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PSYCHOLOGICAL CONFLICT MODELS: THEIR APPLICABILITY TO THE THEORY OF COLLECTIVE BARGAINING

Frank REID

Psychological conflict models were first applied to the theory of collective bargaining in an imaginative paper by Professor Carl Stevens (1958). The model is based on the psychological concept of approach and avoidance gradients, the slopes of which are determined on the basis of evidence from psychological experiments. In the present paper it is argued that the concepts of approach and avoidance gradients used by psychologists, and the related empirical evidence, are inapplicable to the collective bargaining process because of a fundamental difference between the two situations. As a result of this difference, the nature of which will be analyzed below, the model suffers from an internal logical inconsistency.

This criticism is important because the Stevens model has become a well-established component of bargaining theory. As evidence of its prominence, note that the Stevens model is one of only three bargaining models referred to in the recent textbook by Rees (1973); it is one of the two main papers reprinted in the section on bargaining theory in the McConnell (1970) book of readings; and it is the only paper included in bargaining theory section of the McCormick and Smith (1968) book of readings.

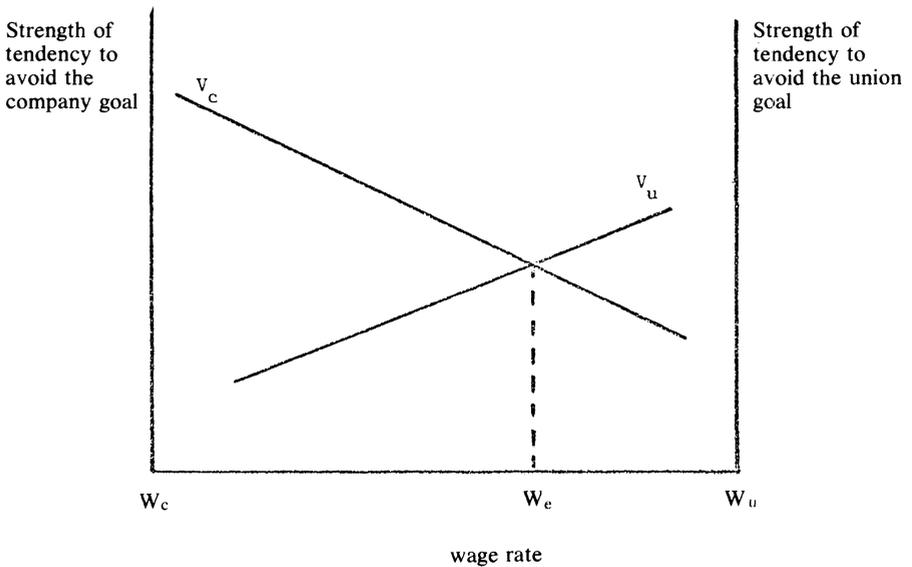
First Stevens' model will be very briefly summarized. An approach or avoidance gradient is a function relating an individual's tendency to approach or avoid the goal to his distance from that goal. On the basis of experimental evidence from psychology, Stevens assumes that both approach and avoidance gradients are upward-sloping towards the goal; i.e., the closer a subject is to a positive goal the greater his desire to approach it and the closer he is to a negative goal the greater his desire to avoid it.

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Stevens' model is shown in Figure 1, which illustrates two company avoidance gradients. W_c is the wage rate (i.e. goal) preferred by the company and V_c indicates the company's tendency to avoid this goal (because the high probability of a strike to attain such a wage rate reduces expected profits). V_u expresses the company's tendency to avoid the union goal, W_u (because high wages reduce profits). A stable «equilibrium» for the company occurs at wage W_e , where the strength of the company's tendencies to avoid W_c and W_u are equal.

FIGURE I

Company Avoidance Gradients



Both the company and the union will have equilibrium positions determined by a set of avoidance gradients and, in general, the positions will not coincide. Negotiation tactics, which Stevens interprets as attempts to shift the other party's equilibrium to a position closer to one's own goal, are categorized in two classes. Class I tactics are defined as those which increase the other party's avoidance to his own goal. For example, a union Class I tactic would result in an upward shift of V_c in Figure 1, moving the company's equilibrium position closer to the union goal, W_u . Class II tactics decrease the other party's avoidance to one's own goal; i.e. a downward shift of V_u in Figure 1. Stevens notes an important asymmetry in that Class I tactics increase the amount of tension (tendency to avoid both goals) at the equilibrium wage, thereby increasing the probability of a breakdown in negotiations. Class II tactics, on the other hand, decrease tension at the equilibrium wage and increase the probability of a settlement being achieved.

Notice that, as in most other bargaining models, the solution is indeterminate. Even with perfect knowledge of all four avoidance gradients the outcome of negotiations cannot be predicted — the result depends on the way in which the gradients are shifted in the course of bargaining.

In order to judge the applicability to the collective bargaining situation of Stevens' assumption of upward-sloping approach and avoidance gradients, it is necessary to examine more closely the psychological evidence upon which this assumption is based. Experimental evidence (Miller, 1944) has shown that when rats are temporarily restrained in their approach to a positive goal (food), they pull harder against the restraint the nearer they are to the goal, implying upward-sloping approach gradients. In a similar experiment using an electric shock as a negative goal it was found that the nearer rats are placed to the point of the electric shock, the harder they strain to move away, i.e., avoidance gradients are also upward-sloping.

The fundamental difference between the rat experiment and the collective bargaining situation may now be seen. Consider the upward-sloping approach gradient. In the rat experiment *no* satisfaction is achieved until the subject actually reaches its goal — it is what may be called an *all-or-nothing situation*. In this situation it is understandable that the tendency to approach a positive goal would increase, or at least remain constant, as the goal is approached. Collective bargaining, however, is an instance of what may be called a *continuum situation*. For example, as a union moves from a low wage position towards a high wage goal it receives some satisfaction from each successive wage increment. Economic utility analysis suggests that in such a situation the tendency to continue pressing for a further increment will decrease as the goal is approached. That is, in a continuum situation, approach gradients are downward-sloping.

What about the slope of avoidance gradients in a continuum situation? To answer this question, another fundamental difference between a continuum and an all-or-nothing situation may be noted. In the former, there is a continuous scale, one end of which is a positive goal and the other a negative goal. A tendency to approach the positive goal is, at the same time, a tendency to avoid the negative goal. That is, in the continuum situation, the approach gradient (with respect to the positive goal) and the avoidance gradient (with respect to the negative goal) are simply two sides of the same coin. Hence downward-sloping approach gradients in the continuum situation *logically imply* upward-sloping avoidance gradients.

For example, if a subject's tendency to approach the positive goal decreases as he nears the goal (downward-sloping approach gradient), then it is implied that his tendency to avoid the negative goal also decreases as he moves *further* from it (an upward-sloping avoidance gradient). Thus, in his analysis of collective bargaining, a continuum situation, Stevens' assumption that approach gradients are upward sloping is inconsistent with his assumption of upward-sloping avoidance gradients.

Note that the argument being made here is not that evidence from rate experiments is never applicable to the analysis of collective bargaining — one might well devise experiments which would be relevant. The argument is rather that there is a logical inconsistency in assuming that both approach and avoidance gradients are upward sloping in a continuum situation.

One might ask how Stevens is able to obtain such «reasonable» results from his model, given the inconsistency outlined above. The answer is that although Stevens introduces approach gradients and incorrectly assumes they are upward sloping, he does not make use of approach gradients in his analysis. Thus the results of Stevens' analysis, based only on the assumption of upward-sloping avoidance gradients, are correct, although the justification for his fundamental slope assumptions is faulty.

It is possible to rescue the analysis by using an economic utility analysis to derive the slope of the avoidance gradients. But in that case, it is not clear that there is any great advantage in formulating the model in terms of approach and avoidance gradients rather than in more conventional economic terms.

The conclusion of the above discussion is that, since collective bargaining is a continuum situation, it is inappropriate to analyze the process using psychological conflict models which are based on empirical evidence from an all-or-nothing situation. Attempts to do so may result in logical inconsistencies in the analysis.

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