variables to probability of voluntary separation from the Navy.



termination from service (e.g., high school completion, AFQT or Armed Services Vocational Aptitude Battery (ASVAB) scores), or if there is something about blacks' military experiences, or their attitudes toward those experiences, that makes them more or less willing than otherwise comparable whites to continue their military service. The kinds of analyses that are needed to answer these questions could, and we think should, be done. Needed analyses might include path analysis or multiple equation models to elucidate the causal patterns that produce higher crude rates of voluntary termination for blacks than for whites.

**Age.** A number of analysts have considered the relationship between age and probability of voluntary termination from military service. Buddin (1981), Guthrie, Lakota, and Matlock (1978), and Sands (1978, 1977) find that younger enlistees are more likely to attrite or fail to reenlist than older personnel. In their analysis of Navy data, Greenberg, Murphy, and McConeghy (1977) find that attrition is higher for younger personnel in the fleet, but lower for younger recruits. However, Lockman (1977a,b) reports a curvilinear relationship between age and voluntary termination of military service: He finds that sailors younger than 18 or older than 19 have higher separation rates than 18- and 19-year olds. Finally Thomason (1979) presents findings in support of his argument that the effect of age on voluntary termination probability differs markedly from one occupational assignment to another (recall, however, the ambiguities in Thomason's analysis which we noted above). In summary, findings suggest that those who enlist at the earliest possible ages are more likely to attrite than those who enlist later, although this generalization may not hold in all assignment locations or occupational specialties.

**Marital Status and Dependents.** Analysts have repeatedly attempted to ascertain the effects of marriage and children on the tendency of service personnel to leave military life for the civilian sector. The most common finding of these studies is that single persons are less likely to attrite, and more likely to reenlist, than married persons. Results consistent with this conclusion appear in Lockman (1977a,b), Sands (1977, 1978), Guthrie, Lakota, and Matlock (1978), Mobley, et al. (1978), Buddin (1981), and Landau and Farkas (1978). An oversight by the authors of some studies in this group provides some inadvertent elaborations of their general findings. In particular, some of these studies (e.g., Landau and Farkas) involve multiple regressions which include among regressors a measure of the strength of recruits' early intentions to complete their term of initial enlistment. Inclusion of this intention variable transforms these results from analyses of attrition into analyses of *deviations from early attrition intentions*.

Thus, these studies suggest that being married lowers the probability of enlistment completion below enlistees' original intentions.

Not all researchers have found that spouse and children foster attrition and nonreenlistment. Greenberg, Murphy, and McConeghy (1977) find that having dependents increases the chance of attrition for Navy enlisted personnel in the fleet only; no effects were found for Marines or recruits. A study by Chow and Polich (1980), and simple statistical analyses by Cooper (1979), and Atwater, Skrobiszewski, and Alf (1976), found no relationship between marital status or dependents and voluntary termination from military service. Finally, in a study with interpretational difficulties that we noted above, Fletcher and Giesler (1981) find that those with dependents are *less* likely to voluntarily terminate than those who do not have dependents. These findings are neither strong enough nor numerous enough to cast convincing doubt on studies which come to opposite conclusions; however, in summary, we think the preponderance of evidence is that marriage and children tend to increase the probability of voluntary termination from military service.

**Schooling and Mental Ability.** The relationship between pre-service schooling and voluntary termination from the armed forces has been a subject of considerable interest since the inception of the all-volunteer force. Research and policy interest in schooling effects has focused primarily on enlisted personnel, and on differences between high school graduates and high school dropouts. In general, these studies show that personnel with higher levels of formal education are less likely to attrite than personnel with lower levels of schooling (e.g., Lockman, 1977a,b; Sands, 1977, 1978; Guthrie, Lakota, and Matlock, 1978; Buddin, 1981; Greenberg, Murphy, and McConeghy, 1977; Lau, 1979; Landau and Farkas, 1978). Chow and Polich (1980) report a negative effect of high school graduation on reenlistment probability (see also Enns, 1977), but Fletcher and Giesler (1981) report that probability of reenlistment increases with additional years of schooling completed. The evidence seems heavily in favor of a conclusion that years of schooling and the probability of attrition are inversely related.

In most statistical analyses of schooling effects on attrition, schooling is just one of several variables used to predict separation from the armed forces. Because enlistees' intelligence and cognitive skills are routinely measured with standardized tests, and because schooling is normally reported on the same records that record AFQT and ASVAB test scores, it is both convenient and normal practice to examine the effects of schooling with statistical procedures which hold constant the impact of AFQT or ASVAB scores. Cognitive ability and achievement are significant components of these standardized tests, and so one

might usefully ask what is actually measured by statistics that gauge the effect of schooling after holding constant individuals' aptitude for, and achievement in, school. We suspect but cannot prove that under these circumstances schooling is primarily an indicator of perseverance or ability to manage satisfactorily in educational settings.

Scores on aptitude and achievement tests such as AFQT and ASVAB are of considerable interest in their own right, of course, and their effects have been considered in several studies. Chow and Polich (1980) find that higher AFQT scores are associated with lower reenlistment rates, but numerous other studies have found the opposite relationship between test scores and attrition (e.g. Mobley et al., 1978; Lockman, 1977a,b; Sands, 1978, 1977; Guthrie, Lakota, and Matlock, 1978; Buddin, 1981; Fletcher and Giesler, 1981; Landau and Farkas, 1978). Perhaps higher test scores are associated with higher probability of completion of the initial term of service, and with lower probability of reenlistment. Additional research could test this hypothesis rather easily; existing studies suggest that it may be true.

**Personality Characteristics, Including Mental Health.** A battery of questionnaire items on personal beliefs, attitudes, and past behavior could be an extremely cost-effective tool for weeding out potential enlistees with high attrition potential. Accordingly, there has been substantial interest in identification of psychological and behavioral characteristics that are common among attrition-prone enlistees, and uncommon among enlistees who satisfactorily adjust to military life. As might be expected, these studies suggest that attrition is least likely for individuals who have no past history of behavior problems, who have a positive self-image, and who are psychologically healthy. In the words of one author who studied attrition from the Navy, attritees tended to be:

more inclined not to like themselves, and had a liberal attitude toward drugs, a negative attitude toward authority and discipline, and a general disregard for law and order. . . . They indicated a lack of drive or motivation and exhibited antisocial behaviors. They also had a negative outlook on life. (Yellen, 1975)

One wonders how such persons could succeed in any setting, military or civilian, or why the armed forces would want them, even if they did not have high attrition potential.

Studies which report negative associations between attrition probability and indices of mental health (including drug problems, crime, and delinquency) include Wilcove, Thomas and Blankenship (1979), Hoiberg, Hysham, and Berry (1977), Erwin and Herring (1977), Frank

and Erwin (1978), Atwater, Skrobiszewski, and Alf (1976), Greenberg, Murphy, and McConeghy (1977), Cooper (1979), and Lau (1979).

In the paragraphs above, we have reviewed a considerable body of research on the effects of pre-service attributes of personnel on the probability of voluntary termination from military service. This review is sufficiently long that we now summarize it, and in the process come to some conclusions about these studies. We began this section by noting the long history of using batteries of written questions to screen out candidates for military service who have a low probability of successful adjustment to military life. Research which uses such questionnaire data has investigated the effects of mental ability, aptitudes, attitudes, interests, mental health, and past behavior, along with information about age, race, gender, and other demographic characteristics, to identify patterns of attributes which distinguish persons with high attrition probability from those with low attrition probability. Unfortunately, no strong consensus emerges from this literature, except that (1) persons with histories of antisocial behavior or poor psychological adjustment tend to do as poorly in the armed services as they did in their civilian lives, and to leave the services before the end of their enlistment terms, and (2) persons who are unsuccessful in seeing their high school studies through to completion are also likely to be unsuccessful in seeing their military enlistments through to completion of term. Two additional findings which have more or less credible support from this literature are, (3) the presence of a spouse and dependent children probably increases the probability of attrition and non-reenlistment, and (4) enlistment before age 18 probably increases the likelihood of attrition. Methodological problems in much research in this subject area makes it impossible to confirm or deny that other pre-service characteristics have significant effects on voluntary terminations from military duty, or to specify the conditions under which these effects do or do not appear. Additional research could make important contributions in this area by application of sound methodology to test hypotheses that have been tested only weakly in the past.

The final chapter of this report presents the conclusions of our review of the research literature on voluntary terminations from military service and suggests an agenda for future research.

#### **IV. CONCLUSIONS FROM THE MILITARY LITERATURE AND RESEARCH RECOMMENDATIONS**

Since inception of the all-volunteer force, high rates of nonreenlistment, enlisted mid-term attrition, and officer resignation have prompted concern by the services, the Secretary of Defense, and the Congress. Consequently, numerous studies conducted to determine why personnel leave the services have considered the effects of a variety of factors on voluntary terminations. These factors include compensation, procedures for resolving disputes between individuals and their supervisors, amenities, conveniences, psychological rewards, working conditions, and individual differences in pre-service attributes (such as schooling, mental aptitude, personality characteristics, and demographic characteristics).

#### **CONCLUSIONS**

Our reading of studies published through 1981 leads to the following conclusions about the influence of these factors on voluntary terminations from military service.

#### **Compensation**

Pecuniary factors are an important influence in the decision to terminate military service, but as in the civilian literature, there is no compelling evidence that pay and benefits have stronger effects than nonpecuniary factors. The complexity of military compensation schemes makes its influence even more complicated. It appears that individuals systematically underrate the value of military compensation, that bonuses paid in lump sums are more highly valued than equivalent funds paid out in installments, and that compensation in some forms is more highly valued than equivalent amounts of compensation paid in other forms. Evidence suggests that military personnel prefer some forms of compensation at some points in their careers and other forms at other career stages. Similarly, the effect of remuneration on terminations appears to change over the course of the military career. Although most studies suggest that voluntary terminations can be reduced by raising compensation levels, it also appears that

terminations can be reduced by (1) making personnel aware of the true value of their compensation, (2) using lump sum payments more extensively, and (3) allowing individuals to exercise some choice of the form in which their compensation is paid, and allowing them to change that choice periodically.

### **Dispute Resolution Procedures**

Procedures for resolving disputes between individuals and their supervisors appear to produce consistent, though modest, gains in reducing officer resignations due to dissatisfaction with duty assignments. Counseling of dissatisfied first-term enlistees appears to have similar effects in reducing mid-term attrition. These results are consistent with findings from the civilian literature that show that organizational mechanisms for resolving worker-employer disputes decrease turnover.

### **Amenities, Conveniences, Psychological Rewards, and Working Conditions**

New recruits who enter the services with unrealistic expectations about military life are among the most likely to attrite. Although realistic portrayal of service life might impede recruitment in some cases, it appears to foster retention of recruits. Other than that, it is difficult to identify consistent findings about the net impact of amenities, conveniences, psychological rewards, and working conditions on voluntary terminations from the services. Like its civilian counterpart, the military literature on job satisfaction has emphasized the comparison level (CL) of personnel. It has also explored job satisfaction at a level we regard as less methodologically sophisticated than is possible. It would be useful to know if personnel who express dissatisfaction with these aspects of military life believe that civilian employment would provide greater satisfaction on these dimensions. It would also be useful to know how dissatisfaction with these aspects of military life develops, and if and how dissatisfaction on these dimensions relates to dissatisfaction with compensation and other aspects of military life.

### **Individual Differences in Pre-Service Attributes and Demographic Characteristics**

These issues have received a great deal of attention in the military literature. Results show unambiguously that mental ability affects voluntary terminations through its impact on educational attainment.

Other studies suggest additional, direct effects of mental aptitude on voluntary terminations, although there is some ambiguity in this finding. Probability of voluntary termination from the services is increased by (1) history of antisocial behavior, legal difficulties, or poor psychological adjustment, (2) lack of high school diploma, (3) presence of a spouse and dependent children, and (4) enlistment before age 18.

Research on voluntary terminations from military service replicate many findings from civilian job quits. At the same time, this research has yet to achieve its potential for developing a comprehensive behavioral model that accounts fully for pecuniary and nonpecuniary influences on voluntary terminations. In addition, this literature finds, as does civilian research, that differences in gross termination rates due seemingly to race become inconsistent and contradictory when other factors are held constant. Race may be a correlate rather than a cause of voluntary termination from military service, and the processes leading to voluntary termination may be more color-blind than crude statistics suggest.

#### **DIRECTIONS FOR FUTURE RESEARCH**

We found the methodology of studies of military terminations often to be problematic. As a result, we believe that further advances in understanding the causes and remedies for high rates of voluntary termination from military service require both new data and the application of more advanced statistical methods. Significant progress can be made by gathering data that are longitudinal, contain repeated measures, include information on a wide range of factors, and measure satisfaction of personnel with military work, life, and pay relative to the satisfaction on these dimensions which they believe would be available to them as civilians. It would be very useful to have statistical analyses combining econometric modeling of compensation and its effects with equally sophisticated modeling of nonpecuniary factors affecting voluntary terminations. We conclude by considering each of these needs in more detail.

#### **Recommendations for New Data**

We think that gathering new data is necessary to make significant advances in knowledge about the determinants of voluntary termination from military service. New data are required to overcome three shortcomings of current research:

1. Studies have tended to focus on only one class of factors which influence voluntary terminations, and to ignore other classes of factors. For example, we showed that the best studies of the effects of pay on terminations give short shrift to nonpecuniary influences on the decision to leave the armed forces, or even to subjective satisfaction with compensation. Studies which focus on subjective factors tend to give weak treatment, if any, to objectively measured factors such as pay. The datasets on which these studies are based appear to have parallel patterns of detailed information on some subjects and total absence of information on other, apparently equally important, subjects related to terminations. A unified approach to the different factors affect voluntary terminations requires data covering all the dimensions relevant to the termination decision.

2. Data on satisfaction of military personnel have focused virtually exclusively on absolute levels of satisfaction (the CL rather than the CLalt) and have failed to ascertain the extent to which personnel are satisfied with military life and work relative to alternatives in the civilian labor market. Although absolute levels of satisfaction are important in their own right, it appears that decisions to terminate military service are more directly related to comparisons between satisfaction obtained from the service and satisfaction that is perceived to be available from available alternatives in the civilian sector. Accordingly, we think it is critical to gather data on the comparison level for alternatives, rather than the comparison level.

3. Studies have not directed attention to the causal chain of factors affecting voluntary terminations from military service. Some understanding of the causal process can be gained from application of multiple equation models to cross-sectional data, but a full understanding of the process requires longitudinal or panel data. Useful data would make repeated measurements of relevant factors, starting at the commencement of service and ending at the termination of service. Such data appear to be available only for variables extracted from service records, and have been exploited only in modeling the effects of compensation on termination. It would be enormously useful to have repeated measure data on attitudinal factors as well.

In brief, significant progress can be made if there are longitudinal data with repeated measures, information on a wide range of factors believed to affect quits from the services, and measures of service personnel's comparison levels for alternatives rather than (or in addition to) their comparison levels.



### **Recommendations for New Analyses**

What statistical methods are appropriate for analysis of these data? We have already argued that substantial improvement can be made simply by application of multiple equation methods (also called path analysis). Other methods would provide even greater improvement. For example, there are sophisticated stochastic process models that are estimated by maximum likelihood techniques; these techniques are not yet in widespread use, although they have recently become accessible to the general research community (see Hannan and Tuma, 1979). Or perhaps it would be possible to expand dynamic programming models of pecuniary determinants of voluntary termination (Gotz and McCall, 1980a) to include nonpecuniary factors, or to extract segments of those models for use in other models. However, no matter which strategy is chosen, significant advances seem possible. Some of these techniques could be applied to existing data.

In closing, we believe that future research on voluntary terminations from military service should be more closely tied to the research literature on civilian sector job quits. In this review we have found the literature on civilian sector terminations in the forefront of theory development to characterize complex relationships among a wider variety of explanatory variables. Also, methodological advances often appear in the civilian research literature before they appear in military manpower studies. A closer link between military and nonmilitary research might reduce or eliminate this delay. Finally, we believe that close ties between military and civilian sector studies are made especially appropriate by the absence of a draft. Although there are many important differences between military service and civilian employment, the peacetime all-volunteer force places the services in direct labor market competition for workers with civilian employers. This competition closely links the process of deciding to join the armed services to the process of rejecting opportunities for a civilian job. We suspect that it also enhances the comparability between decisions to leave a civilian job and decisions to terminate military service. Research on civilian job terminations may thus contribute useful concepts and methodologies to studies of military service terminations, and perhaps useful substantive findings as well.



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