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TOWARD AN UNDERSTANDING OF INEQUITY [1]

J. STACY ADAMS

General Electric Company, Crotonville, New York

A theory of social inequity, with special consideration given to wage inequities, is presented. A special case of Festinger's cognitive dissonance, the theory specifies the conditions under which inequity will arise and the means by which it may be reduced or eliminated. Observational field studies supporting the theory and laboratory experiments designed to test certain aspects of it are described.

Equity, or more precisely, inequity, is a pervasive concern of industry, labor, and government. Yet its psychological basis is probably not fully understood. Evidence suggests that equity is not merely a matter of getting "a fair day's pay for a fair day's work," nor is inequity simply a matter of being underpaid. The fairness of an exchange between employee and employer is not usually perceived by the former purely and simply as an economic matter. There is an element of relative justice involved that supervenes economics and underlies perceptions of equity or inequity (Homans, 1961; Jaques, 1956, 1961a, 1961b; Patchen, 1961; Stouffer, Suchman, DeVinney, Star, & Williams, 1949; Zaleznik, Christensen, & Roethlisberger, 1958).

The purpose of this paper is to present a theory of inequity, leading toward an understanding of the phenomenon and, hopefully, resulting in its control. Whether one wishes to promote social justice or merely to reduce economically disadvantageous industrial unrest, an understanding of inequity is important. In developing the theory of inequity, which is based upon Festinger's (1957) theory of cognitive dissonance and is, therefore, a special case of it, we shall describe major variables involved in an employee-employer exchange, before we proceed to define inequity formally. Having defined it, we shall analyze its effects. Finally, such evidence as is available will be presented in support of the theory. Throughout we shall emphasize some of the simpler aspects of inequity and try to refrain from speculating about many of the engaging, often complex, relationships between inequity and other phenomena, and about what might be termed "higher order" inequities. In the exposition that follows we shall also refer principally to wage inequities, in part because of their importance and in part because of the availability of methods to measure the marginal utility of wages (Adams, 1961; Jeffrey & Jones, 1961). It should be evident, however, that the theoretical notions advanced are relevant to any social situation in which an exchange takes place, whether the exchange be of the type taking place between man and wife, between football teammates, between teacher and student, or even, between Man and his God.

Whenever two individuals exchange anything, there is the possibility that one or both of them will feel that the exchange was inequitable. Such is frequently the case when a man exchanges his services for pay. On the man's side of the exchange are his education, intelligence, experience, training, skill, seniority, age, sex, ethnic background, social status, and, very importantly, the effort he expends on the job. Under special circumstances other attributes will be relevant: personal appearance or attractiveness, health, possession of an automobile, the characteristics of one's spouse, and so on. They are what he perceives are his contributions to the exchange, for which he expects a just return. Homans

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(1961) calls them "investments." These variables are brought by him to the job. Henceforth they will be referred to as his *inputs*. These inputs, let us emphasize, are *as perceived by their contributor* and are not necessarily isomorphic with those of the other party to the exchange. This suggests two conceptually distinct characteristics of inputs, *recognition* and *relevance*.

The possessor of an attribute, or the other party to the exchange, or both, may recognize the existence of the attribute in the possessor. If either the possessor or both members of the exchange recognize its existence, the attribute has the potentiality of being an input. If only the nonpossessor recognizes its existence it cannot be considered psychologically an input so far as the possessor is concerned. Whether or not an attribute having the potential of being an input is an input, is contingent upon the possessor's perception of its relevance to the exchange. If he perceives it to be relevant, if he expects a just return for it, it is an input. Problems of inequity arise if only the possessor of the attribute considers it relevant in the exchange. Crozier [2] relates an observation that is apropos. Paris-born bank clerks worked side by side with other clerks who did identical work and earned identical wages, but were born in the Provinces. The Parisians were dissatisfied with their wages, for they considered that Parisian breeding was an input deserving monetary compensation. The bank management, while recognizing that place of birth distinguished the two groups, did not, of course, consider birthplace relevant in the exchange of services for pay.

The principal inputs listed earlier vary in type and in their degree of relationship to one another. Some variables, such as age, are clearly continuous; others, such as sex and ethnicity, are not. Some are intercorrelated, seniority and age, for example; sex, on the other hand, is largely independent of the other variables, with the possible exception of education and some kinds of effort. Although these intercorrelations, or the lack of them, exist in a state of nature, it is probable that the individual cognitively treats all input variables as independent. Thus, for example, if he were assessing the sum of his inputs, he might well "score" age and seniority separately.

On the other side of the exchange are the rewards received by an individual for his services. These *outcomes*, as they will be termed, include pay, rewards intrinsic to the job, seniority benefits, fringe benefits, job status and status symbols, and a variety of formally and informally sanctioned perquisites. An example of the latter is the right of higher status persons to park their cars in privileged locations, or the right to have a walnut rather than a metal desk. Seniority, mentioned as an input variable, has associated with it a number of benefits such as job security, "bumping" privileges, greater fringe benefits, and so on. These benefits are outcomes and are distinguished from the temporal aspects of seniority (that is, longevity), which are properly inputs. As in the case of job inputs, job outcomes are often intercorrelated. For example, greater pay and higher job status are likely to go hand in hand.

In a manner analogous to inputs, outcomes are *as perceived*, and, again, we should characterize them in terms of recognition and relevance. If the recipient or both the recipient and giver of an outcome in an exchange recognize its existence, it has the potentiality of being an outcome psychologically. If the recipient considers it relevant to the exchange and it has some marginal utility for him, it *is* an outcome. Not infrequently the giver or "buyer," to use economic terms, may give or yield something which, perhaps at some cost to him, is either irrelevant or of no marginal utility to the recipient. An employer may give an employee a carpet for his office in lieu, say, of a salary increment and find that the employee is dissatisfied, perhaps because in the subculture of that office a rug has no meaning, no psychological utility. Conversely, a salary increment may be inadequate, if formalized status recognition was what was wanted and was what had greater utility.

In classifying some variables as inputs and others as outcomes, it is not implied that they are independent, except conceptually. Job inputs and outcomes are, in fact, intercor-

[2] M. Crozier, personal communication, 1960.

related, but imperfectly so. Indeed, it is because they are imperfectly correlated that we need at all be concerned with job inequity. There exist normative expectations of what constitute "fair" correlations between inputs and outcomes. The bases of the expectations are the correlations obtaining for a reference person or group—a co-worker or colleague, a relative or neighbor, a group of co-workers, a craft group, an industry-wide pattern. A bank clerk, for example, may determine whether her inputs and outcomes are fairly correlated —in balance, so to speak—by comparing them with the relationship between the inputs and outcomes of other female clerks in her section. The sole punch press operator in a manufacturing plant may base his judgment on what he believes are the inputs and outcomes of other operators in the community or region. For a particular physicist the relevant reference person may be an organic chemist of the same academic "vintage." While it is clearly important to be able to specify the appropriate reference person or group, it represents a distinct theoretical area in which work has begun (Merton & Kitt, 1950; Patchen, 1961; Stouffer et al., 1949) but which would take this paper too far afield. For the purposes of this paper, it will be assumed that the reference person or group will be one comparable to the comparer on one or more attributes, usually a co-worker.[8]

When the normative expectations of the person making social comparisons are violated —when he finds his inputs and outcomes are not in balance in relation to those of others— feelings of inequity result.

INEQUITY DEFINED

Although it has been suggested how inequity arises, a rigorous definition must be formulated. But we introduce first two references terms, Person and Other. Person is any individual for whom equity or inequity exists. Other is any individual or group used by Person as a referent when he makes social comparisons of his inputs and outcomes. Other is usually a different individual, but may be Person in another job, or even in another social role. Thus, for example, Other might be Person in the job he held 6 months earlier, in which case he might compare his present and past inputs and outcomes. Or, as Patchen (1961) has suggested, Other might be Person in a future job to which he aspires. In such an instance he would make a comparison of his present inputs and outcomes to his estimates of those in the future. The terms Person and Other may also refer to groups rather than to individuals, as for example when a class of jobs (for example, toolmakers) is out of line with another class (for example, maintenance men). In such cases, it is convenient to deal with the class as a whole rather than with individual members of the class. This is essentially what is done when the relative ranking of jobs is evaluated in the process of devising an equitable wage or salary structure.

Using the theoretical model introduced by Festinger (1957), inequity is defined as follows: Inequity exists for Person whenever his perceived job inputs and/or outcomes stand psychologically in an obverse relation to what he perceives are the inputs and/or outcomes of Other. The first point to note about the definition is that it is the perception by Person of his and Other's inputs and outcomes that must be dealt with, not necessarily the actual inputs and outcomes. The point is important, for, while perception and reality may be and often are in close accord, wage administrators are likely to assume an identity of the two. Second, if we let A designate Person's inputs and outcomes and let B designate Other's, by "obverse relation" we mean that not A follows from B. But we emphasize that the relation necessary for inequity to exist is psychological in character, not logical. Thus, there is no logical obversion in male Person's being subordinate to female Other, but, as Clark (1958) has observed, the inputs of Person and Other in such a situation may be dissonant, with the consequence that inequity is felt by Person.

As was previously suggested, the dissonant

[8] This assumption follows Festinger (1954), who states: "Given a range of possible persons for comparison, someone close to one's own ability or opinion will be chosen for comparison [p. 121]." Generally, co-workers will more nearly fit this criterion than will other persons.

relation of an individual's inputs and outcomes in comparison to another's is historically and culturally determined. This is why we insist that the incongruity is primarily psychological, even though it might, in addition, have a logical character. Each individual has a different history of learning, but to the extent that he learns from people sharing similar values, social norms, and language, that is, the extent to which he shares the same culture, his psychological reactions will be similar to theirs. The larger the cultural group, the greater will be the number of individuals who perceive similarly and react similarly to a given set of relations between input and outcomes. In the United States there is a strong, but perhaps weakening, predilection for the belief that effort and reward must be positively correlated. Considering the population at large, this belief has the status of a cultural norm and partially explains rather uniform reactions toward certain kinds of inequity—toward "feather-bedding," for example.

It is interesting to note that the American attitude toward work and reward is by no means universal. In highly industrialized Japan, for example, there is little relationship between the kind and amount of work an employee does and the monetary reward he receives. Pay is largely determined by age, education, length of service, and family size, and very little, if at all, by productivity. In his study of Japanese factories, Abegglen (1958) states:

> It is not at all difficult to find situations where workers doing identical work at an identical pace receive markedly different salaries, or where a skilled workman is paid at a rate below that of a sweeper or doorman. The position occupied and the amount produced do not determine the reward provided [p. 68].

This, of course, is not to suggest that inequity is nonexistent for Japanese workers. They and their employers enter into an exchange just as Americans, but the terms of the exchange are quite different. Hence, the basis for inequity is different.

In order to predict when an individual will experience inequity under given conditions of inputs and outcomes, it is necessary to know something of the values and norms to which he subscribes—with what culture or subculture he is associated. Granted this knowledge, it is then possible to specify what constitutes an obverse relation of inputs and outcomes for Person. In a given society, even ours, there is usually enough invariance in fundamental beliefs and attitudes to make reasonably accurate, general predictions.

TABLE 1

AMOUNT OF INEQUITY FOR PERSON AS A RESULT OF DIFFERENT INPUTS AND OUTCOMES FOR PERSON AND OTHER

Person	Inputs-Outcomes: Other			
	Low-High	High-Low	Low-Low	High-High
Low-High	0	2	1	1
High-Low	2	0	1	1
Low-Low	1	1	0	0
High-High	1	1	0	0

Note.—The first member of the pair indicates inputs and the second member, outcomes.

It is shown in Table 1 how inequity results whenever the inputs or outcomes, or both, of Person stand in an obverse relation to either the inputs or outcomes, or both, of Other. Though inputs and outcomes may in most cases be measured continuously (ethnicity and sex are obvious exceptions), we have dichotomized them into "high and "low" for the purpose of simplicity. The entries in the table are relative rather than absolute quantities. Thus, 1 indicates more felt inequity than 0, and 2 indicates more felt inequity than 1. But before pursuing the implications of Table 1 and of the definition of inequity, let us agree to use amount of effort as an instance of inputs and pay as an instance of outcomes. Any other input and outcome would do as well; we wish merely to use constant instances for the illustrations that will follow.

The first important consequence to observe from the definition is that inequity results for Person not only when he is relatively underpaid, but also when he is relatively overpaid. Person will, for example, feel inequity exists not only when his effort is high and his pay low, while Other's effort

and pay are high, but also when his effort is low and his pay high, while Other's effort and pay are low.

Although there is no direct, reliable evidence on this point, it is probable that the thresholds for inequity are different (in absolute terms from a base of equity) in cases of under- and overcompensation. The threshold would be greater presumably in cases of overcompensation, for a certain amount of incongruity in these cases can be acceptably rationalized as "good fortune." In his work on pay differentials Jaques (1961a) notes that in instances of undercompensation British workers paid 10% less than the equitable level show

> an active sense of grievance, complaints or the desire to complain, and, if no redress is given, an active desire to change jobs, or to take action . . . [p. 26].

In cases of overcompensation, he observes that at the 10–15% level above equity

> there is a strong sense of receiving preferential treatment, which may harden into bravado, with underlying feelings of unease . . . [p. 26].

He states further:

> The results suggest that it is not necessarily the case that each one is simply out to get as much as he can for his work. There appear to be equally strong desires that each one should earn the right amount—a fair and reasonable amount relative to others [p. 26].

While Jaques' conceptualization of inequity is quite different from that advanced in this paper, his observations lend credence to the hypothesis that overcompensation results in feelings of inequity and that the threshold for these feelings is higher than in the case of undercompensation.

From the definition and Table 1, we may observe as a second consequence that when Person's and Other's inputs and outcomes are analogous, equity is assumed to exist, and that when their inputs and outcomes are discrepant in any way inequity will exist. We assume that it is not the absolute magnitude of perceived inputs and outcomes that results in inequity, but rather the relative magnitudes pertaining to Person and Other. For example, there will be no inequity if both Person and Other expend much effort in their jobs and both obtain low pay. The 0 entries in the main diagonal of Table 1 reflect the fact that when the inputs and outcomes of Person and Other are matched, no inequity exists. It is further assumed, and shown in Table 1, that no inequity will result if both the inputs and outcomes of Person are matched and those of Other are matched, but are different for Person and for Other. To illustrate: if Person expends low effort and receives low pay, while Other expends high effort and receives high pay, equity rather than inequity will result. The converse also holds true.

With regard to the amount of inequity that exists, we have assumed that greater inequity results when both inputs and outcomes are discrepant than when only inputs or outcomes are discrepant. This signifies, for example, that Person will experience more inequity when his effort is high and pay low, while Other's effort is low and pay high, than when Person's effort is high and pay low, while Other's effort and pay are both high. In Table 1 only three relative magnitudes of inequity, ranging from 0 to 2, are shown. In reality, of course, many more degrees could be distinguished, especially with variables such as effort and pay which are theoretically continuous. The point to be emphasized is that equity-inequity is not an all-or-none phenomenon.

It will be noted that in the definition of inequity and in Table 1, inputs have not been differentiated, nor have outcomes. There are two reasons for this. First, the processes that govern inequity are applicable irrespective of the specific inputs and outcomes obtaining in a particular situation. For example, inequity may result whether low inputs are in the form of low effort or of poor education, or whether high outcomes stem from high pay or from great rewards intrinsic to the job. Second, there is a degree of interchangeability between different inputs and between different outcomes; furthermore inputs are additive, as are outcomes. It is implied, therefore, that a given total of Person's inputs may be achieved by increasing or decreasing any one or more separate inputs; similarly, a given total of Person's outcomes may result from increasing or decreasing one

or more separate outcomes. For example, if Person found it necessary to increase his inputs in order to reduce inequity, he could do so not only by increasing his effort, but also by acquiring additional training or education. If, on the other hand, greater outcomes were required to achieve equity, obtaining new status symbols might be equivalent to an increase in compensation, or a combination of improved job environment and increased discretionary content of the job might be.

The question of the interchangeability and additivity of different inputs on the one hand, and of different outcomes on the other is an important one. Does a man evaluating his job inputs give the same weight to formal education as he does to on-the-job experience? If he has completed high school and has held his job 2 years, and a co-worker, whom he uses as a comparison person, completed the ninth grade only and has been on the job 4 years, will he judge their inputs as equivalent or not? Is the frequently used practice of giving a man a prestigeful title an effective substitute for greater monetary outcomes? Definitive answers to such questions await research. However, this much may be hypothesized: Within certain limits of inequity there will be a tendency on the part of Person to manipulate and weight cognitively his own inputs and outcomes and those of Other in such a manner as to minimize the degree of felt inequity. Beyond these limits of inequity the tendency will be to manipulate and weight inputs and outcomes so as to maximize the inequity, because as will be discussed later, this will increase the motivation to adopt behavior that will eliminate the inequity entirely.[4] In both processes it is assumed that normal men are limited by reality in the amount of cognitive manipulation and weighting of inputs and outcomes they can perform. Except, perhaps, in the case of very small degrees of inequity such manipulation and weighting could not serve by themselves to achieve equity.

In discussing inequity, the focus has been exclusively on Person. In so doing, however, we have failed to consider that whenever inequity exists for Person, it will also exist for Other, provided their perceptions of inputs and outcomes are isomorphic or nearly so. A glance at Table 1 will make this apparent, and we may predict from the table the inequity for Other as well as for Person. Only when the perceptions of Person and Other do not agree, would the inequity be different for each. In such a case, one would enter Table 1 twice, once for Person and once for Other. It is sufficient at this point merely to note that inequity is bilateral or multilateral, and symmetric under some conditions. Later we shall consider the implications of this in greater detail.

EFFECTS OF INEQUITY

Having defined inequity and specified its antecedents, we may next attend to its effects. First, two general postulates, closely following dissonance theory (Festinger, 1957): (*a*) The presence of inequity in Person creates tension in him. The tension is proportional to the magnitude of inequity present. (*b*) The tension created in Person will drive him to reduce it. The strength of the drive is proportional to the tension created; *ergo,* it is proportional to the magnitude of inequity present. In short, the presence of inequity will motivate Person to achieve equity or reduce inequity, and the strength of motivation to do so will vary directly with the amount of inequity. The question, then, is *how* may Person reduce inequity? The following actions enumerate and illustrate the means available to Person when reducing inequity.

1. Person may increase his inputs if they are low relative to Other's inputs and to his own outcomes. If, for example, Person's effort were low compared to Other's and to his own pay, he could reduce inequity by increasing his effort on the job. This might take the form of Person's increasing his productivity, as will be shown in experiments described later, or enhancing the quality of his work. If inputs other than effort were

[4] This process is analogous to that postulated by Festinger (1957) when he discusses the relation of magnitude of cognitive dissonance to seeking information that will increase dissonance. He hypothesizes that at high levels of dissonance increasing information may be sought, with the result that the person will change his opinion and thus reduce dissonance.

involved, he could increase his training or education. Some inputs cannot, of course, be altered easily—sex and ethnicity, for instance. When such inputs are involved, other means of reducing inequity must be adopted.

2. Person may decrease his inputs if they are high relative to Other's inputs and to his own outcomes. If Person's effort were high compared to Other's and to his own pay, he might reduce his effort and productivity, as is illustrated later in a study of grocery clerks. It is interesting to note that effort is the principal input susceptible to reduction; education, training, experience, intelligence, skill, seniority, age, sex, ethnicity, and so on are not readily decreased or devalued realistically, though they may be distorted psychologically within limits. They are givens; their acquisition is not reversible. The implication is that when inequity results from inputs being too high, decreases in productivity are especially likely to be observed. One may speculate that restrictive production practices often observed are in fact attempts at reducing inequity.

There exists in industry a tendency to select and hire personnel with education, intellect, and training which are often greater than that required by the job in which they are placed. Since it is likely that in many instances the comparison persons for these individuals will have lesser inputs and, perhaps, greater outcomes, it is evident that some of the newly hired will experience feelings of inequity. In consequence, education, intellect, and training not being readily modified, lowered productivity may be predicted.

3. Person may increase his outcomes if they are low relative to Other's outcomes and to his own inputs. When Person's pay is low compared to Other's and to his expended effort, he may reduce inequity by obtaining a wage increase. Evidence of this is given later in a study of clerical workers. He could also, if appropriate, acquire additional benefits, perquisites, or status. An increase in status, however, might create new problems, for the acquisition of higher status without higher pay would of itself create dissonance, particularly if the new status of Person placed him in a superordinate position vis-à-vis Other.

4. Person may decrease his outcomes if they are high relative to Other's outcomes and to his own inputs. This might take the form of Person's lowering his pay. Though an improbable mode of reducing inequity, it is nevertheless theoretically possible. Although it is usually assumed that persons with very high personal incomes are motivated by tax laws to donate much to charitable and educational institutions, it is not improbable that this behavior on the part of some is motivated as well by feelings of inequity.

5. Person may "leave the field" when he experiences inequity of any type. This may take the form of quitting his job or obtaining a transfer or reassignment, or of absenteeism. In a study by Patchen (1959) it was observed that men who said their pay should be higher had more absences than men who said the pay for their jobs was fair. Although the author did not conceptualize "fair pay" as in the present paper, it is clear at least that "fair" was defined by respondents in relational terms, for he states:

> The data show also that the actual amount of a man's pay has, in itself, little effect on how often he is absent. The important question, regardless of how much he is getting, is whether he thinks the rate is fair [p. 12].

Leaving the field is perhaps a more radical means of coping with inequity, and its adoption will vary not only with the magnitude of inequity present, but also with Person's tolerance of inequity and his ability to cope with it flexibly. Though it has not been demonstrated, there are probably individual differences in tolerance and flexibility.

6. Person may psychologically distort his inputs and outcomes, increasing or decreasing them as required. Since most individuals are heavily influenced by reality, distortion is generally difficult. It is pretty difficult to distort to oneself that one has a BA degree, that one has been an accountant for 7 years, and that one's salary is $500 per month, for example. However, it is possible to alter the utility of these. For example, State College is a small, backwoods school with no reputation, or, conversely, State College has one of the best Business Schools in the state and

the Dean is an adviser to the Bureau of the Budget. Or, one can consider the fact that $500 per month will buy all of the essential things of life and quite a few luxuries, or, conversely, that it will never permit one to purchase period furniture or a power cruiser.

7. Person may increase, decrease, or distort the inputs and outcomes of Others, or force Other to leave the field. Basically, these means are the same as discussed above, but applied to Other. The direction of change in inputs and outcomes would, however, be precisely opposite to changes effected in Person. Thus, for example, if Person's effort were too low compared to Other's and to his own pay, he might induce Other to decrease his effort instead of increasing his own effort. Or, if he were comparatively poorly qualified for his job, he might try to have his better qualified colleague fired or transferred.

8. Person may change his referent Other when inequity exists. If Person were a draftsman working harder, doing better quality work, and being paid less than Other at the next board, he might eschew further comparisons with Other and pick someone with more nearly the same capability and pay. The ease of doing this would vary considerably with the ubiquity of Other and with the availability of a substitute having some attributes in common with Person.

Not all the means of reducing inequity that have been listed will be equally satisfactory, and the adoption of some may result in very unsteady states. The nature of the input and outcome discrepancies and environmental circumstances may render some means more available than others, as may personality characteristics of Person and Other. To illustrate this we may consider a Person whose effort is high and whose pay is low, and an Other whose effort and pay are low. If Person acts to increase his pay and is successful, he will effectively reduce the inequity; but if he is unsuccessful, as well he might be, given rigid job and wage structures, inequity will continue. Person might, on the other hand, try to reduce his productivity. This, however, might be quite risky if minimal production standards were maintained and unsatisfactory productivity were penalized. There is the further consideration that if Person and Other are both on the same production line, a decrease in effort by Person might affect Other's production and pay, with the result that Other would object to Person's behavior. Another means for Person to reduce his inequity is to try to have Other increase his effort. If Other perceives his and Person's inputs and outcomes in the same way as Person, he might, indeed, accede to this influence and raise his effort. If, to the contrary, he perceives no discrepancy between his and Person's inputs, he may be expected to resist Person strongly. Alternatively, Person could resort to leaving the field, or to distortion, as discussed earlier. If distortion is unilateral on Person's part, it may resolve his inequity, though not Other's. This leads into another interesting aspect of inequity.

Person and Other may or may not constitute a social system, that is, Person may be to Other what Other is to Person, so that they are referents for one another. Or, Other's referent may be someone other than Person, say, an individual X, who is quite irrelevant to Person's social comparisons. When Person and Other do not form a social system, the way in which Person reduces his inequity will have no effect on Other and there will, therefore, be no feedback effects upon Person. When the two do constitute a social system, the interaction that may take place is of considerable interest. Considering only those instances when Person and Other have identical perceptions of their inputs and outcomes it is a truism that when inequity exists for Person it also exists for Other (though probably not in the same amount since one will be overpaid and the other underpaid). Hence, both will be motivated to reduce the inequity; but it does not follow that they will adopt compatible means. If compatible means are adopted, both will achieve equity. For example, if Person expended little effort and received high pay, while Other's effort and pay were both high, a state of equity could be achieved by Person's increasing his effort somewhat and by Other's reducing his a bit. Or, the two could agree that the easiest solution was for Other to reduce his effort to Person's level. However, this solution might prove inadequate, for other reasons; for example, this might endanger their jobs by

reducing production to an economically unprofitable level.

Many possibilities of incompatible solutions exist for Person and Other. Continuing with the preceding example, Person could increase his effort and Other could decrease his. From the point of view of each considered alone, these actions should reduce inequity. When considered simultaneously, however, it is apparent that now Person's effort and pay will be high, whereas Other will expend low effort and receive high pay. A new state of inequity has been created! As a further example, if Person's effort were high and his pay low, while Other's effort were low and his pay high, Person might reduce his own effort while Other was trying to induce the supervisor to increase Person's salary. If Other were unsuccessful in his attempt, a new, but reduced, state of inequity would result. If, on the other hand, Other were successful in obtaining a raise for Person, equity might be established, but a new situation, hardly more comfortable than inequity, would result: Person would have received a pay increment for a decrement in effort.

Private, psychological distortion of one's inputs and outcomes is especially likely to result in unsuccessful reduction of inequity, if done by only one party. For instance, if Person is overcompensated and manages to convince himself that he is not, it will be extremely difficult for Other to convince him, say, that he should work harder. Or, if Other were to convince himself that he was working just as hard as Person, Person could not effectively convince Other to increase his productivity or to take a cut in pay. The very fact that one of the parties is operating at a private, covert level makes it nearly impossible to communicate. The perceptions of the two parties being now different, the fundamental premises that must underlie joint action cannot be agreed upon. Distortion by one party in effect breaks the social system that had previously existed.

SUPPORTING EVIDENCE

The evidence in direct support of the theory of inequity will now be considered. The data that are available may be divided grossly into two types, observational and experimental. Directly supporting evidence is, on the whole, somewhat meager for the reason that little research has been focused on the specific question of job inequity. The work of Zaleznik et al. (1958), Homans (1953, 1961), and Patchen (1959, 1961) has dealt with significant aspects of the problem, but, with the exception of Homans' (1953) study of clerical employees, the data collected by these researchers are difficut to relate to the present theory.

A Case of Pay Inequity among Clerical Workers (Homans, 1953)

Rather than dealing with two individuals, we are here concerned with two groups of female clerical workers, cash posters and ledger clerks, in one division of a utilities company. Both groups worked in the same large room. Cash posting consisted of recording daily the amounts customers paid on their bills, and management insisted that posting be precisely up to date. It required that cash posters pull customer cards from the many files and make appropriate entries on them. The job, therefore, was highly repetitive and comparatively monotonous, and required little thought but a good deal of physical mobility. Ledger clerks, in contrast, performed a variety of tasks on customer accounts, such as recording address changes, making breakdowns of over- and underpayments, and supplying information on accounts to customers or company people on the telephone. In addition, toward the end of the day, they were required by their supervisor to assist with "cleaning up" cash posting in order that it be current. Compared to the cash posters, "ledger clerks had to do a number of nonrepetitive clerical jobs . . . requiring some thought but little physical mobility." They had a more responsible job.

Ledger clerks were considered to be of higher status than cash posters, since promotion took place from cash poster to ledger clerk. Their weekly pay, however, was identical. In comparison to cash posters, ledger clerks were older and had more seniority and experience.

These are the facts of the situation. In

terms of the theory, the following may be stated:

1. The cash posters had lower inputs than the ledger clerks: They were younger, had less seniority and experience, and had less responsible jobs. Their outcomes were in some respects lower than the ledger clerks': Their job had less variety, was more monotonous, required greater physical effort, and had less intrinsic interest. Very importantly, however, their pay was equal to the ledger clerks'.

2. The ledger clerks had higher inputs than the cash posters: They were older, had more seniority and experience, and had more responsible positions. Their outcomes were higher on several counts: Their status was higher, their job had greater variety and interest, and physical effort required was low. Their pay, nonetheless, was the same as the cash posters'. The requirement that they help "clean up" (note the connotation) posting each day introduced ambiguity in their inputs and outcomes. On the one hand, this required greater inputs—that is, having to know two jobs—and, on the other hand, lowered their outcomes by having to do "dirty work" and deflating their self-esteem.

It is clear from the discrepancies between inputs and outcomes that inequities existed. In capsule form, the outcomes of ledger clerks were too low compared to their own inputs and to the inputs and outcomes of cash posters. The evidence is strong that the ledger clerks, at least, felt the inequity. They felt that they ought to get a few dollars more per week to show that their job was more important—in our terms, their greater inputs ought to be paralleled by greater outcomes. On the whole, these clerks did not do much to reduce inequity, though a few complained to their union representative, with, apparently, little effect. However, the workers in this division voted to abandon their independent union for the CIO, and Homans (1953) intimates that the reason may have been the independent union's inability to force a resolution of the inequity. He further implies that had management perceived and resolved the inequity, the representative function of a union would have been quite superfluous.

A Case of Status Inequity in Supermarkets (Clark, 1958)

We shall be concerned here with the checkout counters in a chain of supermarkets, which are manned by a "ringer" and a "bundler." Ringers are the cashiers who add on the register the sum due from the customer, take his payment, and make change. Bundlers take goods out of the cart and put them in bags to be taken out. Under normal conditions, ringing was a higher status, better paid job, handled by a permanent, full-time employee. Bundling was of lower status and lower pay, and was usually done by part-time employees, frequently youngsters. Furthermore, psychologically, bundlers were perceived as working *for* ringers.

Because customer flow in supermarkets varies markedly from day to day, a preponderance of employees were part-timers. This same fact required that many employees be assigned to checkout counters during rush hours. When this occurred, many ringer-bundler teams were formed, and it is this that resulted in the creation of status inequity, for employees differed considerably in a number of input variables, notably sex, age, and education. Not infrequently, then, a bundler would be directed to work for a ringer whose status (determined by sex, age, education, etc.) was lower. For example, a college male 21 years of age would be ordered to work for a high school girl ringer of 17. Or a college girl would be assigned as a bundler for an older woman with only a grade school education. The resulting status inequities may be described as follows in our theoretical terms: A bundler with higher inputs than a ringer had lower outcomes.

When interviewed by the investigator, the store employees were quite explicit about the inequities that existed. Furthermore, this was true of ringers, as well as bundlers, showing that inequities were felt bilaterally in these cooperative jobs. To restore equity it would have been necessary to form teams such that inputs and outcomes were matched. Clark (1958) has stated the principle in the following manner:

A person's job status (which is determined by the amount of pay, responsibility, variety and absence from interference his job has) should be in line with his social status (which is determined by his sex, age, education, and seniority) [p. 128].

That store employees attempted to reduce existing inequities is evident from the data. The principal means of doing so appeared to be by the bundlers reducing their work speed —that is, by reducing their inputs, which would have effectively decreased inequity since some of their other inputs were too high relative to their own outcomes and to the inputs of the ringers. One girl explicitly stated to the investigator that when she was ordered to bundle for a ringer of lower social status than hers, she deliberately slowed up bundling.

Interestingly, this behavior is nicely reflected in the financial operation of the stores. A substantial part of the total labor cost of operating a supermarket is the cost of manning checkout counters. It follows, therefore, that one should be able to observe a correlation between the incidence of inequities among ringer-bundler teams and the cost of store operations, since the inequity reduction took the form of lowered productivity. This is indeed what was found. When the eight supermarkets were ranked on labor efficiency [5] and "social ease," [6] the two measures correlated almost perfectly—that is, the greater the inequity, the greater the cost of operating the stores. To give an example, one of the two stores studied most intensively ranked high in inequity and had a cost of 3.85 man-hours per $100 of sales, whereas the other which ranked low in inequity, had a cost of only 3.04 per $100 of sales. Thus, it cost approximately 27% more to operate the store in which inequities were higher.

A further finding of Clark's is worth reporting, for it gives one confidence that the relative inefficiency of the one store was indeed due to the presence of relatively more inequity. This store went through a period of considerable labor turnover (perhaps as a result of employees leaving the field to reduce inequity), and associated with this was an increase in labor efficiency and an increase in the social ease index. There is, therefore, quasi-experimental evidence that when inequities are reduced, individual productivity increases, with the result that operating costs decrease.

[5] As an index of labor efficiency, Clark (1958) used the number of man-hours per $100 of sales.

[6] "Social ease" is a complex index, devised by Clark (1958), the value of which is basically the number of pairs of part-time employees, out of all possible pairs, whose inputs and outcomes were "in line," according to the definition given in the quotation from Clark.

Experiment I (Adams & Rosenbaum, 1962)

One of the more interesting hypotheses derivable from the theory of inequity is that when Person is overpaid in relation to Other, he may reduce the inequity by increasing his inputs. Therefore, an experiment was designed in which one group of subjects was overcompensated and one was equitably compensated—that is, one group in which outcomes were too great and one in which outcomes were equitable, given certain inputs, relative to some generalized Other.

The task chosen was a one page controlled association public opinion interview (for example, "Which of these five automobiles do you associate with a rising young junior executive?"), which subjects were to administer in equal numbers to male and female members of the general public. The subjects were under the impression that they were being hired for a real task and that their employment would continue for several months. In actuality, however, they conducted interviews for 2.5 hours only, after which time they were told about the experiment and were paid for their participation.

Two groups of 11 male university students, hired through the college employment office, were used as subjects. Each was paid $3.50 per hour—an amount large enough so that a feeling of overcompensation could be induced, but not so large that it could not also be made to appear equitable. In one group (E), subjects were made to feel quite unqualified to earn $3.50 per hour, because of lack of interviewer training and experience. The other group of subjects (C) were made to feel fully qualified to earn $3.50 per hour, by being informed that they were far better educated than census takers and that education and intelligence were the prime requisites

of interviewing. It may be noted that the referent Others for all subjects were trained interviewers at large, not a specific, known person. The complete instructions to the groups were, of course, much more elaborate, but details need not be given here. The critical point is that the E group felt overcompensated, whereas the C group felt fairly paid.

From the theory, it was predicted that the E group would attempt to increase their inputs so as to bring them in line with their outcomes and with the alleged inputs of trained interviewers. Since there was little they could do to increase their training and experience, this left productivity as the principal means of altering inputs. Theoretically, E group subjects could also have tried to reduce their outcomes; this, however, was impossible since the pay was fixed. In sum, then, it was predicted that the E group would obtain more interviews per unit time than the C group. This is what the results demonstrated. Whereas the C group obtained an average of only .1899 interviews per minute, the E group obtained a significantly greater average of .2694, or an average of 42% more ($\chi^2 = 4.55$, $df = 1$, $p < .05$).

Results comparable to these have been obtained by Day (1961) in a laboratory experiment with children who were given training trials in which they pushed a plunger mechanism to obtain M&M candies. The number of candies received varied between 1 and 6 and was directly dependent upon the magnitude of pressure exerted on the plunger. After responses had stabilized, 25 M&Ms were received by each subject on each of five trials regardless of the pressure exerted. Day's data show that a significant number of subjects respond to the increased reward by increased pressure on the overrewarded trials. In terms of our theoretical model, the children in Day's study are comparing their inputs (pressure) and outcomes (M&Ms) during the overrewarded trials with those during the training trials. The latter trials establish a base upon which to determine what constitutes "equity." The "overpayment" of 25 M&M candies results in inequity, which may be reduced by increasing pressure inputs.

TABLE 2

PRODUCTION SCORES OF SUBJECTS IN EXPERIMENT II

	Public	Private
Overpaid	67.20	52.43
Equitably paid	59.33	41.50

Experiment II (Arrowood, 1961)

If it is reasonable to suppose that the results of the previously described experiment by Adams and Rosenbaum (1962) were a result of the E subjects' working harder to protect their jobs because they were insecure in the face of their "employer's" low regard for their qualifications, it is reasonable to suppose that the same results would not obtain if subjects were convinced that their "employer" would have no knowledge of their productivity. Conversely, if the theory we have offered is valid, overpaid subjects should produce more than controls, whether they thought the "employer" knew the results of their work or whether they thought he did not.

Following this reasoning, Arrowood (1961) designed a factorial experiment in which subjects from Minneapolis were either overpaid or equitably paid and performed their work under either public or private conditions. The first two conditions were similar to those in Experiment I: Subjects were hired at $3.50 per hour to conduct interviews and were made to feel unqualified or qualified for the job. The public-private distinction was achieved by having subjects either submit their work to the "employer" (the experimenter) or mail it in preaddressed envelopes to New York. In the latter case, subjects were under the impression that the experimenter would never see their work.

The results, shown in Table 2, validate the hypothesis tested in Experiment I and permit one to reject the alternative hypothesis. In both the Public and Private conditions, overpaid subjects produced significantly more than equitably paid subjects. The fact that mean production in the Public conditions was significantly greater than in the Private conditions is irrelevant to the hypothesis since there was no significant interaction between the inequity-equity and public-private dimensions.

Experiment III (Adams & Rosenbaum, 1962)

Since the results of the two previous experiments strongly corroborated a derivation from the theory, it was decided to test a further, but related, derivation. The hypothesis was that whereas subjects overpaid *by the hour* would produce more than equitably paid controls, subjects overpaid *on a piecework basis* would produce less than equitably paid controls. The rationale for the latter half of the hypothesis was that because inequity was associated with each *unit* produced, inequity would increase as work proceeded; hence, subjects would strive not so much to *reduce* inequity as to *avoid* increasing it. In other words, because inequity would mount as more units were produced, overpaid piecework subjects would tend to restrict production.

Nine subjects were assigned to each of the following groups: Overpaid \$3.50 per hour (H_e), equitably paid \$3.50 per hour (H_c), overpaid \$.30 per unit (P_e), equitably paid \$.30 per unit (P_c). In all major respects, the task and instructions were identical to those in Experiment I.

As may be seen in Table 3, the hypothesis received unequivocal support. Overpaid hourly subjects produced more than their controls and overpaid piecework subjects produced less than their controls. The interaction between the inequity-equity and hourly-piecework dimensions is highly significant ($\chi^2 = 7.11$, $df = 1$, $p < .01$).

Experiment IV (Adams, 1963)

The prediction that piecework subjects experiencing wage inequity would have a lower productivity than subjects perceiving their wages as fair was supported by the previous experiment. The rationale for the prediction was that because dissonance is linked with units of production, dissonance would increase as more units were produced, and, consequently, subjects would attempt to avoid increasing dissonance by restricting production. There is, however, an alternative explanation that would account for the same manifest behavior. It is entirely possible for subjects to *reduce* dissonance by increasing their effort on the production of each unit, for example, by increasing the quality of their work, which would have the effect of increasing the production time per unit and, therefore, have the consequence of reducing productivity. In terms of the theoretical framework presented earlier, this explanation assumes that pieceworkers would reduce their dissonance by increasing their inputs, very much as the hourly workers. Only the mode of increasing inputs varies: Whereas hourly workers increase inputs on a *quantitative* dimension, pieceworkers increase them on a *qualitative* dimension.

TABLE 3

MEAN PRODUCTIVITY AND MEDIAN DISTRIBUTION OF HOURLY AND PIECEWORK EXPERIMENTAL AND CONTROL SUBJECTS IN EXPERIMENT III

	Condition			
	H_e	H_c	P_e	P_c
Mean productivity	.2723	.2275	.1493	.1961
Cases above median	8	4	1	5
Cases below median	1	5	8	4

Unfortunately, the task used in Experiment III did not lend itself to measuring quality of work. In the present experiment the work performed by subjects was so designed as to permit measurement of both amount of work and quality of work. The specific hypothesis tested is: Pieceworkers who perceive that they are inequitably overpaid will perform better quality work and have lower productivity than pieceworkers who are paid the same rate and perceive they are equitably paid.

The interviewing task used in the previous experiments was modified so as to permit the measurement of quality. The modification consisted of making the three principal questions open-end questions. As an example, one question was "Does a man who owns a shelter have the moral right to exclude others from it, if they have no shelter?" (Yes or No), which was followed by, "What are your reasons for feeling that way?" The subjects task was to obtain as much information as possible from a respondent on the latter part of the question. The measure of work quality thus was the amount of recorded information elicited from respondents. More specifically,

the dependent measure of quality was the number of words per interview recorded in the blank spaces following the three open-end questions. As before, the measure of productivity was the number of interviews obtained per minute during a total period of approximately 2 hours.

Twenty-eight subjects were used, half randomly assigned to a condition in which they were made to feel overpaid, half to a condition in which the identical piecework rate was made to appear equitable. The results supported the hypotheses. First, as in the previous experiment, the productivity of subjects in whom feelings of inequitable overpayment were induced was significantly lower than that of control subjects. Productivity rates for these groups were .0976 and .1506, respectively ($t = 1.82$, $p < .05$, one-tailed test). Second, work quality was significantly higher among overpaid subjects than among controls (69.7 versus 45.3, $t = 2.48$, $p < .02$, two-tailed test).

These quality and productivity data support the hypothesis that under piecework conditions subjects who perceive that they are overpaid will tend to reduce dissonance by increasing their inputs on each *unit* so as to improve its quality and, as a result, will decrease their productivity. Thus, the alternative explanation for the results obtained with pieceworkers in Experiment III has some validity. This is not to say that the dissonance avoiding hypothesis originally offered is invalid, for if a job does not permit an increase of work input *per unit produced,* dissonance avoidance may well occur. This, however, remains to be demonstrated; the fact that we were unable to measure quality of work in Experiment III does not mean that subjects did not reduce dissonance by some means, including the improvement of quality, on each unit produced.

CONCLUSION

We have offered a general theory of inequity, reviewed its implications, and presented evidence in support of it. Although the support given the theory is gratifying, additional data are required to test particular aspects of it. In addition, research is needed to determine what variables guide the choice of comparison persons. While this is a theoretical and research endeavor in its own right, it would contribute much to the understanding of inequity.

The analysis of inequity in terms of discrepancies between a man's job inputs and job outcomes, and the behavior that may result from these discrepancies, should result in a better understanding of one aspect of social conflict and should increase the degree of control that may be exercised over it. In moving toward an understanding of inequity, we increase our knowledge of our most basic productive resource, the human organism.

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