Equality and Economic Efficiency: Is There a Trade-off?
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Economic inequality tends to undermine equality in other spheres. Economists are aware of this regrettable tendency but they commonly assume that were the goal of economic equality to be pursued, economic inefficiency would result. As Okun (1975, p. 48) has put it: "Any insistence on carving the pie into equal slices would shrink the pie. That fact poses the trade-off between economic equality and efficiency."

Is there, inevitably, the trade-off between efficiency and equality which is so commonly assumed? This paper summarizes experimental research done in my laboratory which bears upon this question. It also reviews the scholarly literature relating to work as it relates to this issue: the diverse research dealing with different forms of work compensation, ownership, participation, and control.

I. Experimental Research

Studies of Cooperation-Competition

My early experiment on the effects of cooperation and competition upon group process (Deutsch, 1949b) has direct relevance to basic issues relating to the consequences of an egalitarian as compared to a meritocratic system of distributing rewards. It was a study of the effects of two different distributive principles: a competitive-meritocratic and a cooperative-egalitarian principle.
The result of the experiment showed striking differences between the cooperative-equalitarian and competitive-meritocratic groups. The students in the groups that operated under the equality principle (i.e., the "cooperative" groups) were not only more productive, they also developed friendlier interpersonal relations, and felt more esteemed and more self-confident as compared to those in the groups that functioned under the competitive, "meritocratic principle."

Since my 1949 study of cooperation and competition, many hundreds of related studies have been conducted (see Johnson and Johnson, 1983). The results of this large body of research are very consistent with my early study. The findings are unequivocal in demonstrating substantial differences in the social psychological effects of the two distributive principles upon interpersonal relations, self-attitudes, attitude toward work, and group performance.

Experimental Studies of the Effects of Different Systems of Distributive Justice

Recently, my students and I (Deutsch, 1985) have conducted a series of studies that was stimulated by the assumption implicit in equity theory that people will be more productive if they are rewarded in proportion to their contribution. The research on cooperation-competition had clearly demonstrated that this assumption is not correct when the individuals are working on tasks where it is helpful for them to cooperate, to share information and resources, or to coordinate their activities. Perhaps the assumption has validity only when the individuals are involved in noninterdependent tasks, in work which is not facilitated by effective cooperation. In fact, careful thought about the circumstances under which rewarding
members in proportion to their contribution to a group (or rewarding individuals in proportion to their performance) would most likely induce relatively high productivity suggests that there are a number of basic requisites. These include the following: (1) the task to be accomplished must be clearly defined and specified; (2) the individuals involved must believe that their performance can be measured reliably, validly, and with sufficient precision; (3) achievement must be readily susceptible to continued improvement by increased effort and this is believed to be so by the individuals involved; (4) the type of reward offered for performance must be desired by the individual and its value to the individual must increase with the amount of reward he or she receives; (5) the dependence of an individual's reward upon his or her accomplishment must be known to the individual and subjectively salient during his or her work; and (6) neither individual nor group task performance should depend upon effective social cooperation.

It is evident that the conditions described above are rarely found in the "real world" of work. However, they can be created in the laboratory. Our first two studies were fashioned to create the conditions likely to maximize the chance of obtaining support for the assumption that performance will be enhanced by the expectation of being rewarded in proportion to one's contributions. In them, the subjects worked in separated cubicles, on identical tasks that were neither interesting nor difficult. Both experiments systematically varied the type of distributive system, using the same task; the second also varied the magnitude of the rewards available to the subjects and used female as well as male subjects. In a third experiment, the subjects worked face-to-face on several different types of very brief tasks under the different distributive systems. In contrast to
the first three, the subjects in the fourth study worked alone under one 
or another reward system similar in character to the different distributive 
justice systems. In a fifth, the subjects worked face-to-face on a highly 
interdependent, extended task. In a sixth, the "good" being distributed 
within the group was "grades" rather than "money"; the grades were distributed 
either according to the "equality" or "proportionality" principle and were 
based upon either the "amount of effort" or the "level of performance."

Four different principles of allocating the group's earnings to its 
members were used in a number of the studies. These were described as 
follows:

**Winner-takes-all:** Under this system, whoever performs the task best 
in the group wins all the money the group is paid.

**Proportionality:** Under this system, each person is rewarded in 
proportion to his contribution to the group score. In other words, the 
person who contributes 50% of the group's total output will get 50% of 
the money to be distributed within the group; a person who contributes 
10% of the group's total output would get 10% of the money to be 
distributed within the group, and so on.

**Equality:** Under this system, each person in the group will get an 
equal share of the money to be distributed within the group. In 
other words, each person will get 1/3 of the group's total earnings.

**Need:** Under the need distribution system, each group member will 
be rewarded according to the need expressed on the biographical data 
sheet. In other words, the person who needs the money most would get 
proportionately more money; the person who needs the money least would 
get the least amount of money.

The overall results of the six experiments will be presented in terms 
of a number of key questions asked of all the data.

1. **Did the different distributive systems have differential effects 
on performance?** There is clear and consistent evidence in all of the 
relevant experiments that there are no reliable effects of the distribution 
system on individual or group productivity when neither individual nor
group task performance depends upon effective social cooperation. This result is obtained when the individual is working in a group context and also when he or she is working alone. That is, there is no evidence to indicate that people work more productively when they are expecting to be rewarded in proportion to their performance than when they are expecting to be rewarded "equally" or on the basis of "need."

2. Were there initial differences in attitudes toward the different distributive systems? The subjects initially strongly preferred the "proportionality" over the other distributive systems. The second most favored was "equality"; "need" was disfavored; and they had the most negative reaction to the "winner-takes-all" system.

3. Were attitudes toward other group members affected by the different distributive principles? Even when the groups were nominal rather than interacting groups (as in the first two experiments), there were some significant effects of the distributive system on attitudes toward other group members. The subjects in the "equality" and "need" conditions reported having cooperative feelings toward one another; those in the "winner-takes-all" and "proportionality" conditions reported having "competitive" feelings toward one another.

4. How were attitudes toward the tasks and work affected by the different distributive systems? Under the "equality" system, the subjects found the tasks more interesting and more pleasant than in the other systems. They also reported the highest intrinsic motivation to perform well, the highest motivation to perform because of "task enjoyment," a high desire to increase the group's performance, and the lowest desire to outperform the other group members. Subjects, in all conditions, indicated very high
intrinsic motivation to perform well and this was rated as the strongest component of their motivation to perform well.

5. Did the "high," "medium," and "low" performers in the various conditions differ from one another in their preferences and attitudes? Even before task performance had occurred, those who were to have different performance ranks in their groups had different preferences regarding the distribution principles: the better one's future performance, the more one preferred the "winner-takes-all" principle and the less one preferred the "need" and "equality" principles; the "medium" performers (those whose performance was neither best nor worst) preferred the "proportionality" principle more than either the "low" or "high" performers. In the nominal group, the relationship between task performance and preferences for distributive principle remained essentially the same from the pre-task to post-task measurement. Parallel results were obtained for the rating of the "fairness" of the distributive principle.

However, in the face-to-face interacting groups, the relationship between task performance and preferences for the different distributive systems changed during the course of the experiment. After performing the various tasks, the "proportionality," "equality," and "need" systems were in each case just as likely to be chosen by "high" and "low" performers. Only the choice of the "winner-takes-all" system appeared to reflect self-interest: being chosen by "winners" only.

6. What were the pre-experimental correlates of initial attitudes toward the different distributive systems? Preferences for "winner-takes-all" and, to a lesser extent for "proportionality" were associated with a sense of power, toughness, self-confidence, and a more conservative political
orientation, a feeling of competitiveness and a tendency to downplay one's groupmates. In contrast, preferences for the "equality" and "need" principles were correlated with more favorable attitudes toward one's fellow group members and less favorable views of one's own chances and capabilities. The greater the tendency to be "Machiavellian," the higher the subject's preference for "winner-takes-all" and the lower their preference for "equality."

Our results provide little support for the common assumption that productivity would be higher when earnings are closely tied to performance. Despite the fact that the tasks were neither particularly interesting nor demanding, and despite participating in the experiment primarily to earn money, the subjects seemed more motivated to perform well by their own needs to do as well as they could rather than by the greater amount of pay they might earn from higher performance in the "proportionality" and "winner-takes-all" conditions. Their motivation to perform was determined more by self-standards than by external reward.

These results are not surprising if one takes into account that the subjects were college students who were not alienated from themselves, their colleagues, or the experimenters. They had no reason not to do as well as they could whether or not they would earn money by so doing. If they had felt alienated from themselves and their capabilities and had little pride in their own effectiveness, then their performances might have been more influenced by the external reward. It is possible that the assumption that people will be more productive, if they are rewarded in proportion to their contribution, is valid only when people are alienated from their work or from those for whom they are working. Given the nature of much work and of many employee-employer relations, it would not be surprising if alienation from work were quite common.
II. Research in the Workplace

The research which I have summarized in the preceding section clearly indicates that an equal distribution of rewards or earnings within a group does not result in less effective individual or group performance than a meritocratic one; to the contrary, when the task required coordination, sharing, communication or interdependent activity among group members, the performance of egalitarian groups was superior. However, these were laboratory and classroom groups; the people involved were students; the rewards that were distributed did not affect the individual's standard of living; the groups had short lives; and so on. Perhaps the commonly assumed trade-off between efficiency and equality would appear in research on "real-life" egalitarian work groups, even if it does not necessarily occur in the laboratory or classroom.

Here, I shall briefly review the scholarly literature dealing with different forms of worker compensation, ownership, participation, and control to see whether equality and efficiency are incompatible. However, before proceeding with this review, I consider the meaning of "economic egalitarianism."

The Meaning of Economic Egalitarianism

In the literature on economic democracy, worker cooperatives and the like, there is a clearly emerging social ideal of economic egalitarianism that has several key components. Central to the ideal of economic egalitarianism is the view that the workplace should be a cooperative rather than an authoritarian or adversarial system (Whyte and Blasi, 1982). A cooperative framework is required to do away with the oppositional, alienating tendencies
inherent in the power differences between the bosses and the bossed as well as those implicit in the different economic interests of employers and employees. Worker cooperatives are democratically controlled by those who work in them. In small cooperative enterprises, decisions are usually made by the entire work group in frequent meetings. Larger ones have management positions which are filled by election on the basis of one person, one vote. Such positions are usually subject to rotation and are open to all qualified members. Managers can be recalled by the members; ultimate authority rests in the work force. Full worker participation in decision-making exists at all levels of the organization. The opportunity for informed and effective participation is aided by training and full access to relevant information.

How the income and surplus produced by the cooperative should be distributed is decided by the workforce. The tendency is toward equality; differences, when they exist, between the highest and lowest paid worker are much smaller than in privately owned firms. Profit or surplus may be used for reinvestment within the firm to create new jobs, to improve working conditions, or to improve productivity; it may be invested in education, health clinics, daycare centers, or other social and community purposes; or it may be distributed in the form of bonuses or increased benefits.

Land, buildings, machinery, and other assets and liabilities of the cooperative are owned by the workforce. Unlike the situation in employee-owned corporations, where the shares they own in the corporation can be sold to other individuals (including outsiders), members of a worker cooperative cannot sell their share of ownership except to the cooperative. The value of a cooperative member's share is determined by the value of his or her "internal' account." The initial balance in this account is determined by
performance-based pay systems. These plans, based on individual performance, group plans in addition, are when cooperative work is rewarded. Such plans tend to be more egalitarian can lead to more efficiency than pay plans based on individual performance. (firm) Pay plans where the performing unit is the group (department, plant, or firm) There is also some research evidence suggesting that performance-based appraisal and feedback, or with other controlled factors that is informational better than the combination with "accountability" (i.e., with performance does not demonstrate that it is the connection between pay and performance quantifiable that have to be added to this statement. First, the research when there is a clear link to their performance. But there are many some research evidence to suggest that individual work more efficiently between egalitarian wage structures and work efficiency. Thus, there is not speak clearly nor existently to the question of whether there is a trade-off summarized in Katzell and Vankloquith, 1975; and Lawler, 1974, 1981) does not.

The available research on performance-based pay plans in industry

Patterns of Compensation

Number of Years.

Balance in the member’s account is paid out to the ex-member over a specified period of time. The person’s membership in the cooperative's surplus is paid out of the cooperative's surplus at the end of each fiscal year, the member's membership fee at the cooperative, and the member's individual financial contribution at the cooperative.
I could find no research evidence that directly addresses the question of whether individual as compared to group merit pay systems lead to more efficient retention of high performing employees and more efficient elimination of lower performing ones. One reason for assuming that egalitarian pay systems are relatively inefficient is because high performers presumably could earn more in a non-egalitarian system and, hence, would be likely to leave the egalitarian system; this would not be the case in an individually-based, merit system. There are other reasons to suppose that the closer, personal attachments and the more congenial interpersonal atmosphere associated with the egalitarian as compared to the individualistic-competitive system might lead to a stronger desire to remain in the egalitarian system.

Patterns of Participation and Control

In the doctrine of economic egalitarianism, the ideal of equality of power -- the ability to participate equally in making the decisions which control, directly and indirectly, one's work and the organization in which one works -- is at least as central as the ideal of an equal standard of living. Worker participation in decision-making within a firm can take place at three levels: the shop floor, the department and plant, and the corporate level. At the department and corporate levels, participation is usually indirect through delegates or representatives. Shop floor participation involves direct personal involvement as an individual or as a member of a small group in such day-to-day operating decisions as: scheduling of work, work methods, workplace layout, quantity of output, quality control, training. Terms such as "job enrichment," "job redesign," "job enlargement," "job rotation," "work restructuring," "autonomous work group," etc. are
often used to characterize worker participation and control at the shop level.

At the departmental and plant levels, worker participation is in the administrative decisions, through representatives to "work councils" or "joint labor-management consultative committees," that usually have consequences for weeks to months (at departmental level) or for a year or two (at the plant level). At the departmental level, these include cost and quality control, resource allocations, achievement of targets and quotas, and planning and coordination of activities. At the plant level, the decisions center about: product lines; production layouts; plant-wide work arrangements; hiring, firing and promotion of employees; and the acquisition, organization and control of resources needed for production. At the corporate level, worker participation is through representatives on corporate boards which are concerned with such long-range strategic policy decisions as: setting goals and objectives; choice of products and geographic locations; pricing and marketing policies; major capital expenditures; diversification; mergers, acquisitions, raising of capital; and disposition of profits.

The meagre available research evidence about the effects of a more equal sharing of power in the workplace suggests that it increases rather than decreases economic efficiency (see Katzell and Yankelovich, 1975, and Jain, 1980). Although there is a significant push toward more participatory control in the workplace, propelled in part by the increasing education and sophistication of the high tech workforce, neither employers nor unions yet seem to be eager to extend cooperation to include the corporate board as well as the shop floor.
Employee Ownership

Two forms of employee ownership of firms are emerging in the United States (Woodworth, 1981). Here, we briefly discuss one form, sometimes labeled "worker capitalism," in which employees, as individuals, typically acquire shares in the enterprise through an "employee stock ownership plan" or through direct purchase of a plant that is about to close, be relocated or be subjected to a takeover by a conglomerate. The employees function as individual shareholders, who have a personal economic interest in the profitability of their firm; as shareholders, even when they together own a majority interest (this is often not the case), the employees do not use their shares collectively to determine management decisions. "Worker capitalism" may or may not involve participation and control over their workplace. Rarely does it involve a fundamental change from a capitalist philosophy of ownership and management.

The results of the limited available research (see Conte and Tannenbaum, 1978) indicate that economic egalitarianism, as expressed in the form of employee-ownership of the firm, appears to result in greater productivity and profitability as well as better attitudes. Again, there is little support for the widely-held notion that increased egalitarianism has a trade-off in economic efficiency. Nevertheless, it is well to recognize that the atmosphere of euphoria which often characterizes a firm after its transformation to employee ownership, after several months, is often followed by growing dissatisfaction, sometimes accompanied by severe conflict. As Whyte and Blasi (1982, p. 143) point out: "The disillusionment of workers and the resulting conflicts arise out of a failure of management to recognize that an employee-owned firm cannot be managed effectively by following the authoritarian model."
Worker Cooperatives

A second form of worker ownership exists in worker cooperatives. These are usually owned by the workforce of the firm or by the cooperative community in which the enterprise is located (as in the Kibbutzim); many such cooperatives do not permit sale or transfer of individual ownership rights. Control of the firm is in the hands of the workforce and is commonly distributed on the egalitarian principles of "one person, one vote."

However, when the cooperative is part of a cooperative community (as in the Kibbutzim) or part of a complex of interrelated cooperatives (as in the Mondragon system), the larger community or cooperative system usually has an important voice in determining policy decisions that would affect the community or system of which it is a component.

There are many examples of successful, well-established, worker-controlled enterprises and of long-lived communes (see Oakeshott, 1978; Lindenfeld and Rothschild-Whitt, 1982; and Simmons and Mares, 1983, for illustrations of worker-cooperatives and Kanter, 1987, for communes). Below, I discuss several examples of such enterprises which are structured on the egalitarian principle of "one member, one vote" including the U.S. Plywood Cooperatives, The Mondragon Cooperative System in Spain, and the Kibbutz Cooperative Sector in Israel.

The U.S. Plywood Cooperatives. Various studies have shown that the plywood cooperatives have consistently outperformed private plywood firms substantially (25-60 percent) in productivity and also in the wages received by the workers (about 25 percent higher). A large portion of this productivity difference may result from the smaller number of management and supervisory personnel required in the cooperatives. In traditional firms, supervisory
personnel are used to police the workforce, checking on goofing off and careless or inefficient work. In the coops, workers police themselves and one another, saving an enormous amount of money that is traditionally spent for supervisors.

The Mondragon Cooperative System. The Mondragon Cooperatives in the Basque region in Spain have grown from a single industrial cooperative started by five young men in 1956, to a network of more than 87 cooperatives with 18,000 workers and $1.7 billion in annual sales. Thomas and Logan (1982, pp. 126-127) after a careful economic analysis conclude:

Various indicators have been used to explore the economic efficiency of the Mondragon group of cooperatives. During more than two decades, a considerable number of cooperative factories have functioned at a level equal or superior in efficiency to that of capitalist enterprises. ... Efficiency in terms of the use made of scarce resources has been higher in the cooperatives; their growth record of sales, exports, and employment, under both favourable and adverse economic conditions, has been superior to that of capitalist enterprises.

The Kibbutz Cooperative Sector in Israel. Menachem Rosner (Rosner et al., 1979), one of the foremost students of the Kibbutzim, has written:

"The equality of mankind -- not merely in its formal connotation but in the true human and social sense as well -- is the most fundamental principle upon which Kibbutz society is based." Embodied in its basic values are two major conceptions: allowance for the specific and diverse needs of various individuals (an individualized or particularistic equality) and the separation of one’s social contribution from the material rewards one receives.

In 1979, there were 254 Kibbutz Communities with almost 120,000 members, comprising about 3.3 percent of the population of Israel (Rosner, 1982). The contribution of the Kibbutzim to the Israeli national product greatly outweighs their portion of the population (40 percent of the agricultural
and 6 percent of the industrial output) and its members have been and are
disproportionately represented in the parliament and among the political and
military leaders of Israel. At the same time, the various indicators of
social pathology -- crime, drug addiction, suicide, juvenile delinquency,
mental disorder -- appear to be disproportionately low in the Kibbutzim.

A typical Kibbutz is an egalitarian, rural community of several hundred
families democratically governed by a General Assembly based on the principle
of one member, one vote; the Assembly meets on the average of three times a
month. A Kibbutz is "owned" by its members but it cannot be sold and its
assets cannot be divided by its members. If individual members leave, they
have severance pay provisions based on a number of clearly defined factors.
Kibbutzim are organized into a "holding company" which is affiliated with
the general labor organization of Israel. Should the majority of a Kibbutz
decide to dissolve it, the Kibbutz's assets would be turned over to the
holding company. (For additional descriptions of Kibbutz life, see Blasi,
1980; Lieblich, 1982; Rayman, 1982; and Snarey, 1982.)

People who work together in a Kibbutz factory, no matter what their
positions in the factory, live together in the same community and have equal
standards of living as well as equal control over community affairs. The
decision-making process on issues related to the industrial plant within a
Kibbutz is partly determined by the nature of the substantive issues. The
Kibbutz General Assembly usually makes the decision on the election of a
plant manager, the investment plan, the professional training plan, and the
hiring of outside workers; the Worker's Assembly, within the plant, commonly
makes the decisions with regard to production plans, work arrangements,
choice of candidates for training, and election of plant officials other
than the manager; and the plant management decides with regard to technical and professional problems. Even when the General Assembly retains final decision power, it will receive suggestions and proposals from the Worker's Assembly and the plant manager with regard to the issue being considered.

For the Kibbutz as a whole as well as for its industrial plants and other branches, all managerial and coordinating positions are rotated in order to prevent the emergence of a managerial elite. Rotation implies not only a turnover of personnel but also that a factory manager will usually be assigned to other lower levels within the plant after completing his tour of duty as manager.

In addition to job rotation of managers, Leviatan (1980) identifies two other mechanisms that are used in the Kibbutzim to counterbalance the ill-effects of hierarchy in organization: direct democracy which provides rank-and-file workers influence over the selection (via the Worker's Assembly and the General Assembly) of plant officers and influence over many aspects of the plant's functioning; and independence of status dimensions such that the individual's standard of living as well as his or her position in the Kibbutz community organization is uncorrelated with his or her position in the factory. That is, a manager has the same standard of living as a worker and is not any more likely to have a high position in the community.

Despite the "handicaps" under which they operate, Leviatan (1978, p. 11) points out that: "Studies and economic analyses of the functioning of Kibbutz work organizations have proved that the Kibbutzim not only compete with their rival organizations in Israel but that in many instances they function even better than similar organizations outside the Kibbutz."
He indicates (1978, pp. 23-24) that the following general lessons can be drawn from the Kibbutz experience:

- The Kibbutz experience in the spheres of work and economy had proven the feasibility for the successful existence of a nonmarket economics, since the Kibbutz had broken down the traditional link between the contribution made by a person and the rewards conferred upon him.

- It serves also as a successful example of functioning of work organizations in a situation where material rewards or their equivalents cannot serve as such because of their non-differentiability. So, it highlights the effectiveness of psychological motivations of higher order needs.

- In other words, the Kibbutz experience is inconsistent with the assumption of an inevitable trade-off between equality and efficiency.

III. Summary

I have reviewed an extensive literature (see Deutsch, 1985, for a more extensive review) which indirectly or directly bears upon the issue of whether egalitarian work systems are inherently less efficient than nonegalitarian systems. The existing research is meager and not of high quality but its findings are concordant with the results of the more carefully controlled laboratory studies described in the first section. There is no reliable or consistent research-based evidence that justifies the conclusion that egalitarian systems are intrinsically less productive than the more traditional, nonegalitarian systems. To the contrary, the available research suggests that, when efficient work requires efficient cooperation, almost any movement toward a democratic, egalitarian, cooperative system and away from the more traditional authoritarian, hierarchical, adversarial system of work improves productivity and lessens worker alienation. This is so whether the movement is from individual- to group performance-based pay, or from nonparticipation
to worker participation in decision-making and profit sharing, or from outside ownership to worker ownership, or from authoritarian control to democratic control. This is not to deny the importance of individual performance and accountability but rather to suggest that when everyone has a stake in your performance, your immediate co-workers as well as yourself, this enhances rather than reduces your accountability and your motivation to work and cooperate effectively. Nor is it to deny that one may work harder if one is paid more: when one is alienated from work (because of dissatisfying work), or from one's co-workers (because of competitive relations), or from those for whom one works (because of an adversarial system).

Concluding Comment

After reviewing the literature on worker participation, worker ownership, worker cooperatives, the Kibbutzim, communes, and the like, I am convinced that paradise is not to be found on this earth. I am further persuaded that even the nearest thing to common visions of an earthly utopia—a small, well-functioning, cooperative, egalitarian community—has to work hard and thoughtfully on a continuing basis to preserve its democracy, cooperativeness, and egalitarianism as well as to survive. The inherent tendency of such communities is to break down; it takes sustained effort to prevent this from happening. If egalitarianism were taken seriously, and the thoughtful effort necessary to establish and maintain such democratic cooperative systems were made, the odds are that we would be more productive and less alienated from ourselves and one another.
Footnotes


(2) It should be noted that the "meritocratic" principle is not always "competitive"; it is so only when a fixed amount (a constant sum) is being allocated: hence, the more one person gets, the less is available for another. An "individualistic" form of this principle occurs whenever the amount of the allocated is variable and dependent upon the level of the total contributions: here, the allocations the individual receive are independent of one another. Thus, the result of this early experiment had no direct relevance to the individualistic form of "meritocracy."
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