

kapitala isti za obe vrste preduzeća; stoga se kapitalni koeficienti u dva ma sektorima podudaraju.

Članak je podeljen u sedam delova. Posle kratkog uvoda u prvom delu, u drugom se delu opisuje okruženje u kome kapitalistička i radnička preduzeća funkcionišu. U trećem i četvrtom delu prikazani su proces odlučivanja i optimalni rezultati u kapitalističkim preduzećima sa dva oblika rukovođenja. Prvi oblik podrazumeva neograničenu odgovornost kapitaliste, dok drugi oblik dopušta mogućnost neispunjenja obaveza u pogledu isplaćivanja nadnica. U petom su delu predstavljene osnovne osobine radničkog preduzeća korišćene u ovome članku. Šesti deo sadrži analizu ravnoteže radničkog preduzeća koje je suočeno sa konkurentnim kapitalizmom neograničene odgovornosti, dok poslednji deo obuhvata analizu ravnoteže sa mogućnošću neispunjenja obaveza u kapitalističkom sektoru.

ON THE ECONOMICS OF SELF-MANAGEMENT: THE ISRAELI KIBBUTZ AND THE YUGOSLAV ENTERPRISE*

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I. INTRODUCTION

The Kibbutz (K) and the Yugoslav self-managed enterprise (Y), in their eight and third decades, respectively, are the only long lasting, relatively large scale, institutionalized systems which bring to the level of the workplace the reality of democracy.

Both K and Y consider themselves to be self-managed (S—M) organizations, and both are accepted as such by students of S—M. One purpose of this paper is to find the systemic features common to both K and Y, since these will then form the set of sufficient conditions for the existence of a S—M organization. However, K and Y are only two of a larger set of possible S—M organizations, so these common features need not constitute necessary conditions. Another purpose is to examine the key differences between K and Y that are not related to S—M *per se*, in order to learn more about the specific characteristics of these two important organizations.

Since considerably more attention has been paid to Y than to K in the literature on S—M, our discussion focuses on K, and we present a linear model of K. In discussing the systemic features of K and com-

*) Some of the Dubrovnik Conference participants raised objections to our comparison between a comprehensive socio-politico-economic organization, such as the kibbutz, and a primarily economic organization, such as the Yugoslav enterprise. As we make clear in the paper, and especially in Section III on the objective function, we view the Yugoslav self-managed enterprise as much more than a mere production unit, where members are only seeking to exchange labour for money wages. In the Yugoslav theory of self-management, as well as in Yugoslav practice, members seek to satisfy some of their important political, social, and psychological needs, as well as economic ones. In addition, it is useful to compare two of the most significant examples of self-management; the fact that these two types of self-managed organizations differ significantly in their institutional arrangements, adds rather than subtracts from the importance of the comparison.

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1) In this paper we shall not enter into detailed specifications of each system, or its history. The reader is referred to Barkai (1977), the best single volume on the economy and economics of the kibbutz, and to Datin-Drabkin (1963). For the Yugoslav enterprise see: Adizes (1971), Jan Vanek (1972), and Neuberger and James (1973).

paring them to those of Y, we shall concentrate on the objective function of each organization and on the various types of constraints facing them; this treatment follows along the lines of a model of optimization subject to constraints. The model of K presented in Section VII is explicitly such a model.

Optimization Model Including the Economic System

Standard microeconomic theory views the organization as a "black box", and does not bring the economic system of the organization explicitly into the economic model. We include the organization's system in the model as influencing the technology chosen, and the calculation of the solution to the optimization problem, as well as creating non-technological constraints.

The economic system consists of *a priori* restrictions (legal or customary constraints limiting the feasible choice set), the decision-making structure (the distribution of authority to make decisions among the organization's members), the information structure (the mechanisms and channels for providing information), and the motivation structure (the mechanisms by which the decision-makers can influence others to implement their decisions) (Neuberger and Duffy, 1976).

The objective function of organizations has for a long time been dealt with in simplistic terms. More recently, the number of dissenters is growing, and even the "bastion" of standard economics included in a recent issue some articles which suggest the consideration of factors that have typically been disregarded as being too "subjective" (see *American Economic Review*, May 1978).

An additional departure from standard microeconomic models of the firm, necessitated by the nature of the organizations under consideration, is the analysis of both production and consumption decisions in one model.

II. THE OBJECTIVE FUNCTION

Analysis of organizations, and especially an analysis which aims at the understanding of the economic behaviour of organizations, must pose at a very early stage the question: what is the objective function which provides the motivation behind the actions of the organization? We turn now to the analysis of the objective function of K, and then compare it to that of Y.

The Objective Function of the Kibbutz

In general, K members belong to one of the following categories: those who were born in a K, others who joined the K as members of youth movements, those who joined together to establish a new K or people who joined existing K on an individual basis. These people have experienced common socialization, by sharing both living quarters and education in the K, or common youth movement education preparation for K life. Thus, K members are self-selected, and their views of the desirable society, and especially of the organization of the micro-society, are different from those of the general Israeli society. Since

entry into K is almost completely free (most K are always willing to add more members) and the standard of living in K is higher than that of the majority of Israelis, the small proportion of the population that is in K makes it clear that most Israelis do not share the K ideology. All of these factors work strongly in favour of homogeneity of opinions in K.

We may, therefore, consider the K membership as virtually a "team" (an organization whose members share common objectives). There are, of course, divergences in individualities, and tastes and abilities. However when we define the rather broad categories in which we are interested for the construction of an objective function, we may strongly argue in favour of the K as a team.

In view of the above, we shall discuss the objective function of the K as a whole, ignoring possible differences among objective functions of various members (note that Arrow's Impossibility Theorem regarding the welfare function does not cause problems in the case of a team).

We may very tentatively posit the following general form of the objective function of K (pending a thorough empirical investigation of this critical issue in the economic analysis of the economic system of K): Kibbutz welfare = f (consumption (C) of public goods, C of collective goods per member, C of private goods per member, profit per member, modernization of K means of production, growth in K membership, extrinsic and intrinsic factors, hours worked per member).

A more rigorous representation of the K objective function, and its implications are analyzed in Section VII, where the complete model of K is presented.

The first set of arguments deals with various components of consumption. We have separated C into three categories because goods in the various categories are treated differently within the K economic system. Consumption goods in K can be divided into private and collective goods, depending on: (1) whether the benefit of the consumption is primarily reaped by the individual or shared by the individual and the collective, and/or (2) whether a good is addressed to a specific individual or can be consumed by anyone. For example, consumption of housing services, clothing and the small amount of money given to each member may be considered as private goods. On the other hand, cultural performances, education, health, and food consumed in the common dining room may be considered as collective goods. A subset of collective goods are "pure public goods", i.e. those where the consumption by one member does not reduce the amount available to others (within the limits of K membership), e.g. cultural performances. K ideology gives preference to collective goods over private goods and to pure public goods over other types of collective goods.²

² We are grateful to Ichak Adizes, Edward Ames, Rivka Bar-Yossef, Ellen Comisso Estelle James, Michael Keren, Dan Leon and Menachem Rosner for comments and suggestions on an earlier draft.

This paper represents an abbreviated version of Ben Ner and Neuberger (1978). The reader interested in a more detailed description of the kibbutz and the Yugoslav enterprise, should consult the longer paper, particularly the section on the decision-making structure and footnote 1. The paper is available from the authors.

³ See Bankai, 1977 for a somewhat different categorization, and detailed discussion of the consumption issue.

We suggest that K maximizes total consumption of pure public goods, since the utility derived from these goods does not depend on the number of members in K and because these goods represent, in a certain sense, the K as an entity beyond the sum of the individual members. Other collective consumption goods (consumption of one member diminishes the amount available to others), as well as private consumption goods, are maximized per member, in view of the desire of K to increase personal welfare of members.

A digression is needed, at this point, to deal with some constraints directly related to consumption. A premise of the K movement is that consumption levels should not stagnate, but increase from year to year. This, in turn, is constrained by two ideological premises: the per capita consumption should vary only slightly among the K, and the per capita consumption of K members should not exceed the Israeli average by a large amount (this last constraint is derived from the socialist view of the entire society, and the will of the K not to separate themselves from the standard of living of the working class).³

The next argument in the objective function is profit per member (total revenue derived from sales minus nonlabour expenditures per member). The inclusion of both consumption and profit as separate arguments is dictated by the nature of K as both a collective household and a production organization. For K as a production organization, profits are an important indicator of its relative success, just as for K as a consumption organization, the goal is to maximize consumption of all types.

Empirical evidence indicates that K have very low marginal propensities to consume in the short run, 0.2 or less, and that many K have large savings and others large debts. (See Barkai, 1977, pp. 151-54, and Helman, 1976, pp. 389-92). This combination of circumstances may be explainable by the serious constraints placed on consumption, combined with the objective of maximization of profits or savings. Those K which have large savings would not engage in the activity necessary to produce these savings, given the constraints on consumption, unless profits (or savings) were an independent argument in the objective function. Those K with large debts, on the other hand, are clearly attempting to reach the acceptable consumption range by borrowing. The consumption constraints also explain the very low short run marginal propensities to consume in K.

A related argument, but one independent of profit maximization, is the desire to modernize the K. This is a manifold objective which incorporates the aspiration of K members to modernize production for its own sake, as well as for the survival of the K economy in competition with other Israeli and foreign productive organizations, to benefit the Israeli economy as a whole, and to provide expertise-intensive jobs for members. This goes along with other objectives related to work, to be discussed below.

³ The Gini coefficient of per capita consumption inequality among the K in the fifties and the sixties was around 0.10 (Barkai 1977, p. 155). The per capita income in the K was about the Israeli average (idem, p. 158), and somewhat above the average of the working class.

The next argument in the objective function, the desire to increase K membership, is a consequence of the social ideology of the K movement, which views K life as socially superior to other forms of life, therefore to be spread among as many people as possible (this also explains the interest of the K movement in K-like settlements all over the world). In addition, many consider the growth in population as a major test for the health of the community's social life and strength.⁴

An important set of arguments in the objective function of the K are other extrinsic factors, as well as intrinsic factors.⁵ The K places importance on these factors: direct democracy, non-hierarchical organization, competency of managerial staff, rotation, friendly relationship at the K in general, satisfaction of the individual from his job and his physical environment, responsibility of the individual towards the collective in matters that affect the membership, etc. (For statements on related objectives see Appendix to Ben Ner and Neuberger, 1978).

Work is considered a positive end in itself, and not only a means toward the achievement of other goals, and is therefore included in the objective function. It is a need to be satisfied (that is why older and physically handicapped people have to be provided with work, even if it is an economic waste). We would argue, though, that this is true only up to a point; satiation exists, and after the «consumption» of some amount of work we run into negative marginal utilities.

What is the period over which the objective function of the K is maximized, and what is the relative importance of future versus present utility?

⁴ For example, Golomb and Katz assign an overriding importance to the growth in K membership. They write:

"In one place are two kibbutzim, established 33 years ago, (with similar endowments) by the same movement and by the same number of founders (initial number of members), and today they are very different. If we test only the profitability, we must say that kibbutz A succeeds much better than kibbutz B, since its standard of living is much higher thanks to its successful factory. But from the aspect of members attachment to the kibbutz, A is less effective than B, and B's population is bigger today by 100 than that of A. Although B's economic situation is not bad, it does not have the abundance of A. ... In spite of the economic success of A we predict that in the future it will face difficulties in its development more than its neighbour..." (Golomb and Katz, 1971, p. 86).

⁵ The *intrinsic factors* are viewed as being derived from the individual's relation to the job itself. Alternate labels are job content factors or motivators.

Extrinsic factors are rewards or sources of need satisfaction that stem from the organizational context and are thus somewhat divorced from the direct influence of the individual.

Intrinsic factors: 1) Achievement, or completing an important task successfully; 2) Recognition, or being singled out for praise; 3) Responsibility for one's own or other's work; 4) Advancement, or changing status through promotion.

Extrinsic factors: 1) Pay, or salary increase; 2) Technical supervision, or having a competent supervisor; 3) The human relations quality of supervision; 4) Company policy and administration; 5) Working conditions, or physical surroundings; 6) Job security (Herzberg et al., 1957). We shall often single out income or consumption from other extrinsic factors, although they clearly belong to this category.

Most K members view their lives connected with the specific K in which they live, and the rate of leaving the K is very low (around 2% annually; see Barkai, 1977, p. 76). These members are likely to consider their own life time as the minimum time horizon. In addition, K members expect that most of their children will remain on the K and have great dedication to the welfare of their children.

K members consider their way of life as unique, important and positive, and want the K to flourish, aside from any personal interest in its continuation. These factors lead to the conclusion that the time horizon of the K is likely to be longer and the rate of time preference lower than in most other types of organization.

The Objective Function of the Yugoslav Enterprise Compared to the Kibbutz

Ever since the path-breaking article by Benjamin Ward, students of S-M tended to accept profit per worker maximization as the objective function of the Yugoslav S-M enterprise.⁶ Along with Jan Vanek (1972), we believe that such an objective function is not a good enough approximation for Y, and an in-depth inquiry into the reasons for the actions of Y, as well as K, is necessary, in order to lay the basis for a comprehensive economic theory for these two types of S-M organizations.

In our discussion of K, we have concluded that, for our needs, it can be approximated by a team. Is the same true of Y? There can exist significant divergences among individual members and different categories of members of Y, and the various objective functions must then be reconciled through the decision-making process, which combines a voting scheme and a process of consensus formation. We shall not be concerned with the various problems of constructing a Y objective function but only with comparing the arguments that might appear in this function with those in K's function.

In the discussion of K's objective function, we have encountered an interesting feature: consumption and profits both appear in the objective function. In the case of Y, it seems more appropriate to include only profits (or in Yugoslav parlance, income or *dohodak*) which combine both consumption and saving. In our discussion of the K objective function, we have indicated that some arguments are maximized per member and others *in toto*. In the case of Y, workers are likely to regard income per member as the maximand, while management may prefer to maximize total income, *ceteris paribus*. For the purpose of this paper, we shall ignore this potential difference of opinion, and adopt the conventional wisdom that in Y it is per member income that is maximized.

We have argued that K strives to increase the number of its member. It is appropriate to contrast this statement with the hypothesis of Furubotn (1976) that the original members of Y will tend to limit membership to a certain number. This is so because they want to preserve some non-pecuniary advantages which may be lost by an increased and

⁶ One important exception is Horvat (1967).

uncontrolled membership. It seems to us that the Furubotn hypothesis should fit K better than Y. The recruitment of K members is done in a manner to minimize the number of prospective members who hold different values from those of the 'founders'. This does not necessarily limit the number of K members, but it places an additional burden on the 'search committee'. In Y, though, the case is weaker, since the weight of non-income factors which may be affected by the values of prospective members is smaller than in K, and the realms of life shared in Y are much more limited compared to K.

Two additional arguments in both the K and Y objective functions are connected with labour performed by their members. We have separate arguments for the utility derived from extrinsic and intrinsic factors connected with work, as well as for the utility or disutility connected with each hour of work. This differs from the usual treatment of the disutility from labour which either aggregates both of these factors or ignores the first one. The significance of this disaggregation lies in the fact that we deal with extrinsic and intrinsic factors as if they were commodities to be produced jointly with goods or services, while hours of labour are strictly inputs into the production of these goods and services. Compared to K members, members of Y view their work more as a means to obtain personal income, and less as an end in itself. Therefore, in Y the relative importance attached to the number of hours worked exceeds the importance of extrinsic and intrinsic factors, as compared to K.

Due to differences among members of Y on the proper time horizon and discount rate, and the inability of workers to vest investment in the enterprise, as compared to their ability to own individual savings accounts (which K members cannot have) it is reasonable to assume that Y will have a higher discount rate and shorter time horizon than K. We would also expect that a new K, with a large proportion of young members, will probably not have a different age composition; a Y in a situation probably would.

III. THE INFLUENCE OF THE ENVIRONMENT AND A PRIORI RESTRICTIONS ON THE ECONOMIC SYSTEMS

In analyzing the economic systems of K and Y, we utilize the DJM approach developed by Egon Neuberger (Neuberger and James, 1973 and Neuberger and Duffy, 1976), which built on Koopmans-Montias (1971).

The Environment of the Kibbutz Compared to the Yugoslav Enterprise

The environment in which K and Y function differ in many respects. For our present purposes, we may disregard the physical and technological environment and concentrate on the socio-politico-economic aspects. To be a self-manager in Yugoslavia is to act normally, while in Israel of today a K member, as well as the K movement on the whole, are considered outside the mainstream and in many cases are looked upon with hostility. The total K movement population numbers about 100,000 or only 3% of the total population; self-managers in Yugoslavia form the vast majority of those employed in non-agricultural occupati-

ons, and all of the members of agricultural cooperatives.

S-M in Yugoslavia was the creation of the political system and its leaders. Although some initiatives towards changes and improvements in S-M practice come from below — the S-M organizations — the significant changes have to have the imprint of a law (if not of the Constitution) and originate with the government. In Israel, on the other hand, self-management in K is the creation of a few individuals who undertook that way of life voluntarily, and changes originate in the K movement (as influenced by the changing environment).

One important difference between K and Y is the degree of choice to potential members of each organization. A potential member of K can join K, a moshav, a publicly owned enterprise, a privately owned entrepreneur in industry or agriculture. Thus, membership in K is clearly limited to those whose objective functions give great weight to K values and way of life.

A potential member of Y has similar options but with the very significant difference that, except for private farming and small handicrafts and catering establishments, all the organizations are of the S-M type; S-M enterprises employ over 90% of the total nonagricultural labour force. Thus, while Y is a central institution in the Yugoslav economy, K is a marginal one in the Israeli economy, and this difference leads to both advantages and disadvantages for K and Y. One advantage is that marginality permits a »purer« form of self-management.⁷

The A Priori Restrictions Faced by the Kibbutz Compared to the Yugoslav Enterprise

A priori restrictions are fixed decisions, of a legal or customary nature, that cannot be changed at all or can only be changed with great difficulty by the organization's decision-makers. They operate as constraints by limiting the feasible choice set. Thus, in addition to the technological constraints imposed by resources and technology, we must consider these additional systemic constraints. (Neuberger and James, 1973)

A crucial influence on the production possibilities and future activities of both K and Y is exercised by their founders. A new K in Israel is founded by one of the K federations in cooperation with the Jewish Agency and the Israeli Government, while a new Y is usually founded by local government units, existing enterprises or groups of individuals. The members act in an environment which was predetermined by the founders who are, in the great majority of cases, distinct from the current membership. On the other hand, the founders lose control of the organization to its current members. Given the need for reasonable decision-making autonomy in a S-M organization, this *forced* separation between founders and current members is a unique systemic feature of S-M which is not found in a capitalist enterprise or a state owned and controlled enterprise in socialist countries.

The means of production are owned by the individual K in Israel, and by society as a whole in Yugoslavia. In neither case, do the mem-

⁷ We are grateful to Ellen Comisso for suggesting this point.

bers have any personal property rights over means of production. However, *de facto*, current members of both K and Y collectively exercise most rights granted by ownership. The major restriction in both cases is that members cannot sell the property and distribute the money. In the few cases where K or Y are dissolved, the property reverts back to the founders.

An important *a priori* restriction in K, as in Y, is the distributional principle. The distribution of consumption goods and services in K is accomplished by two different distribution techniques, depending on the type of good: 1) equal distribution on a per capita basis to all members, and 2) distribution according to differential needs of members (within the constraint imposed by K resources). In Y, the principle of remuneration is according to contribution. Work is usually provided in both K and Y in equal amounts of time by each member, though different abilities may cause different results from the work. In K we find a separation between contribution and remuneration, while in Y there is an emphasis on the connection between them.

K and Y face similar *a priori* restrictions in the hiring and firing of members. Both organizations are reluctant to fire members. While in K there is an absolute prohibition on firing a member for economic reasons, Yugoslav enterprises, in spite of severe government regulations, have occasionally reduced their membership. On the other hand, hiring of wage earners (as opposed to members) is prohibited in both organizations (although both find ways to get around these ideological in K and legal in Y restrictions).

Another *a priori* restriction facing K and Y is related to the S-M character: each member shares equally in the (formal) decision-making power, i.e. both are governed by the one-man one-vote rule, unless consensus can be reached. This rule, as most others mentioned above, is enshrined in the Yugoslav Constitution. In K, it is part of the tradition, rather than law; however, this makes it no less powerful as an *a priori* restriction.

Now that we have a picture of some of the general characteristics of K and Y, their objective functions, and the main *a priori* restrictions imposed on them, we may proceed to a brief examination of the three systemic structures.

IV. THE DECISION-MAKING STRUCTURE

The decision-making structure in an organization reveals the arrangements whereby decision-making authority is allocated among members of the organization, and the set of decisions made within the organization.

A S-M organization has, in principle, its entire collective as the ultimate decision-maker on any issue. Due to problems of size, inability of some members to cope with the information processing requirements for decision-making, the need for a specialization of labour, and the reluctance of the whole collective to spend time on issues that are unimportant lead to the need to split up the collective into smaller sub-units or to delegate authority to certain representative organs.

The Decision-Making Structure of the Kibbutz

The K, as a S-M organization, has its entire collective as the ultimate holder of decision-making power. The collective includes all people above 18 years old who were accepted as members. Thus, not everybody who works in K is automatically a member. The categories of people who reside or work in the K but are not members include: potential members who are in their probationary period, temporary volunteers, youths who are on the K to be trained to either join the K or form a new K, older parents of K members, and non-resident wage labourers concentrated in K industrial plants.

Among those who form the K collective and exercise all the decision-making authority, direct democracy is the norm. Although obstacles to direct democracy exist in K, they are not very severe:

1) K membership (the decision-makers) numbers typically 300 to 450 persons. The branches (productive subunits of K) rarely employ more than 15 members, and the industrial plant, the largest employer in the kibbutz, has typically no more than 50 workers. (77% of all K plants employ less than 50 workers).

2) The average level of education of K members is relatively high (most members have high school education and have participated in professional job-training courses) and homogeneously distributed. The K member is expected to work in K until retirement, and therefore it is economically worthwhile to invest in his professional training. Most members have the opportunity to get acquainted with a variety of jobs performed in K and the problems encountered by various branches. This is due to the rotation principle followed by the K, as well as the need to place members in jobs according to temporary needs of K. This constitutes an important decision-making input.

3) A limited rotation also exists in managerial and administrative positions at the K level. This, and the frequent, informal encounters among members, help in the spreading and processing of information.

The members of K must make decisions on production and investment, just as decision-makers in any productive organization. But, in addition, they make decisions on consumption (both amount and type) of members and on various aspects of the social life of members. The process by which these decisions are made is described in Ben Ner and Neuberger (1978), and will not be presented here due to space limitations.

The Decision-Making Structure of the Yugoslav Enterprise Compared to the Kibbutz

As in K, Y has, in principle, its entire collective as the ultimate decision-maker on any issue. The obstacles to direct democracy, which is a goal of the system, are more severe in Y than in K:

1) The membership of a typical Y is much larger than that of a typical K. The BOALs (basic organizations of associated labour) are the latest in a series of enterprise subunits, and are also much larger than K branches.

2) The educational level of Y members is, compared to K, unevenly distributed. That means that *a priori*, the possibilities to participate in decision-making are not equal, because of the differences in abilities. Thus, in this sense, K is more favourably situated, since, at least in principle, most members are able to judge most issues brought to them for decision, and, in fact, more issues can be brought to the general assembly for consideration. Rotation in jobs is not a common practice in Y, as it is in K. Thus, most members will lack specific knowledge of working processes of other units in the same BOAL, and in the enterprise.

3) This is offset, partially, by the knowledge gained by members serving in S-M organs. However, the advantage of the K job mobility and the informal channels of knowledge exchange in K, place it in a more favorable situation compared to Y for the purposes of democratic participative decision-making.

These impediments to direct democracy in Y were, partly, the causes for the changes in the decision-making structure of the enterprise, enshrined in the 1974 Constitution and the 1976 Associated Labour Law. These enactments transferred virtually all enterprise decision-making authority to the BOALs — an extreme decentralization of decision-making. Full implementation of the BOAL concept would mean the withering away of the enterprise, and its replacement by a «*mariage de convenance*» of BOALs. To the best of our knowledge, this has not been the general experience in Yugoslavia, and the Yugoslav enterprise is still a viable institution, and a useful analytical category. A key factor in maintaining the integrity of the enterprise is the extent of technological and other interdependencies among the BOALs.

While BOALs in Y are similar to branches in K, they are not only larger, but also tend to form parts of a vertical production chain, while the K branches are, generally, horizontally independent production units.

In summary, we would argue that a key difference in decision-making structures is that K is more centralized than Y (even though *technological* vertical integration in Y would seem to require the opposite). Although branches in K may argue with K central committees on plans, the ultimate decision rests with the central organs who control the major variable input — labour. In addition, the fact that the K may be considered a team reduces greatly the likelihood of serious divergences between a branch and the whole K. This is not necessarily true in case of Y and its BOALs. We would also argue that the decision-making structure in K is likely to be more participatory, due to the smaller size of the whole organization and its parts, the greater homogeneity in education among the members, and the more frequent meetings of K or branch members to discuss a broader range of topics.

V. THE MOTIVATION STRUCTURE

The essence of the motivation structure consists of the non-technological means to achieve organizational goals. After the objective functi-

on has been formulated, and, given the inputs and technology to be used, what means are available to induce the members to comply with the organizational goals? The question we raise is not how to manipulate members to do some external agent's will. Rather, the question is, given a collective of people, as in Y and K, what are their best means to induce themselves to achieve their common objectives?

It is possible to divide the motivation structure into four broad categories:

- 1) Individuals being motivated by intrinsic and extrinsic rewards (see footnote 5). These rewards can be regarded as positive or negative, and as material and nonmaterial incentives;
- 2) Individuals being motivated by their identification with the organization and its goals, as would be true in a team;
- 3) Manipulation of the individual's environment by the organization (for example, the organization may limit the feasible set of actions open to the individual or manipulate the information available to him, thus causing him to act in a specified manner);
- 4) Individuals tend to follow customary actions by force of habit. In reality, one observes all four types of motivation working together. However, motivation structures of organizations differ in the relative emphasis they place on these four types, or the specific ingredients of one or more of them.

The Motivation Structure of the Kibbutz

In most organizations, incessant attempts are made to measure the contribution of the individual to the output, in order to reward materially in a discriminatory fashion (more contribution — more remuneration), and thus to improve the functioning of the motivation structure. In K, as we have already seen, one of the major *a priori* restrictions is the separation between contribution and remuneration. More contribution to the output thus does not result in greater material remuneration (except for the proportionate share of the member in the additional consumption of goods and services achieved through his additional contribution; in an organization of the size of K this is, however, very small). Thus, in order to motivate its members to work, K has to rely on other types of motivation.

We have argued that K membership can be approximated by a team, and that sharing common objectives is a powerful motivational mechanism. In the literature on the theory of teams (Marschak and Radner, 1971), motivational problems are ignored, on the assumption that shared objectives provide sufficient incentives for all team members to work toward team goals, and individual incentives are completely replaced by group incentives. Members of K not only share common objectives but they also tend to work for the benefit of the community out of a feeling of solidarity.

In addition, there usually exist powerful motivational mechanisms to assure that each member, in fact, works toward the maximization of team goals. In K, a key motivational source is social pressure. A 'free rider' will encounter problems which are nonexistent in other or-

ganizations. Social isolation is the most extreme of means society can exercise against a member who does not comply with the commonly agreed norms of work, with the exception of the extremely rare step of expulsion. On the other hand, social pressure can be a positive incentive, in the form of social approval and recognition. This is related to the positive value attached by K to work for the achievement of K goals, and to work as an end in itself. This is summarized in the common K expression "ethics of work", which incorporates the demand placed by K society on the individual to fulfill his job according to his best abilities, not because of the sanctions feared or rewards expected, but as a consequence of the positive value placed on work.

In addition to the powerful intrinsic factor of social recognition or disapproval, other extrinsic, and intrinsic motivators seem to be very important in K relative to other organizations. In the absence of individual material incentives, factors connected to the content of the job play a major role as motivational factors for work.⁶⁾

Tradition is important in all organizations but K life tends to reinforce customary behaviour more than organizations that are not as small and not as socially and economically cohesive. To the extent that the stress on the importance of being a good worker has become part of the K tradition, members tend to work out of habit, as well as out of "self-discipline".

The Motivation Structure of the Yugoslav Enterprise Compared to the Kibbutz

The major difference between K and Y is the importance of individual material incentives in Y, and their complete absence in K. In Y, the member gets a proportionate share of the enterprise's or BOAL's revenues, and his share is based on his qualifications and his actual performance. Thus, members are motivated by both group and individual incentives.

Other extrinsic, and intrinsic factors play a role in the motivation structure of Y. However, since work is apparently more instrumental for Y members than for K members, we would expect these factors to be more powerful in K than in Y.

An important international comparison of industrial plants in five countries, including K and Y (Tannenbaum et al., 1974) included treatment of motivational issues. The study shows that the reward for doing an especially good job in K is primarily the high opinion and praise of coworkers and superiors; in Y this is also important but it does not stand out as strikingly as in K. If a K worker does a very poor job, he is exposed to the criticism and low opinion of coworkers and superiors. However, this type of social disapproval carries with it no other penalties, and a worker in K complies with his superior's requests because he respects his competence and judgement, it is his duty, and is neces-

⁶⁾ Menachem Rosner, a leading expert on kibbutz matters, suggested that his researches, as well as others point to the centrality of intrinsic factors, mainly those related to job content, to the motivation structure in K (letter to authors, July 2, 1978).

sary for the benefit of the K, and not because of the superior's ability to grant special help or to penalize him. In Y, the major result of doing a poor job is criticism by the superior, with the low opinion of superior and co-workers being next in importance. The possibility of advancement is negatively affected by doing a poor job in both K and Y. In K advancement does not carry with it any material benefits but does involve greater extrinsic and intrinsic rewards, such as recognition, autonomy, professional challenge. In Y it brings with it both material and nonmaterial rewards. The motivation structure in Y provides for the use of the traditional managerial carrot and stick approaches to motivation, while this is practically eliminated in the K motivation structure.

VI. THE INFORMATION STRUCTURE

Every individual or group decision-maker requires information about the environment and about actions of other decision-makers in order to reach rational decisions, and the information structure must satisfy the needs of the decision-making and motivation structures.

The two S—F organizations under consideration (like probably most such organizations) combine two information substructures, a relatively centralized information structure within the managerial substructure with information flowing from all parts of the organization up to the centre (director and his staff in Y, or the economic committee, in K) and then down again to the various parts of the organization, and (2) a relatively decentralized information structure within the self-management substructure, with information being collected from all parts of the organization and then passed out again to all members to enable them to make informed decisions. We might view the channels of information in this substructure as being indirect horizontal channels, i. e. information is gathered by an agency that is not a hierarchically superior or subordinate and then disseminated to other participants (see Neuberger and Duffy, 1976, p. 232—34 for a discussion of indirect horizontal channels in the French central market survey system). It is clear that such a decentralized information structure, in which no organ is allowed to monopolize information, is essential for S—M to work effectively. (This is fully realized by K and Y. For Y, see Associated Labour Act (1976) Articles 546—550).

One key reason for the failure of S—M is the tendency of managerial personnel to control and filter information, and not provide the S—M organs with sufficient, high quality information. This has been a major theme in the attack on the "techno-managerial structure" in Yugoslavia. In K, this seems to be a lesser problem because of the numerous informal channels for information collection and transmission, and the greater preparation of rank and file members to interpret information.

The meetings of the collective and of other S—M organs are probably as much information transmission mechanisms as they are decision-making mechanisms. Some studies of worker attitudes have shown that many workers place more emphasis on being informed of what is going on and in having the opportunity to present their views than on playing a significant role in the decision-making process. (Neu-

berger and James, 1973, p. 280). In both K and Y this involves an element of insurance (and, thus, risk aversion) on the part of the members. Information on the "goings on" in the organization prevent the possibility of a member being manipulated, or his preferences being ignored.

The key differences are the constant horizontal flow of information of all types through formal and informal channels in K leading to a much lesser likelihood that K management will try, or succeed, to control and filter information. Also, there is no need for monitoring performance in K to determine remuneration, but a need for horizontal channels of information among members to monitor each other (the social pressure). On the other hand, due to the comprehensive nature of K life, a much larger amount of information has to be transmitted than in Y.

VII. A SIMPLE TWO-PERIOD LINEAR MODEL OF THE KIBBUTZ

On the basis of the foregoing discussion of the economic system of K, we present a highly simplified model of K. Compared to the discussion in Section II, this model eliminates certain arguments of the objective function, and some constraints. We chose a linear model to facilitate the presentation and analysis.⁹ A two period model was chosen as the simplest way to introduce time into the model.

In the model presented below, equation (*) represents the somewhat simplified version of the K objective function, discussed in Section II. Equations (1) to (11) present the constraints subject to which the K maximizes its objective function.

The K modelled here has two joint production activities with constant production coefficients over the two periods. Activity A_1 produces only a good for sale on the market; activity A_2 produces only a public good for internal K consumption. Both activities produce intrinsic and extrinsic factors (as incorporated in a single "good") and utilize labour, capital and land.

$$A_1 = (a_{11} \ a_{12} \ a_{13} \ b_{11} \ b_{12} \ b_{13})$$

$$A_2 = (a_{21} \ a_{22} \ a_{23} \ b_{21} \ b_{22} \ b_{23})$$

$$\text{Max: } W = u_1 h_1 b_{22} + u'_1 h'_1 b'_{22} + u_2 \frac{x}{L_0} + u'_2 \frac{x'}{L_{0p}} + u_3 (h_1 b_{31} + h_2 b_{32}) + u'_3 (h'_1 b'_{31} + h'_2 b'_{32}) + u_4 \left(\frac{h_1 a_{11} + h_2 a_{12}}{L_0} \right) +$$

⁹ The assumption of linearity in production appears to be quite reasonable (e. g. Barkei, 1977 indicated that the K industry had a constant returns to scale production function, which provides some support for this assumption). The assumption of linearity in the objective function is less reasonable. In one case, the utility of hours worked, we were forced to introduce piece-wise linearity to prevent too radical a departure from reality.

$$\begin{aligned}
 & h'_1 a_{11} + h'_2 a_{12} \\
 & + u'_1 \left(\frac{\phantom{h'_1 a_{11} + h'_2 a_{12}}}{L_0 p} \right) + u'_2 \left(\frac{p h_1 b_{11} - r h_1 a_{21}}{L_0} \right) + \\
 & u'_3 \left(\frac{p' h'_1 b_{11} - r' h_1 a_{21}}{L_0 p} \right) \quad (*)
 \end{aligned}$$

S. t.:

$$h_1 a_{11} + h_2 a_{12} \leq H L_0 \quad (1)$$

$$h'_1 a_{11} + h'_2 a_{12} \leq H L_0 p \quad (2)$$

$$h_1 a_{21} + h_2 a_{22} \leq K_0 \quad (3)$$

$$h'_1 a_{21} + h'_2 a_{22} \leq K_0 + \frac{I e}{s'} \quad (4)$$

$$h_1 a_{31} + h_2 a_{32} \leq \bar{T} \quad (5)$$

$$h'_1 a_{31} + h'_2 a_{32} \leq \bar{T} \quad (6)$$

$$[p h_1 b_{11} - r (h_1 a_{21} + h_2 a_{22}) - q x - I] e + p' h'_1 b_{11} - r' (h'_1 a_{21} + h'_2 a_{22}) - q' x' \geq 0 \quad (7)$$

$$\frac{q x}{L_0} \leq M + \alpha M \quad (8)$$

$$\frac{q x}{L_0} \geq M - \alpha M \quad (9)$$

$$\frac{q' x'}{L_0 p} \leq M' + \alpha M' \quad (10)$$

$$\frac{q' x'}{L_0 p} \geq M' - \alpha M' \quad (11)$$

ij: input i into activity j , when A_j is operated at level 1 (i. e. $h_j = 1$), where $i = 1$ represents labour (measured in man hours per period), $i = 2$ — capital, and $i = 3$ — land.

kj: output k in activity j , when A_j is operated at level 1, where $k = 1$ represents the goods sold on the market, $k = 2$ — the public goods, and $k = 3$ — the "good" which stands for all extrinsic and intrinsic factors.

Based on the foregoing assumptions, $b_{12} = b_{21} = 0$

x : private consumption good purchased on the market

q : market price of x

p : market price of good sold by K on the market

M : average per capita private consumption in K movement as a whole

α : percentage of M which indicates the limits set on private per capita consumption in individual K

L_0 : number of working members in period 1

K_0 : capital stock available at beginning of period 1

I : net investment decided upon by the kibbutz, $I \geq 0$

T : available land

H : maximum number of work hours per period (e. g. a year) that is socially acceptable

e : $1 + i$, i = market rate of interest for K borrowing and lending

p : $1 + n$, n = natural rate of growth of working membership plus constant net inflow

r : replacement cost of one unit of capital plus associated material costs

s : purchase price of capital

h_1, p, q , etc. are first period values, while h'_1, p', q' etc. are second period values.

All decisions are made at the beginning of period 1, and we assume perfect knowledge of all present and future parameters.

We assume that K members have a positive utility for the number of hours worked up to a certain point, and beyond that they have a negative utility.

The notion of profit, $h_1(p h_{11} - r a_{21})$ is defined simply as revenue minus capital costs in A_1 ; since A_2 produces only internally consumed goods, it generates no profits.

The very general form of our model does not yield many specific results. In order to engage in the usual comparative statics (sensitivity) analysis it would be necessary to attach values to many of the parameters or to solve an extremely complex analytical model. We have not done this for the purposes of this very preliminary treatment.

We have tried to represent the K reality as closely as possible within this simple framework, and this has forced us to make certain assumptions that rule out some of the results that have proved most interesting in the literature on worker self-management. For example, in our model, the size of K membership is not a decision variable as it is in the traditional model of $S-M$. This is due to the fact that K do not generally restrict the number of members on economic grounds, but there is a very limited supply of potential members (the total net inflow into the K movement is only about 2 percent). In addition, there is virtually no mobility of labour between the various K for economic reasons. Thus, in the model, the number of members is fixed, and therefore for comparative statics it does not really matter whether we use total

or per capita values, and some of the surprising results of the traditional S—M models, based on per capita income maximization, do not appear.

The constraint (7) on borrowing or lending over time does not really necessitate that the K repay all its loans by the end of the whole period, but it does mean that there is a limit on how much they can borrow permanently. Thus, in reality, it does not have to be equal or greater than zero but equal or greater than some negative epsilon.

The model presents a completely centralized decision-making structure. Using some decomposition methods, it could be adapted to a relatively decentralized decision-making structure for production decisions, such as the one described in Ben Ner and Neuberger (1978).

Assuming feasibility of the solutions, the model indicates to the K planning committee the optimal allocation of resources among the two activities in each of the two periods, the amount to be invested, and the purchases of private consumption goods on the market.

Using basic linear programming theorems, we derive some results about the economic behaviour of K.¹⁰ The equilibrium conditions for K state that the utility gained from performing an activity e. g. A_1 at level 1 (utility from intrinsic and extrinsic factors, utility or disutility of number of hours worked, and utility of profit per member) must be equal to the cost in utility terms of operating A_1 at level 1 (shadow prices of labour, capital and land multiplied by their respective coefficients, and the utility lost by not borrowing an additional Israeli pound or dollar multiplied by the second period's value of profits earned in the first period).

Consider a K with per capita private consumption close to the average for the K movement as a whole (M) in both periods; in this case, the constraints on consumption are not binding. If this K has zero net borrowing over the whole time horizon (two periods in our model), then the marginal utility of money (spent on purchasing private goods) in the second period multiplied by $1 + i$, has to be equal to the marginal utility of money in the first period multiplied by $1 + n$. If we assume that the price of the private consumption good does not change, then:

$$u'_2/u_2 = p/e$$

If this equality is not satisfied, then either x or x' is zero. Since this is highly unlikely, let us assume that the equality is satisfied. If the marginal utility of private consumption is equal in the two periods ($u_2 = u'_2$), we obtain the well-known result of the "golden rule of accumulation" $n = i$, i. e. the rate of growth of population equals the rate of interest. If K members have a positive time preference, then $n < i$.

If a "poor" K, i. e. one which is constrained by the lower limit on consumption in the first period, improves its relative position in the second period, it will have a lower natural rate of population growth

¹⁰) For a formal statement of the dual problem see the Appendix.

than other K. The opposite is true of a richer than average K.¹¹) To the extent that this mechanism operates in reality, it would serve to equalize per capita private consumption among K over long periods of time. It would thus, serve as a very poor substitute for labour mobility between K.

An increase in the price of the good by K on the market, will, within some ranges, cause an increase in the level at which A_1 is operated (see constraint associated with h_1 in the Dual in Appendix).¹²) The level at which A_2 is operated may increase, as well, possibly even more than A_1 , depending on the relative importance placed on private vs. public goods, and on the rate at which intrinsic and extrinsic factors are produced in A_1 or A_2 , and their relative importance in the K objective function.¹³)

A more in-depth analysis of the present model, as well as its generalization to a non-linear model, is required in order to learn more about the economic behaviour of our simplified version of K.

VIII. CONCLUSIONS

Based on the foregoing analysis, the major systemic features common to both K and Y are: (1) a decision-making structure based on democracy, (2) a significant autonomy from external decision-making, (3) *usus fructus*, and only limited ownership of productive assets, (4) operation within a national economic system in which the market plays an important coordinating role, (5) an information structure providing considerable information to all members of the organization in order to enable them to fulfill their decision-making roles effectively, (6) a policy of not hiring employees for wages (i. e. requiring that all those working in the organization share equally in the decision-making process, and be subject to the same motivation structure as all other members), and (7) *a priori* restrictions on consumption levels in K and on personal incomes in Y (through recently instituted self-management agreements and/or social compacts).

Thus, we may consider these seven features as constituting the major set of sufficient conditions for the existence of S-M organizations. Since we have not explored the full set of possible S-M organizations, we cannot determine whether, these conditions are also necessary.

The first four conditions correspond to parts of the defining conditions of S-M set forth by Jaroslav Vanek (1971, pp. 8—11), one of the

¹¹) This whole analysis disregards the age composition of K, which would certainly affect the natural rate of growth.

¹²) This result holds when we start with $h_1 = 0$, and increase price; we would need a sensitivity analysis to discover what happens to h_1 for all changes in prices.

¹³) This type of problem is analyzed in James (1975) who treats the problem of revenue-raising »production« activities which are used to subsidize loss-making »consumption« activities that yield positive utility. We may also note that James treats the non-profit organization as a production-consumption hybrid. Therefore a comparison of a non-profit organization, such as a university department, and K would be a potentially productive endeavour.

major theorists of S-M. We would argue that only the first two conditions, both parts of the decision-making structure, are likely to prove to be necessary conditions for the existence of S-M, as this type of systemic organization is usually thought of.

Democracy is clearly a necessary condition for S-M but the precise manner in which members of the organization control the decision-making process may be permitted to include direct, participatory democracy or representative democracy, both on a "one man — one vote" basis, or decision-making by the whole collective on the basis of consensus.

Further light on the difficult question of the degree of autonomy necessary to qualify an organization as a S-M one, is shed by the discussion of Espinoza and Zimbalist (1978, pp. 58—59). On the basis of previous work done by the International Labour Organization, they divide the decision set into a three-tier scheme: (1) social, administrative and personnel problems; (2) technical and production problems, and (3) problems of economic and financial management. They suggest that the first two subsets should be included in their entirety in the decision set of the S-M organization. The third, which includes investment, production planning, pricing policy, wage and salary policy, financing and the like, should be included, to a significant extent, in the internal decision set of the S-M organization.

It is less obvious that the other conditions are necessary. For example, it seems possible to have S-M organizations that have complete collective ownership rights over their own productive assets, including the right to dispose of them. Similarly, it appears reasonable to assume that S-M organizations could operate within a sufficiently decentralized planned system, as well as in a market system. The informational condition may not be necessary for the existence of S-M but it is essential for its efficiency. The non-hiring condition is necessary for a "pure" S-M organization but it is not clear whether an organization that hired part of its labour force thereby became non S-M. The *a priori* restrictions on consumption or income levels are a function of the egalitarian ideology in K and Y, and would not appear to form necessary conditions for S-M, but only for "pure" S-M.¹⁴

The three major differences between K and Y are: (1) a. the K objective function includes both consumption and profits as arguments, while Y is much more likely to include only profits (income) or consumption; b. K is more likely than Y to have a team objective function; c. the K rate of time preference is likely to be lower, and d. the time horizon longer in K than Y; (2) the considerably greater degree of internal centralization, combined with a greater degree of direct participation in decision-making in K; and (3) a. the separation between contribution and remuneration in the K motivation structure, combined with b. a strong emphasis on non-material incentives for individuals but material incentives for the collective as a whole, and c. preference for collective over private consumption, compared to a. distribution

¹⁴ In reality, S-M and egalitarianism tend to be closely related, a view supported by historical evidence on S-M movements (Darin-Drabkin, 1963 pp. 15-56).

according to contribution, b. emphasis on material incentives for both individual and collective, and c. only a small proportion of total resources used for collective consumption in Y.

Other important differences between K and Y, which appear to facilitate the functioning of K, are its relatively small size and its marginal position in the national economy.

The above differences between the two types of organizations lead to different models of economic behaviour. Due to space and time limitations, we provided only a model for K. The decentralization of decision-making in Y may require a game theoretic model rather than a single objective function maximization model to describe the economic behaviour of Y.

Some of the behavioural implications that can be hypothesized, on the basis of the foregoing analysis, without further explicit modelling, are: (1) the hypothesized longer time horizon and lower time preference in K should lead to greater capital intensity, *ceteris paribus*, (2) the differences in the objective functions and motivation structures cause labour supply in Y to be a function of individual material remuneration, as is also true of the Soviet collective farm (see Domar, 1966), and the profit maximizing firm, while ideological factors bear heavily on both the short run and long labour supply in K, (3) greater efficiency in K due to a better functioning of the information structure, as well as the greater degree of labour mobility within the organization (without abandoning a division of labour); members can more easily be shifted from branch to branch in K than between BOALs in Y, (4) the greater extent of self-selection of membership in K than Y, and the fact that K is both an economic and a social unit, result in greater differences in objective functions among members in Y, and to a much greater importance of social pressure as a motivator in K, (5) on balance, we would expect greater restrictions on increasing the number of members in Y than K, despite the greater emphasis on homogeneity in preferences in K, and the posted greater capital intensity. This is due to the inclusion of growth in membership in the K objective function, and to the fact that we believe that K maximizes total consumption of public goods (and these are important in K) while Y maximizes per member incomes; (6) the preliminary results of Section VII point to the fact that, at least in some ranges, K will increase production as price increases. This type of reaction is the one we are familiar with in the analysis of profit maximizing enterprises rather than the one encountered in the "Illyrian" firm.

Considerable further empirical and theoretical work on the similarities and differences between K and Y, and the light they shed on S-M, is clearly warranted. This paper has argued for the significance of the task, and has attempted to indicate, in a very preliminary manner, some of the benefits to be reaped from such work.

APPENDIX

THE DUAL PROBLEM

$$\text{Min } W = v_1 H L_0 + v_2 H L_{0P} + v_3 K_0 + v_4 K_0 + v_5 T + v_6 T + v_7 O + v_8 \dots$$

$$+ v_8(M + \alpha M) + v_9(-M + \alpha M) + v_{10}(M' + \alpha M') + v_{11}(-M' + \alpha M')$$

$$(h_1) \text{ S.t.: } v_1 a_{11} + v_3 a_{21} + v_5 a_{31} - v_7(Pb_{11} - ra_{21})c \geq u_3 b_{31} +$$

$$+ \frac{u_4 a_{11}}{L_0} + u_5 \frac{(Pb_{11} - ra_{21})}{L_0}$$

$$(h'1) \quad v_2 a_{11} + v_4 a_{21} + v_6 a_{31} - v_7(P'b_{11} - r'a_{21}) \geq u'_3 b_{31} +$$

$$+ \frac{u'_4 a_{11}}{L_{op}} + u'_5 \frac{(P'b_{11} - r'a_{21})}{L_{op}}$$

$$(h_2) \quad v_1 a_{12} + v_3 a_{22} + v_5 a_{32} + v_7 r a_{22} \geq u_1 b_{22} + u_3 b_{32} + \frac{u_4 a_{12}}{L_0}$$

$$(h'2) \quad v_2 a_{12} + v_4 a_{22} + v_6 a_{32} + v_7 r' a_{22} \geq u'_1 b_{22} + u'_3 b_{32} + \frac{u'_4 a_{12}}{L_{op}}$$

$$(x) \quad v_7 q + v_8 \frac{q}{L_0} - v_9 \frac{q}{L_0} \geq \frac{u_2}{L_0}$$

$$(x') \quad v_7 q' + v_{10} \frac{L_{op}}{q'} - v_{11} \frac{L_{op}}{q'} \geq \frac{u'_2}{L_{op}}$$

$$(I) \quad -v_4 \frac{e}{s'} + v_7 e \geq 0$$

$$v_i \geq 0, \quad i = 1, \dots, 11.$$

REFERENCES

- Adizes, Ichak, *Industrial Democracy: Yugoslav Style*, The Free Press, New York, 1971.
- Barkai, Haim, *Growth Patterns of the Kibbutz Economy*, North-Holland Publishing Company, New York, 1977.
- Ben Ner, Avner and Neuberger, Egon, »The Israeli Kibbutz and the Yugoslav Enterprise: A Systemic Analysis,« Stony Brook Working Paper No. 200, August 1978.
- Comisso, Ellen, *Workers' Control Between Plan and Market*, Doctoral Dissertation, Department of Political Science, Yale University, 1977.
- Darin-Drabkin, Haim, *The Other Society*, Harcourt, Brace and World, New York, 1963.

- Domar, Evsey, »The Soviet Collective Farm as a Producer Cooperative,« *American Economic Review*, September 1966, pp. 734-757.
- Espinoza, Juan G., and Zimbalist, Andrew S., *Economic Democracy, Workers' Participation in Chilean Industry 1970-1973*, Academic Press, New York, 1978.
- Furubotn, Eirik G., »The Long-Run Analysis of the Labor-Managed Firm: An Alternative Interpretation,« *American Economic Review*, Vol. 66, No. 1, March 1976, pp. 104-123.
- Golomb, Naphtali, and Katz, Daniel, *The Kibbutzim as Open Social Systems*, Sifriat Postim, Tel-Aviv, 1971 (Hebrew).
- Helmann, Amir, »The Income-Consumption Relationship in the Kibbutz,« *Rivon Lecalcala* (Economic Quarterly, Tel-Aviv), 91, December 1976, pp. 389-393 (Hebrew).
- Horvat, Branko, »A Contribution to the Theory of the Yugoslav Firm,« *Economic Analysis*, 1967, pp. 7-28.
- Herzberg, F., Mausner, B., Peterson, R., and Capwell, D., *Job Attitudes: Review of Research and Opinion*, Psychological Service of Pittsburgh, Pittsburgh, Pennsylvania, 1957.
- James, Estelle, »A Pure Model of the Non-Profit Organization,« Stony Brook Working Paper No. 137, April 1975.
- Koopmans, Tjalling C., and Montias, John Michael, »On the Description and Comparison of Economic Systems,« in Eckstein Alexander (ed.), *Comparison of Economic Systems: Theoretical and Methodological Approaches*, University of California Press, Berkeley, 1971, pp. 27-78.
- Leon, Dan, *The Kibbutz: A New Way of Life*, Pergamon Press, Oxford and New York, 1969.
- Marschak, Jacob, and Radner, Roy, *Economic Theory of Teams*, Yale University Press, New Haven, 1971.
- Neuberger, Egon and Duffy, William J., *Comparative Economic Systems: A Decision-Making Approach*, Allyn and Bacon, Boston, 1976.
- Neuberger, Egon and James, Estelle, »The Yugoslav Self-Managed Enterprise,« in Morris Bornstein (ed.), *Plan and Market: Economic Reform in Eastern Europe*, Yale University Press, New Haven, 1973, pp. 245-284.
- Rosner, Menachem, »Self-Management in the Kibbutz Industry — Organizational Patterns and Psychological Results,« in Rivka Bar-Yossef and Eliezer Leshem (eds.), *Work Studies in Israel*, Work and Welfare Research Institute, Hebrew University of Jerusalem, 1974 (Hebrew).
- Tannenbaum, Arnold S.; Kavcic, Bogdan; Rosner, Menachem; Vianello, Mino; and Wieser, Georg, *Hierarchy in Organizations, An International Comparison*, Jossey-Bass Publishers, San Francisco, 1974.
- Vanek, Jan, *The Economics of Workers' Management: A Yugoslav Case Study*, Allen and Unwin, 1972.
- Vanek, Jaroslav, *The General Theory of Labor-Managed Market Economies*, Cornell University Press, Ithaca, 1970.
- _____, (ed.), *The Participatory Economy, An Evolutionary Hypothesis and a Strategy for Development*, Cornell University Press, Ithaca, 1971.
- Ward, Benjamin, »The Firm in Yugoslavia: Market Syndicalism,« *American Economic Review*, May 1965, pp. 65-74.
- The Associated Labour Act*, Secretariat of Information of the SRR of Yugoslavia Assembly, Belgrade, 1977.

The Constitution of the Socialist Federal Republic of Yugoslavia, The Secretariat of the Federal Assembly Information Service, Belgrade, 1974.

The Development Strategy of the Kibbutz Industry, Kibbutz Industry Confederation, 1976 (Hebrew).

O EKONOMICI SAMOUPRAVLJANJA: IZRAELSKI KIBUC I JUGOSLOVENSKO PREDUZEĆE

Avner BEN NER i Egon NEUBERGER

Rezime

Ovo izlaganje poređi kibuc (K) i samoupravno preduzeće u Jugoslaviji (Y), dva dugotrajna sistema sa relativno velikim obimom institucionalizacije, koji realnost demokratije dovode do nivoa radnog mesta.

Koristeći Neuberger-Duffy DIM prilaz za studiju o ekonomskim sistemima, autori upoređuju objektivne funkcije, okruženja, apriorne restrikcije, strukturu donošenja odluka, strukturu sistema informacija i strukturu motivacija kod ovih dvaju vrsta organizovanosti. Tek tada, oni prikazuju uprošćeno dva perioda linearnog modela kibuca.

Izlaganje prezentira sedam glavnih sistemskih oblika koji su zajednički za oba vida organizovanosti, pokazujući time dovoljne uslove za postojanje samoupravljanja.

To su: (1) struktura donošenja odluka koja se bazira na principima demokratije; (2) značajna autonomija od spoljnih uticaja na donošenje odluka; (3) usus fructus, zajedno sa ograničenom privatnom svojinom nad proizvodnim dobrima; (4) akcije u okviru nacionalne privrede u kojoj tržište igra važnu ulogu koordinatora; (5) struktura sistema informacija koji obezbeđuje važne informacije svim članovima takvog uređenja u nameri da ih onemoguću da efektivno ispune svoju ulogu u sistemu odlučivanja; (6) politika da se zaposleni ne iznajmljuju za nadnice (npr. zahtev da svi oni koji rade u preduzeću podjednako učestvuju u procesu odlučivanja, i da je svako od njih subjekat sa istim motivacijama kao i svi ostali članovi) i (7) apriorna ograničenja nivoa potrošnje u (K) i ličnih dohodaka u (Y). Hipoteza je autora da su samo prva dva pogodna da se potvrde kao potrebni uslovi za postojanje samoupravljanja.

Tri osnovne razlike (K) i (Y) su: (1) (a) (K) ciljna funkcija uključuje kao značajne činioce i potrošnju i profite, dok (Y) funkciji mnogo više odgovara da uključi samo dohodak ili potrošnju; (b) za (K) je pogodnije nego za (Y) da ima skupnu funkciju cilja; (c) (K) stopa vremenskih prioriteta je pogodna da se smanjuje; i (d) vremenski horizont trajanja je duži u (K) nego u (Y); (2) Znatno veći stepen unutrašnje centralizovanosti, kombinovan sa većim stepenom direktnog učešća u odlučivanju u (K) nego u (Y); (2) Znatno veći stepen unutrašnje centralizovanosti, kombinovan sa većim stepenom direktnog učešća u odlučivanju u (K); u (3) (a) odvojenost između doprinosa u radu i nagrađivanja u (K) strukturi motivacija, kombinovana s (b) jakim naglaskom na nematerijalnim pobudama pojedinaca koje su istovremeno materijalne za kolektiv u celini, i (c) prioritet kolektivne nad ličnom potrošnjom, u poređenju sa

(a) raspodelom na osnovu doprinosa, (b) naglasak na pobudama materijalne prirode bitnih i za pojedinca i za kolektiv, i (c) vrlo mali udeo ukupnih resursa koji se koriste za kolektivnu potrošnju u (Y).

Druge značajne razlike između (K) i (Y), koje olakšavaju funkcionisanje (K) su njegova relativno mala veličina i njegova marginalna pozicija u nacionalnoj privredi.

Neke od implikacija takvog ponašanja koje se mogu postaviti u vidu hipoteza, a koje su izvedene na bazi preliminarnih analize prezentirane u ovom izlaganju; bez nekog daljeg eksplicitnog modeliranja su:

(1) u vidu hipoteze dat vremenski horizont trajanja i smanjenja vremensko trajanje preferencija u (K), vodili bi većoj intenzivnosti kapitala CETERIS PARIBUS; (2) razlike u objektivnom funkcionisanju i strukturi motivacija čine da je ponuda rada u (Y) funkcija individualnog materijalnog okruženja, što se pokazalo kao istinita činjenica kroz sovjetska kolektivna poljoprivredna dobra i firme koje su osivarivale maksimalni profit, dok su ideološki faktori manje uticali na dugoročnu i kratkoročnu ponudu rada u (K), i (3) veća efikasnost delovanja u (K) obavezno vodi boljem funkcionisanju strukture sistema informacija isto kao i većem stepenu mobilnosti rada unutar jednog organizovanog sistema (bez zanemarivanja podele rada); dalje, članovi kolektiva (K) mogu lakše biti premeštani s mesta na mesto nego u okviru OOUR-a u (Y); (4) veći raspon ličnog opredeljenja u (K) nego u (Y), i činjenica da je (K) i ekonomska i socijalna jedinica rezultira u većim razlikama koje se javljaju u objektivnom delovanju pojedinaca u (Y), i mnogo većoj važnosti socijalnog pritiska kao motivatora u (K); (5) sumirajući, očekivali bismo veće restrikcije na povećanje broja članova kolektiva u (Y) nego u (K) naglašavanju na homogenosti u preferencijama u (K) i na postulatu intenzivnosti kapitala.

Obavezno treba uzeti u obzir porast članova u (K) ciljnoj funkciji u skladu sa objektivnom činjenicom da smatramo da (K) funkcija maksimizira ukupnu potrošnju zajedničkih dobara, (a ona su važna u (K), dok (Y) funkcija maksimizira dohodak po pojedincu; (6) preliminarni rezultati ovog modela ukazuju na činjenicu da će na kraju, po nekim klasiifikacijama (K) povećati proizvodnju prema porastu cena. Ovaj tip reakcije je onaj o kojima smo se upoznali u analizi preduzeća koje teži maksimizaciji profita, pre nego sa onim koji susrećemo u »Iltirskom« tipu preduzeća.

Svaki značajan dalji empirijski i teoretski rad na sličnostima i razlikama između (K) i (Y) kao i svetlost koju on baca na samoupravljanje, jasno je opravdan. Ovo izlaganje je pokazalo značaj takvog zadatka, nastojeći da sasvim preliminarno pokaže neke od prednosti koje se mogu postići na osnovu takvog rada.