DECENTRALIZATION WITHOUT HIERARCHY: EXPERIENCE OF YUGOSLAV ENTERPRISES

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INTRODUCTION

The organizational reform of the Yugoslav economy initiated in 1976 by the Law on Associated Labour (LAL) introduced a new type of labour-managed industrial enterprise. Previous functionally organized labour-managed (LM) enterprises (i. e., Williamson's U organization form) were divisionalized into a set of quasi-autonomous Basic Organizations of Associated Labour (BOALs). The BOALs were in turn regrouped within enterprises (the so-called Work Organizations: WO) and large industrial groups (called Complex Organizations of Associated Labour: COALs). A federal decision-making structure was introduced giving the BOALs ultimate decision-making power over all key issues (such as capital investment, income distribution, personal income formation, merger policies, etc.). Thus, the Yugoslav labour-managed enterprise had been turned into a very decentralized, associative, non-hierarchial type of organizational entity. The reform of 1976 replaced the internal hierarchy of the traditional firm and introduced an internal contracting system: all major decisions within COALs and WOs are negotiated among component BOALs (i. e., divisions) and final decisions are taken by a consensus rule. Thus, the outcomes of the collective decision-making procedures are codified in the self-management agreements, implementation of which requires the consent of member BOALs. Capital was practically decentralized *in toto:* each BOAL has its separate bank account, and the internal flow of funds within a WO or a COAL cannot be effected on an administrative basis. Divisions have full control over their funds and no central enterprise authority exists with legal authority to make capital decisions.[1]

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[1] For a detailed description of intra-enterprise reforms in Yugoslavia see: Tyson (1980). An extensive analysis of the divisionalization in large Yugoslav enterprises is given in: Sacks (1983).

The Yugoslav LM enterprise (eg., COAL) cannot be easily reconciled with the traditional notion of the enterprise (S. R. Sacks, 1980). Many authors (eg. Williamson, 1975) discuss the organization of an enterprise with an explicit notion that some genuine administrative element is involved: the market is in some transactionally significant way pre-empted. Williamson's markets-versus-hierarchies paradigm thus cannot be neatly used to describe a Yugoslav COAL, since its internal structure is essentially non-hierarchic. Markets are »internalized« via bargaining and collective decision-making among member BOALs.

In some sense, a COAL can be identified with a »resource pool«, where individual members (BOALs) pool their labour and capital on a permanent basis, with joint-profit maximizing objectives. Since COALs are essentially »coalitions of agents«, two rules then follow: a new BOAL can enter »the association« if (1) it wishes to and (2) if other members wish to accept it. Two analogous conditions obtain for the case of the withdrawal of any existing member BOAL (see: J. H. Dreze, 1977, p. 11).[2] A COAL is an innovative form of organization of a labour-managed firm.[3] The economic significance of COALs consists in their potential for providing increased inter-BOAL capital mobility than would occur if BOALs operated as independent firms. By replacing the pure market exchange with »organized negotiations« and joint-income sharing and resource pooling, COALs could be expected for this reason to enhance the allocative efficiency of the Yugoslav economy.

Nearly a decade after the LAL was passed, there is a revival of interest in reappraising the impact of the organizational reform initiated by this Law. Many Yugoslav economists claim that the initial divisionalization of labour-managed enterprises was carried too far: ample evidence shows that BOALs have turned into quasi-independent firms, that their autonomy impairs efficient intra-firm co-ordination and that the federal decision-making structure slows down the decision-making process and strengthens the »localistic« tendencies within a firm. Many observers also claim that, as a result of the 1976 reform, the labour-managed enterprises were turned into loosely co-ordinated wholes, in which interdivisional, (i. e. inter-BOAL) capital mobility was reduced, problems related to global strategic decision-making were aggravated, income differentials among BOALs were increased (causing social tensions among BOAL workers) with concomitant

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[2] Empirical observations disclose that one of the most important motives for a new BOAL to join an existing COAL is its expectation that other BOALs (i. e., the COAL) will provide additional funds for its own internal investments. For this to happen, a »membership fee« has to be paid: the new member BOAL has to accept the obligation to pool its own retained earnings which are to be allocated according to collective decisions. In other words, a new BOAL is restricting its own property rights as a »price« of benefits that »membership« in a COAL brings. (Ostojić, 1984, ch. 3.)

[3] See for example: Tyson, 1979.

effects in reducing the economic efficiency of the Yugoslav LM firm.[4] Theoretically and practically, perhaps the most important issue of Yugoslav enterprise-level divisionalization and decentralization relates to interdivisional capital mobility and the internal resource allocation mechanism that Yugoslav firms use in order to ensure the concentration of BOAL funds and their allocation to globally desired projects.

Possibly the best way to explain the internal resource allocation mechanism in Yugoslav COALs is to undertake a comparative analysis of allocative mechnisms employed in multidivisional Western corporations (of the type that O. Williamson calls the »M-form corporation«) and Yugoslav COALs, respectively. The interesting comparative question is: how these polar forms of organization solve the problem of ensuring the flow of divisional funds to high-yield uses and what the nature of their respective allocative mechanisms is.

1. THE PROBLEM OF RESOURCE ALLOCATION IN COALs

For an internal allocation of resources in any large divisionalized organization to be efficient, two distinct requirements should be satisfied: (1) Corporate capital should be allocated among divisions in such a way that its marginal productivity is equalized (or to put it differently, to allow for internal flows of capital to high-yield uses), (2) The funds of the divisions should be concentrated on selected key projects in each period of the firm's investment cycle. *Since COALs do not have the authority or formal discretionary power to transfer funds among divisions*, intra-COAL mobility of capital depends on: (1) the investment behavior of BOALS and, (2) incentive structures and organizational integrative devices that the COAL creates in order to stimulate the internal mobility of BOAL funds. *The resulting allocation pattern largely depends on the propensity of BOALs to pool their funds on joint activities* and the *COAL's ability to induce the globally rational behaviour of its component* BOALs. Let us first inspect the implications of the investment behaviour of quasi-autonomous BOALs for the intra-COAL mobility of funds.

Empirical observation of the Yugoslav economy reveals that BOALs nearly always prefer internal reinvestment of their retained earnings to direct investments in other BOALs, even within the same COAL. Several factors explain the propensity of BOALs to internally reinvest their funds instead of investing them into profitable opportunities elsewhere.

First, for workers employed in a BOAL, internal reinvestments are in fact quasi-equity investments. As long as they are employed

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[4] The best exposition of the organizational problems of Yugoslav LM enterprises is given in: Mates (1984), Ocić (1983), and Horvat (1983). For an extensive theoretical and practical discussion of the structure and functioning of Yugoslav Complex Organizations of Associated Labour, see: Ostojić (1984).

in that BOAL, they will enjoy the fruits of internal reinvestments.[5] *Second*, internal reinvestments bring to the workers many non-monetary benefits (such as: better working conditions, new work places potentially reserved for their relatives, new technology, improvement of the living conditions of the local community, new houses, etc.,) above purely financial returns (higher personal incomes, etc.,). *Third*, internal reinvestments can bring about an increase in the personal incomes of the professional workers and managers, during the actual period of construction (travels, fringe-benefits, etc.) and can promise attractive future benefits (career advancements). Note that professional and managerial workers belong to the so-called »enterprise establishment« and have a significant influence over actual investment decisions. (See for example: E. Neuberger, E. James, 1973, pp. 258.282).[6]

For an external investment to be preferred over internal reinvestment, the expected pure financial return from direct external investment in another BOAL must exceed the sum of expected financial and non-financial returns that an internal reinvestment could bring to the BOAL members.[7]

The general consequence of the investment behaviour of BOALs is that the demand for investable funds will far exceed the supply of investable funds, given nominal market interest rates (which are negative in real terms in Yugoslavia) and rates of return on internal reinvestments.

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[5] Yugoslav legislation does not allow equity investments in other BOALs. Two investment arrangements are allowed: direct enterprise-to-enterprise investment with a fixed repayment schedule and a fixed interest rate, or joint-ventures (joint-profit sharing) with a fixed repayment schedule of the principal and a variable share of the realized joint profit. Both arrangements limit the time horizon in which the investor shares in the results of the project. Thus, investing internally a given sum of money will be a quasi-equity investment (for workers staying sufficiently long in that BOAL) generating a perpetual return as long as the asset is economically productive, while investing the same amount of money into another BOAL will provide returns only during the period in which the principal is recovered.

[6] The behaviour of the COAL management is an interesting object of analysis. Unlike the managers of public enterprises elsewhere, managers in Yugoslav COALs receive no bonus reward contingent on the performance of the whole. Their »career function« induces them however to take into account the preferences of the political and social environment. Thus, their »maximand« is the *absolute income* of the COAL while the »maximand« of BOAL managers and workers is *income per worker*. See for example: Bergson, 1978.

[7] Let the utility derived from internal reinvestments be $U(y, B)$ where y denotes net income and B denotes non-monetary benefits that accrue to the workers. (y and B may be given different weights in the utility functions of the decision makers). Let the utility derived from external investments be $U(y)$ where y denotes return on the external investment. Workers will prefer internal reinvestments as long as $U(y, B) \geqslant U(\bar{y})$. To make external investments preferable $\bar{y}$ must exceed y for B. (B can hardly be measured in monetary units and depends on subjective evaluations of non-monetary benefits). Thus the condition is: $U(\bar{y}) > U(y) + U(B)$.

If this analysis is right, we would expect to find low intra-COAL mobility of capital in most cases. However, the empirical evidence shows that, in many COALs, inter-BOAL capital mobility is not negligible. What then is the *rationale* for inter-BOAL flows of funds?

It is almost always the desire to secure required inputs or to provide a market for a BOAL's own products. The majority of inter-BOAL investments are thus »transactionally« oriented. We should, however, emphasize that upstream or downstream investments by BOALs within the same COAL do in fact represent a modified variant of internal reinvestment, due to the external monetary economies that they generate. Thus, we would expect inter-BOAL mobility of funds to be higher in vertically and relatedly diversified COALs and lower (or non-existent) in pure (or in significantly diversified) conglomerates.[8] Of greater importance, however, is the ability of COALs to design adequate incentive structures and integrative devices fostering inter-BOAL mobility of funds even if obvious production-related investment opportunities do not exist. Pooling of BOAL resources on joint projects with joint-income maximizing objectives offer wider opportunities for channelling BOAL resources to high-yield uses within a single COAL. Section 3 takes up this issue. Before this, however, it is useful to describe the allocative mechanism used by M-form corporations.

2. THE RESOURCE ALLOCATION MECHANISM IN MULTIDIVISIONAL CORPORATIONS

It is often argued that a diversified M-form corporation allows for efficient allocation of corporate capital, channelling resources to high-yield uses better than external capital markets do, and obtaining desirable risk-spreading through diversification. Many students of Western corporations (O. Williamson, 1975, and M. Porter, 1977) explain this fact by the specific allocative mechanism that these corporations employ. Slightly reinterpreting Williamson (1975, pp. 85, 119, 147—150), a multidivisional corporation is efficient if it (1) attenates local conditions of inefficiency and leads to least-cost behaviour, (2) stresses joint-profit maximization and curbs sub-goal pursuit, and (3) ensures that corporate resources are put to high-yield uses. To achieve all this, the M-form corporation employs an internal control apparatus comprising a set of *incentive structures* (which assure adherence of divisional managers to global goals), *internal auditing tools* (to evaluate divisional performance and ensure internal efficiency) and a *mechanism for cash-flow allocations*. This mechanism allows for interdivisional cash-flows, does not automatically return cash-flows to divisional sources and relies on internal competition among divisions with

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[8] The analysis of the COALs represented in the »130 largest industrial firms« of *Ekonomska Politika* (for any year) shows that pure conglomerates are only few in number. The majority of COALs are vertically integrated or relatedly diversified. (See: Ostojić, 1984, pp. 142—4).

respect to the allocation of corporate capital. To ensure that corpo-
rate resources are put to high-yield uses, top management imposes
a target (hurdle or cut-off) rate of return (ie., an implicit price of
corporate capital) on divisions. Top management assumes the functions
of an external capital market, sets global objectives, solicits invest-
ment proposals from the divisions, evaluates them according to
central criteria and makes decisions regarding the allocation of cor-
porate funds. Thus ideally, corporate top management would act as
an »auctioneer« prescribing the rules for internal competition among
divisions with respect to the allocation of corporate resources. This
allocative scheme resembles the logic of multilevel decentralized plan-
ning models of the price-guided variety.[9] The model is of course
only informationally decentralized; it is firmly rooted in the hier-
archical structure of the modern corporation, where top management
acts as a central resource allocation unit, within the »decomposable
federation of quasi-firms (divisions)«. (R. Marris, 1971, p. 276).

Some authors claim that internal capital markets show superior
performance when compared to external capital markets (Williamson,
1971, pp. 347, 363). The major drawback of the external capital market
is of the information variety: it is an external control device that
goes into effect only when mismanagement reaches a conspicuous
level. An internal resource allocation mechanism can, to that extent,
be regarded as both a market substitute and an internal control
technique (Williamson, op. cit., p. 362). The key efficiency property of
the internal corporate capital market is that performance of the
division and the subsequent resource allocation are connected, such
that the *resource allocation process is responsive to the differential
performance of the divisions.*

The basic difference between the external capital market and
the internal resource allocation mechanism of an M-form corporation
is that a division in the latter will be judged against other divisions
of the same corporation, while a free-standing firm will be judged
against the general population of firms and in addition has sure access
to at least its own internally generated funds (See. M. Porter, 1977).

The drawbacks of internal capital markets, however, are that:
first, divisional performance is measured with a limited and incom-
plete set of measures (e. g., a given financial indicator) which are
applied to the whole portfolio of corporate businesses, and *second,*
strategic manipulation of information by the divisional managers
poses a serious threat to the validity of top-managemen decisions.[10]

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[9] See for example: Heal (1973) and Hurwicz (1977).

[10] Divisions behave strategically in order to convince corporate
managers that their investment proposals are eligible for the allocations
of corporate capital. Strategic manipulation of information is a case of
opportunism and incentives incompatability (a characteristic feature of
the »principal-and-agent« problem). There is a need here for an elicitation
scheme that would generate truthful signals from the divisional managers.
The problem is noted in the literature on the theory of incentives. See:
Conn (1979).

3. THE RESOURCE ALLOCATION MECHANISM IN YUGOSLAV COALs

The resource allocation mechanism used by COALs differs in three important respects from the corporation's internal capital market. First, the COAL has no authority over cash flows: BOALs have fully pre-emptive claims on their individual income streams, and their cash-flows can be reallocated (via direct investments in other BOALs or via pooling at the COAL level) only with their explicit consent. *Second*, the mechanism does not rely on the same form of internal competition as in the case of the internal capital market. Negotiation and consensus voting with respect to resource allocation (i. e., the choice of projects and their funding) are employed and COAL management bodies act as mediating and co-ordinating agents, proposing COAL-wide allocations, aggregating BOAL proposals and arranging COAL-wide negotiations. *Third*, the internal price of capital (eg., a hurdle rate of return) does not play a decisive role in the project selection process. Since projects are judged against a set of numerous quantitative and qualitative measures, formalization of the selection process becomes difficult. Ideally, it runs as follows: BOALs jointly determine the global objectives and strategy of the COAL (usually within the confines of annual and five-year plans) and set the criteria for investment decision-making. In the second step of the investment process, individual BOALs formulate and propose their investment projects, which are formally reviewed and judged against COAL-wide criteria by the COAL professional staff. In the third step of the process, selection of the projects and the financing arrangements are made, and the outcomes are formalized through self-management agreements (SMAs).[11] We will now analyse this process in detail.

Let there be a total of n different investment proposals, indexed by i (i = 1, ..., n). The first m of these are assigned a COAL-wide priority status; projects m + 1 through j will be labelled as »coalition« projects and projects j + 1 through n are »individual« projects:

$$P = (P_1, \ldots, P_m, P_{m+1}, \ldots, P_j, P_{j+1}, \ldots, P_n)$$

The COAL priority projects are those which are financed by the pooling of funds of all member BOALs. The »coalition« projects are those projects which are financed by the pooling of funds of two or several interested BOALs.

One might easily foresee three possible outcomes of the internal resource allocation process in a COAL: (I) the set of COAL projects

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[11] This description fits the case of tightly integrated COALs in which divisional autonomy is restricted through clear »rules of the game«. However, in the majority of Yugoslav COALs, a decentralized investment procedure is employed, such that BOALs make their own investment choices with little or no guidance from COAL-level management bodies. See: Ostojić (1984), Ch. 5.

consists of one or two priority projects which are financed by the pooling of funds of all member BOALs, (II) the set consists of several subsets of »coalition« projects (financed by the joint pooling of funds of several interested parties) and a subset of individual BOAL projects, (III) the set of COAL projects consists of individual BOAL projects.

The perfect intra-COAL mobility of funds is realized only in the first case, where all available funds of each BOAL are pooled at COAL level and allocated to the jointly agreed priority project in each period of the COAL investment cycle. In the third case, there is no inter-BOAL mobility of capital: each BOAL implements its investment project, providing that it meets the jointly determined criteria and can ensure full self-financing (or a mix of its own retained earnings and of debt capital raised on external bank markets). The importance of the pooling mechanism for the efficiency of the internal resource allocation process is self-evident. The third alternative might in principle lead to an efficient outcome provided (a) individual BOAL projects were of roughly equal expected profitability, and (b) each BOAL was able to ensure complete self-financing (given the availability of additional debt capital). Since both conditions are unrealistic, concentrating the scarce resources (via the pooling mechanism) and allocating them to selected projects is a precondition for ensuring that COAL capital will be put to high-yield uses.

Empirical evidence discloses that the criteria for the investment activities of BOALs are usually the required *self-financing ratio, payback period* and the *average (industry)* profitability that the project should meet.[12] Most COALs, however, do not employ a standard (cut-off) rate of return as a device for rationing available funds. There are several reasons why Yugoslav COALs do not set a single hurdle rate of return (i. e., an internal price of capital) as a screening device in the capital budgeting process.

First, with self-financing and pure income sharing (where labour does not have a competitive wage) it is exceedingly difficult *to derive a uniform profitability measure (as an indicator of internal capital cost) to be applied to different businesses with different capital-labour ratios.*[13] *Second,* in the absence of competitive capital markets (which

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[12] A payback period (an indicator which does not take into account the timing of cash flows and the economic life of the asset) is appropriate when there is a great shortage of funds. The project which pays back the original investment earlier is preferable because the funds so released can be reinvested in other projects. The required self-financing ratio is a very important criterion used for ranking the projects. Yugoslav banks use this measure extensively for rationing debt capital. The internal self-financing ratio set by a COAL is usually the same as the one that banks apply. This measure also serves to regulate income distribution in BOALs and *inter alia* to increase the amount of investable funds.

[13] With different capital-labour ratios, indicators such as net income per worker and net income per asset show different results. Yugoslav economic theory has struggled for a long time to discover a single profitability indicator that would fit the situation of pure income sharing, but no consensus has been reached.

in the case of a multidivisional western corporation provide a link between the required rate of return and the implicit maximization of the price of common share stock) a COAL is confronted with the difficult issue of selecting a numerical value of the target rate of return against which all projects whould be compared, and about which the member BOALs *would reach a* consensus.[14] *Third*, the nature of the scrutiny (review) procedures, used for the evaluation of individual BOAL projects, is such that it precludes the *hierarchical relation* implicit in the use of a single, hurdle rate of return as a key automatic selector. The review process in COALs is less formal than in M-form corporations, the evaluation of BOAL investment proposals is not as heavily oriented toward financial criteria as in the former, and the performance of BOALs being measured against a wider set of quantitative and qualitative information.[15] Instead of the traditional capital budgeting procedures used by M-form corporations, Yugoslav COALs employ an explicit bargaining procedure which can be described in the following way.

Let W be an implicit COAL »welfare index« representing the benefits which each of the BOAL's candidate projects might bring to the COAL as a whole. The projects can be ordinally ranked in descending order such that[16]

$$W\ (p_1) > W\ (p_2) > W\ (p_n).$$

The selection of COAL priority projects requires a consensus vote (since all BOALs are required to pool a share of their retained earnings to finance selected priority projects). If all BOALs have identical preferences with respect to the choice of projects yielding the greatest economic and social benefits for the organization as a

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[14] The choice of a required rate of return in an M-form corporation derives from the maximization of the value of the firm to its shareholders. There is no capital market in Yugoslavia which would provide the underlying logic for the selection of a target rate of return. The problem of choosing the appropriate discount rate in a labour-managed economy is well known. See Tyson, 1980, p. 15 and Montias (1976), pp. 239, 240.

[15] Instead of being predominantly financial in nature, the criteria used for evaluation of investment proposals in COALs are more qualitative in nature. Thus projects will be judged against their compatibility with the approved market, the technological and production strategy of the COAL, the size of project's »external effects« on other BOALs, etc. The nature of the project formulation process also differs from that in the M-form corporation: COAL management is usually involved in the early project formulation phase through intensive multi level consultation which makes them much more familiar with BOAL operations. The upshot is that an impartial, formal (bureaucratic) evaluation of projects using a single quantitative measure, does not fit the associative nature of Yugoslav COALs.

[16] The methodology which some COALs apply consists essentially in assigning a number of points to each component of the »welfare index« (e. g., profitability, employment effects, productivity effects, capacity utilization, export propensity, compatibility with national economic plans, etc.,) though in many COALs informal evaluations are applied: See: Tošić (1984).

whole, then the amount of available funds (given the amount of external debt capital that is expected to be available) determines the number of candidate projects which will be granted priority standing. If no consensus can be achieved on the ordering of the projects (i. e., if BOALs are not unanimous with respect to the investment proposals to be granted priority standing) coalitions are likely to emerge. Different groups of BOALs will prefer to pool their funds into different projects. The consensus is easier to reach in vertically or relatedly diversified COALs within which externalities with respect to individual BOALs, are large. Thus it is probable that the project with the largest positive external effects on upstream or downstream BOALs will be assigned priority standing.

In diversified COALs, coalitions are likely to be formed along product lines, keeping in mind the predominant motives for inter-BOAL investing (as shown in Section 1).[17]

Once consensus on the selection of the COAL priority projects is reached, the share of each BOAL's retained earnings to be pooled is determined as a function of the *required self-financing ratio*. The outcome of the collective bargaining process is generally indeterminate. To reach a consensus on the selection of projects which are to be financed jointly by all BOALs, (by pooling resources at the COAL level) explicit *»side payments«* must be offered. This is where the role of *reciprocity* and *internal compensation* becomes very important. These common situations can be illustrated in the following way.

Let us start with a reasonable assumption that no BOAL can ensure by itself complete self-financing, or even that certain BOALs cannot meet the required self-financing ratio (as collateral for obtaining debt capital). Now *pooling of resources (joint self-financing)* can solve some of the financing problems that occur when investable funds are very scarce. Suppose, for example, that two BOALs are proposing two investment projects, whose size is dictated by technological or market requirements: if neither BOAL can secure the requisite own funds to meet the target self-financing ratio (and thereby acquire additional bank credits) then pooling of their funds can ensure successive investments in both projects in different time periods. If these projects are interindependent, the investment sequence is determined by technology; if they are independent, the order in which the projects will be undertaken depends on the timing of the cash flow: projects yielding earlier earnings have greater opportunity for reinvestment and their accumulated impact on the investment possibilities of the COAL over the planning horizon will be greater. The timing of cash flows will be determined by the pos-

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[17] The following factors have a bearing on the outcomes of the collective bargaining process: (1) an individual BOAL's propensity to invest in other BOALs and the availability of profitable opportunities for reinvestment, (2) expected net total benefits that each candidate project might bring to the majority of BOALs, (3) the discretionary (informal) power and inductive capabilities of the COAL management. Factual evidence often indicates that in the absence of a generally acceptable solution, the list of priority projects becomes very long, reflecting the compromising nature of the outcome.

sibility of reinvestment in future projects of the earnings of current projects (See: Bradley, Frey, 1978.).

Joint profit-sharing, however, can also ensure the internal mobility of funds to high-yield uses. Suppose that $BOAL_1$ expects to earn on its project a return $y_1{}^*$; while $BOAL_2$ expects to earn on its project a return $y_2{}^*$ but needs additional funds (where returns are expressed in dinars).

If $BOAL_1$ scales down its proposed investment, it can expect a return of $\overline{y}_1 \leqslant y_1{}^*$. If it invests its remaining funds (thus released) into the $BOAL_2$ project (which offers a return $y_2{}^* \geqslant y_1$) the following profit sharing rule a may make the arrangement attractive to both BOALs:

— $BOAL_1$ gets $ay_2{}^*$, such that $ay_2{}^* + \overline{y} \geqslant y_1{}^*$
— $BOAL_2$ gets $(1 — a) y_2{}^* \geqslant \overline{y}_2$ (next best alternative)

While joint-profit sharing arrangements in oligopolistic markets are notoriously unpredictable (due to opportunism and uncertainty), intra-COAL joint-profit pooling could be more stable (due to the opportunism-curbing devices an organization has at its disposal).

Joint-profit sharing arrangements are appropriate for bilateral investments or »coalition« projects within a COAL; pooling of resources (joint self-financing), on the other hand, facilitates the selection and realization of COAL-wide priority projects. It is easier to reach a consensus on the choice of priority projects if BOALs, which oppose the choice of a specific project for priority in t, are promised that their respective projects will be assigned priority standing in t + 1. Thus, a promise that »each will have its turn« acts as »side-payment«. Reciprocal arrangements under which n BOALs pool their funds and invest into a specific project P_t in t on the promise that each of them will get a requisite amount of pooled funds in $t + 1$, are quite common in Yugoslav COALs. Reciprocity (»I invest in your project in t if you will invest in my project in $t +1$«) can facilitate higher intra-COAL mobility of funds, though it may not lead to efficient outcomes (i. e., the flow of funds to the highest-yielding uses).

The important consequence of resource pooling in COALs is that *any decision on a specific investment from pooled funds leads to a set of decisions on the sequence of investments over the planning horizon.* (This is why Yugoslav COALs make decisions on new investments within the context of five-year plans).

Thus COALs *either invest into a set of related projects* or turn into a *loose, unco-ordinated* organization without economic significance.[18] This also explains why Yugoslav COALs mostly follow the

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[18] If a COAL fails to allocate pooled funds to a BOAL for long periods of time, the breakdown of the association is probable. Thus the »threat potential« of individual BOALs does play a role in the bargaining process. It seems that the following rule implicitly holds: allocate the pooled funds over the planning horizon in a way that is satisfactory to the majority of »strong« BOALs or do not undertake joint investments at

strategy of vertical integration or related diversification instead of pure conglomeration into unrelated business segments.

4. INTERNAL RESOURCE ALLOCATION IN YUGOSLAV COALs: AN EVALUATION

The major vehicle for channelling BOALs funds to high-yield uses is the mechanism of pooling funds for COAL-wide priority projects. What a COAL essentially does is to assemble candidate BOALs investment proposals, evaluate them against jointly determined criteria and allocate pooled funds to projects offering the highest net total benefits to the whole.

What a western multidivisional corporation essentially does, is to rank divisional investment proposals, apply a impartial profitability assessment and allocate the corporate capital to the »highest bidders«, using a single measure of capital scarcity (i. e., opportunity cost of capital or cut-off hurdle rate of return). In other words, an M-form corporation is fixing a common rate of return for all its operations and requiring each divisional manager to act as if he is borrowing money from the corporation. Managers then invest up to the point where the marginal profitability of the project equals the standard rate of return. If at a given announced rate of return, funds demanded by divisions exceed available funds, the corporation must resort to some rationing device: the internal capital price may be raised or some selected capital budgeting technique will be applied. (See: K. J. Arrow, 1977, pp. 139, 140). Thus resource allocation mechanism in a M-form corporation is essentially a *price-guided allocation mechanism*.

Allocative mechanism in COALs is basically a *quantity-guided mechanism*. The required *self-financing ratio* is an important rationing device. Inter-BOAL lending is nearly always realized at interest rates which are equal to or lower than market interest rates. Internal interest rates are »sticky« and do not move up and down to equilibrate internal demand and supply of investable funds.[19] Since interest rates are not used as an instrument to regulate demand and supply of investable funds within a COAL, demand and supply of such funds are »equilibrated« through »bargaining«: pooling of resources leads to an *increase in the supply of investable funds*, while short-run (temporary) excess demand for funds by BOALs is eliminated via long-run plans on the allocation of pooled funds.

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all. In that case, each BOAL conducts its investment policy autonomously and the COAL eventually turns into a »loose« association without the economic effects that are derived from improved co-ordination.

[19] One can hardly find a case where interest rates charged on intra-COAL lending/borrowing have exceeded the going market interest rates. The sense of solidarity does play a role here: many examples on transfer pricing show that pricing of internal transactions can damage the »atmosphere« of the organization and change the nature of the transaction. For an interesting discussion of the »stickiness« of interest rates see: Stiglitz, and Weiss (1981).

The internal resource allocation mechanism of COALs replaces the external debt market in its control and evaluation functions. It is reasonable to assume that a COAL performs better on several counts, than external debt markets in Yugoslavia. Because of the information structure of COALs, financial and non-financial aspects of BOAL investment proposals are better checked in a COAL than in a bank.[20] COALs are better suited to promote inter-BOAL capital mobility than are external banks. The organizational devices (such as the implicit transfer of »compensatory« funds through internal prices, joint-profit maximization and resource pooling) used by COALs can eliminate a differential between required rates of return on internal reinvestments and rates of return on external investments, which enhances greater mobility of funds. Lower intra-organizational transactions costs also work in the same direction.[21]

It seems that COALs can secure more efficient allocation of resources with respect to what would prevail if BOALs operated as free-standing firms. This is an important implication: if the association of free-standing BOALs and the formation of COALs enhances inter-BOAL capital mobility then the economic significance of the COAL organizational form is obvious.

Yugoslav COALs present an interesting ground for analysis of the internal functioning of decentralized, non-hierarchical, associative types of organization. Here we have the case where external capital markets are replaced not by *internal hierarchies* (a feature discussed in the literature on the economics of internal organization) but by an internal contracting system which is designed to harmonize the activities of quasi-autonomous sub-units (BOALs), each of which pursues its local interest.

The internal resource allocation mechanism used by COALs cannot be neatly classified into the prevailing typology, which differentiates between what might basically be called an administrative resource allocation mechanism and internal capital markets. The COAL's allocative mechanism has some elements of both administrative and market allocation, but its nature is better approximated by the bargaining and negotiation encountered in oligopoly models of market exchange.[22]

The important question addressed in this paper is: what is the economic significance of COALs? The reader should bear in mind that the formation of BOALs and their associations (WOs and COALs)

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[20] Yugoslav banks are co-operative banking institutions and heavy control by major borrowers on the bank's lending policies makes strict scrutiny of investment credit applications less likely.

[21] Many students of the Yugoslav economic system have noted that mergers are the principal form of transferring capital from one sector to another. See Granick, 1975, pp. 428, 429. It is also well known that mergers are an institutional form of solving the bankruptcy problem: instead of liquidating an unprofitable BOAL and laying off workers, profitable BOALs are encouraged to make acquisitions in order to correct local inefficiencies through new investments.

[22] For a survey of the issues in the internal resource allocation see: Spence, 1975.

was initiated by the Law on Associated Labour (passed in 1976), with the objectives of increasing inter-enterprise mobility of funds and furthering self-management (by extending the principle of self-management by small work units).

The preceding analysis shows that COALs can enhance inter-BOAL mobility of funds, essentially by introducing a set of integrative organizational devices (such as solidarity, internal cross-subsidization, compensations, reciprocity) and offering the benefits of being a member of an association. The COAL also reduces the transaction costs and uncertainty (with respect to what prevails among freestanding BOALs) connected with inter-BOAL exchanges. To this end, we might say that COALs have a potential for alleviating some of the well-known allocative deficiencies of the labour-managed economy (especially the low mobility of funds).

With respect to its »capitalist counterpart« — the M-form corporation — an assessment of the comparative efficiency of these two polar forms of organization comes down to the implicit subjective evaluation of hierarchies versus co-operation.[23] Resource allocation in a COAL is likely to incur higher transaction costs than in an M-form corporation but effects derived from complete co-operation and joint-profit maximization may balance the outcomes.

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[23] Perrow (1980) makes a very good point in this respect: ...»hierarchies introduce commands, surveillance of behaviour, multiple control techniques and authority for bargaining and negotiation; obey-do not bargain is the rule. However, if I am to be commanded, controlled or »fiated«, I would prefer bargaining and negotiations... no matter what the transaction costs are.«

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DECENTRALIZACIJA BEZ HIJERARHIJE: ISKUSTVO JUGOSLOVENSKIH PREDUZEĆA

Slobodan OSTOJIĆ

Rezime

U ovome eseju se analizira mehanizam raspolaganja internim sredstvima u velikim samoupravnim jugoslovenskim preduzećima koja se sastoje od manjih jedinica. Pošto su jedinice (osnovne organizacije udruženog rada) autonomne, što se tiče korišćenja sopstvenih fondova, i pošto ne postoji centralni poslovni autoritet koji odlučuje i koji poseduje formalno diskreciono pravo da preraspodeljuje sredstva jedinica u najrentabilnije investicije, način raspodele zavisi od ishoda kolektivnog procesa pregovaranja. Dva faktora mogu uticati na potencijalni ishod: (1) investiciona politika BOAL-a (njihova sklonost da slažu sredstva i da ih dodeljuju tako da bi se maksimalizovao ukupan neto prihod) i (2) interni integrativni postupci (reciprocitet, unakrsno dotiranje, interne kompenzacije) što može uticati na globalno racionalno ponašanje jedinica.