THE SELF-MANAGED FIRM IN YUGOSLAVIA: MODE OF OPERATION, PRICING AND SOME MACROECONOMIC IMPLICATIONS

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ABSTRACT

The paper presents some conjectures on how the Yugoslav system of workers' self-management "works". It addresses this question on three levels.

First, it considers the institutional framework for decision-making at the level of the firm. It consists of legal and informal rules for the interaction of internal and external participants in the process. Elected workers' councils, appointed business managers, and the trade union organizations are the main internal participants; the local community is the prime external one. The participants are subject to a complex system of mutual checks and balances. A case in point is the nomination and appointment of business managers, and the scope of and the limits to their autonomy, authority, and responsibility. This setting leads to a practice of decision making by bargaining and consensus, oriented to "satisficing" over a broad range of partially conflicting motivations.

Second, it discusses the formation of transfer prices or income sharing among autonomous units within firms or between associated firms. Markets for capital and labor do not exist, neither in name nor in substance. Mobilization and allocation of investment resources is largely subject to intra- and inter-firm arrangements with considerable guidance from local communities and republics. Workers do not receive contractual wages or salaries but earn a claim to a part of the residual of the firm gross of labor costs. For goods and services, long-term agreements on collaboration in vertical linkages are the officially preferred practice. In such a setting the rules for determination of intra- and inter-firm prices are crucial for the stability of the collaboration. The problem is resolved by resorting to a particular system of transfer pricing or income sharing among collaborating units.

And third, it identifies some macroeconomic implications of these microeconomic procedures and practices. While conclusions regarding X-efficiency are controversial, the efficiency of capital allocation is negatively affected. Since the mechanism for determining reward to labor differs substantially from the neoclassical model, it could be argued that an optimal pattern of pricing and allocation of labor cannot evolve under the existing rules. On the other hand, the Yugoslav system has considerable resilience against cyclical unemployment. Perhaps its most severe practical weakness is its susceptibility to problems arising from what Kornai has termed the "soft budget constraint" of the firm. The virtual absence of entry and exit of firms, and persistent inflationary pressure are its most obvious manifestations.
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1. INTRODUCTION

1.1 The main purpose of this paper is to contribute to the understanding of how the Yugoslav system of workers' self-management "works", at three levels. First, it is to show, descriptively rather than analytically, which actors participate in the decisions of the firm, under which rules they act and interact, and how the institutions and rules of the Yugoslav system affect management practices. Second, it is to discuss how this mode of operation affects relations between semi-autonomous units within the firms, of firms among each other, and between firms and other organizations. Specifically, it is to analyze rules and practices for price formation and factor income distribution which evolved under this mode of operation. And third, it is to point to some of the macroeconomic implications of these microeconomic institutions, rules, and practices.

1.2 Yugoslavia has developed its own specific terminology for describing its unique economic system and its institutions. For many of its concepts a matching English term does not exist. To use 'approximate' terms invites gross misunderstanding by equating concepts which are part of completely different social and political paradigms. This paper tries to minimize terminological confusion by resorting, to the degree the Yugoslav concepts are very different from those normally implied in an Anglo-Saxon environment, to an approximate direct translations from the Serbo-Croatian. Such terms are capitalized throughout.

1.3 This paper is organized as follows: Chapter 2 gives a stylized outline of the premises of Yugoslavia's self-management socialism. Chapter 3 discusses the institutional framework and the management structure of the
Yugoslav firms. In Chapter 4 relations between firms are discussed. Chapter 5 complements the two preceding ones by introducing other participants relevant in connection with decision-making of the firm. Chapter 6 address the major issues of this paper: the inter-related questions of computation and allocation of income, pricing and micro-planning. Chapter 7 turns to a particularly controversial issue: the objective function of the Yugoslav firm. And Chapter 9 attempts to summarize some hypotheses on macro economic implications of the Yugoslav system. The Annex presents a simple accounting model describing the transfer pricing/income distribution rules of Yugoslav firms.
2. THE ORIGINS AND POLITICAL CONTOURS OF SELF-MANAGEMENT

2.1 After liberation in 1945, industry, banking, trade, and all large land-holding was nationalized, and Yugoslavia emulated the system of central planning and management of the USSR. After expulsion from COMINFORM (the now defunct organization for international coordination among communist parties) in 1948, Yugoslavia started to embark on its own route to socialism. Since then, the system continued to evolve through a series of reforms. New constitutions were adopted in 1946, 1953, 1963, and 1974. Each was followed by numerous legal and institutional changes. Although no further constitutional change occurred after 1976, legislation of major institutional importance continues to evolve through the present. 1/

2.2 These changes had several closely interrelated elements in common. First, ownership of productive assets in the socialist sector has been shifted from the state to "society". This has major implications for management and control. Workers are entrusted with the management of social property with which they work, and have a variety of rights, such as the right to determine the policy of the firm and to appoint its business managers, to earn income generated through the use of social property, and to allocate the firm's accumulation. In exchange, workers assume obligations, such as to adhere to certain rules for distributing the firm's income into personal income and accumulation, and to maintain and expand the social property. This dis-

1/ The Associated Labor Act (ALA) -- sometimes referred to in Yugoslavia as "the constitution for the economy" -- was issued in 1975. It is the basis for all subsequent specific legislation on micro-economic matters. This paper uses the official translation of the ALA, prepared by the Secretariat for Information of the Federal Assembly of Yugoslavia, Belgrade 1977, extensively as a source.
tistinguishes the Yugoslav concept of social ownership both from state ownership in traditional socialist and mixed economies, and from the cooperative, where assets are owned by workers/members, and where social constraints on the use of generated income are absent. The political leadership of Yugoslavia drew a sharp distinction to the latter in the early 1970s and denounced the behavior associated with it as "group ownership", incompatible with socialism.

2.3 Second, the bureaucratic and hierarchical superstructure of state administration was equated with "state capitalism" and "statism", considered incompatible with the rule of the working class, the ultimate legitimation of socialism. A dominant role of the state was seen as strictly transitional for the period of nationalization, to be replaced as early as possible, and as soon as alternative institutions could be set up to assume the state's functions in coordination and decision-making. The process of devolution of government intervention in the affairs of single firms, in other socialist countries generally referred to as "decentralization", was in Yugoslavia pursued mainly under the label of "de-statization". Decentralization proceeded in a different direction as well: as a devolution of state power from the level of the central government (the Federation) to that of the constituent republics and autonomous provinces, and further to that of the local communities.

2.4 Third, these alternative institutions were to be based on the Marxian notion of "association of free producers" which was transformed into the concept of "self-management". It implies that the privilege to make political and economic decisions was to be given to those directly affected by these

\[1\] See Horvat, p 22.
decisions, and without autonomous intermediaries, introducing a strong anti-
hierarchical thrust into the design of coordination mechanisms. On the other
hand, the leading role of the Party -- officially the League of Communists
(LC) -- in guiding socio-political and economic development was, with an
interlude in the late 1960s, never abandoned.

2.5 Fourth, the concept of "socialist commodity production" was intro-
duced as early as 1951, accepting in principle production for and exchange
through the market. The combination of this concept with that of devolution
of the state and its replacement by self-managing institutions undermined the
case for central planning and turned into a powerful force for accepting the
market as the major mechanism for coordination of micro-decisions.

2.6 Finally, the socialist principles of solidarity and reciprocity
remain the guiding social values. As will be discussed below in greater
detail, this perception of socialism became of great practical importance. A
common denominator in the evolution of the system -- which can hardly be
overemphasized -- is the idea that socialism, in order to maintain the spirit
of egalitarianism, reciprocity and solidarity, has to be practiced within
organizational units which are small enough to sustain a sense of community
among its members.

2.7 The principle of self-management, in both economic and political
matters, was enunciated as early as 1950. Its translation into practice
proceeded gradually. In economic affairs, annual planning of outputs and
allocation of inputs were the first central state functions passing from the
state to self-management. Already in the 1950s central planning was
restricted to the tasks of determining and ensuring adherence of basic
proportions in the economy, and to mobilization and allocation of investment
resources. In the 1960s, the state divested itself from mobilization and allocation of resources as well, which were left to firms and banks. In the 1964-1966 period of "economic reforms", price control was largely abolished, firms were given autonomy in distributing their generated income between personal income and accumulation, the foreign trade system was deregulated, and banks were given complete autonomy. The Plan was mandatory only for state organs, whereas for firms it became for all practical purposes indicative.

2.3 Starting in the 1970s, economic problems and social and economic changes in the wake of the reforms -- such as the rapid emergence of trade organizations and banks as the most dynamic sectors of accumulation in the economy, and the growing power of professional managers in all organizations -- were increasingly seen as a threat to the socialist legitimation of self-management. Self-management was, after all, perceived primarily as management by the workers, with enterprise autonomy merely as a logical corollary. This made an evolution from "bureaucratic" (i.e. state) to "technocratic" (managerial) rule politically unacceptable. The return to socialist roots culminated in the new constitution of 1974, and in the Associated Labor Act of 1975 which translated the principles enunciated in the new constitution into the legal framework for all economic activity. It is this framework, and its further evolution in specific legislation which determine the present institutional system of Yugoslavia.¹

¹ The changes in the political institutions after the constitutional reforms in the early 1970s have a major impact on the mode of operation of firms, but they cannot be considered in this paper. For an excellent summary, see Lydall, pp. 102-107, 126-137.
3. THE FIRM

3.1 Institutional Framework

3.1.1 The "enterprise" as a legal entity ceased to exist with the Constitution of 1974. It introduces instead the "Organization of Associated Labor" (OAL) as a generic term, with three major variants: "Basic Organization of Associated Labor" (BOAL), "Work Organization of Associated Labor" (WO) and "Composite Organization of Associated Labor" (COAL). Most analysts consider the WO as the closest equivalent of the concept of the "firm", i.e. the organization which integrates internal and external operations.

3.1.2 In order to minimize worker's alienation and to ensure their personal involvement in self-management, the organizational units need to be of a moderate scale. A breakdown into smaller units was also seen as the most effective, if not the only way to prevent the emergence of a "technocratic" leadership. 1/ Finally, the breakdown into small units was also considered as an effective means to improve operational efficiency (X-efficiency) by replacing hierarchical coercion for reducing slack by peer group inducement. Therefore large WOs were broken down into BOALs whenever technical units could be identified which produce a good or service which could, at least in principle, be marketed separately. (ALA, Art. 320-323). Whereas the WO normally handles the outside links of the firm, i.e. signs business contracts and carries out all commercial transactions with other organizations in the name of all constituent BOALs, the BOALs determine their internal make-up. The BOALs are

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1/ This point, which appeared in numerous Yugoslav pronouncements during the period of recent constitutional changes during 1972 to 1975, is stressed also by some western observers. See Milenkovitch (1977), pp. 55-59.
the basic legal entities in which workers are "associated", whereas the WO is a legal entity merely by revocable agreement among the BOALs. To emphasize this legal autonomy, BOALs are given the right to split off from the WO and either reconstitute themselves as an independent WO or join another existing WO after settling their financial obligations with the previous WO. Most importantly, income statements and balance sheets are prepared for the BOALs; and aggregate income statements and balance sheets of WOs, if they exist at all, have no legal standing on their own; as a corollary, financial assets remain under permanent control of the BOAL which created them from retained earnings. Each BOAL has its own plan, and the plan of the WO has to be approved by each of the constituent BOALs, as have most legal commitments the WO enters into. Finally, the self-management structure of the WO is built up from the level of the BOAL (see section 3.2 below).

3.1.3 Several WOs can form a Composite Organization of Associated Labor (COAL) (ALA, Art. 16, 382-387) through SMA. In practice, a number of variants of COALs can be found. Some COALs are dominated by vertical linkages. For example, some reach from primary production in agriculture over secondary production and processing to wholesale trade, retail trade, and foreign trade for all stages, each consisting of one or more WOs. The internal supply links and common marketing at the final stage integrate the organization. In other instances horizontal orientation dominates. For example such a COAL can comprise a number of WOs in the manufacture of electric and mechanical equipment, with product development and diversification, specialization, and

1/ This is one of the many instances where relations are regulated by "Self-management Agreement" (SMA), a legal concept discussed in greater detail in para 3.4.1 below.
marketing as the common basis. In either of these two cases, in particular if the COAL has strong central control (see para. 3.1.4) and an internal Bank (see para. 3.1.5), the WOs tend to be no more than technical divisions, whereas the "firm" is clearly the COAL. In still other cases, COALs are of the nature of "conglomerates" with no recognizable technical links between the activities. In such instances the existence and the role given to the internal Bank determines whether the COAL has significance in the sense of acting as a "firm", or whether it merely consists of a name and a small head office, without any other than symbolic or public relations functions.

3.1.4 WCs and active COALs have one or several Work Communities. These units can be set up for a number of common services to all BOALs jointly. However, Work Communities are mandatory for a number of specific administrative-professional services, such as planning and analysis, accounting, personnel administration, and legal services. (ALA, Art. 400-407). Other service-type functions, such as marketing, research and development, and health and recreation facilities, can be organized either as BOALs or as Work Communities. The first difference between the two forms is that Work Communities merely carry out services for BOALs against reimbursement of costs and do not accumulate permanent funds from income. A second, and as will be discussed in section 3.2, very important difference is that the functions listed above are mandatory for being handled by a Work Community are those which establish and integrate the common information basis of the organization.

3.1.5 In all large firms an Internal Bank is among the most important Work Communities. It is an off-shoot of central accounting and has the monopoly over all internal financial transactions among the BOALs, and over external links with business banks and outside business and financial partners. Although the
Internal Bank is under the general oversight of delegates of the BOALs, which are jointly liable for all obligations which the Internal Bank may assume in this connection, it is like other Work Communities under the direct control of the business manager of the organization.

3.1.6 The numerical significance of these various organizational forms can be glanced from some statistical indicators. As of December 1983, the social sector of Yugoslavia, employing some 5.3 million workers, consisted of around 14,000 WOs without BOALs, and of 4,400 WOs with two or more BOALs (on average of 4.7). The average unit size (in WOs without BOALs, BOALs within WOs, and Work Communities in all organizations) came to 159 workers. 1/ Another source reports that by the end of 1980 a total of 373 COALs were in existence in the productive sector (the comparable number at the end of 1983 was 385), and that of the 220 largest "organizations" 160 were COALs, accounting for about 48% of value added and 43% of employment of the productive social sector. 2/ On the other hand, merely 191 Internal Banks were in existence in 1983, and at least some of them were parts of WOs rather than of COALs. Since COALs without an Internal Bank are unlikely to have much internal cohesion, a large number of the 425 reported COALs must have existed on paper rather than as firms in their own right.

2/ Borba, November 2, 1982, see Lydall (1) p. 94.
3.2 The Formal Management Structure

3.2.1 The most important organ of the self-management structure is the Workers' Council of the BOAL. It is composed of delegates, elected by secret ballot by the workers among themselves and within their respective Working Group, the smallest organizational unit (normally between 10 and 20 workers). The Workers' Council of the WO is composed of delegates elected from the Workers' Council of the BOALs.

3.2.2 The Workers' Council is the "organ responsible for managing the work and business of the BOAL" (ALA, Art. 490). These rights, which are exercised either directly or through committees elected by the Workers' Council, include the following. The preparation and conclusion of Self-Management Agreements (SMAs) with other BOALs within or outside the WO; preparation and acceptance of the plan of the BOAL; the determination of its business policy; approval of its income statement and its balance sheet; setting of the internal income scales; recruitment and dismissal of workers; handling of all disciplinary matters; participation in the appointment and dismissal of business managers; issuance of "guidelines and instructions" to business managers and supervision of their implementation. (ALA, Art 495). With few and minor modifications the same rights are ascribed to the Workers' Councils of WOs and COALs.

3.2.3 BOALs, WOs and COALs have professional business managers, either individuals or boards under a chairman. Application for business manager posts are invited by public announcement. Candidates are proposed by a competition commission, consisting of representatives of the BOAL (or the WO), the trade union, and the local community; final election among candidates and appointment is the prerogative of the Workers' Council. The normal term is four years, with no limit to re-election. The authority and mandate of
business managers is circumscribed as follows: (ALA, Art. 513-515). They "manage the business of the BOAL, organize and coordinate the labor process, propose business policy and measures for its implementation, execute decisions... adopted by the Workers' Council,... consider the draft plan ... and give opinions and proposals thereon. (They)... independently decide on running the business of the BOAL, the execution of individual tasks or performance ... and organizing and coordinating the labor process. (In this context they) ... have the right and duty to issue orders to individual workers or groups of workers concerning the performance of individual affairs and tasks." Finally business managers can set up commissions and working separate groups for the preparation of actions within their mandate which "...shall act in accordance with orders issued by the business managers."
Largely the same provisions apply to business managers of WOs, with the additional duty to coordinate the work of the BOALs (ALA, Art. 534). 1/

3.2.4 Most importantly, business managers have direct control over the Work Communities of the organizations: "Workers in Work Communities shall act in accordance with instructions, guidance, and orders issued by the business-managing organ of the Organization of Associated Labor within which it operates" (ALA, Art. 544). The fact that the Workers' Council has a similar right, using almost identical wording, over the business managers, but not over the Work Community; and that the Work Community manages the information base of the organization, points to an important privilege of the business

1/ Business managers may be recalled before their term has expired in case of incompetence, gross negligence, exceeding of authority and several other violations. These proceedings can be initiated by either of the three parties involved in the nomination of the business manager. (ALA, Art. 520-522).
managers. They have de facto a monopoly over the information base of the organization. And their right to create special commissions and working groups points into the same direction.

3.2.5 Business managers of BOALs within a WQ and of the WQ are obliged to act in "mutual cooperation, consultation and agreement". In the case of a disagreement, they have to inform the respective Worker's Councils. In very severe cases they can search for solution through a mediation body which they elect. (ALA Art. 516). Two points are remarkable in this context. First, business managers of the WQ "shall co-ordinate the work" of business managers of the BOALs (ALA Art. 534), and the same applies to COALs. This indicates the absence of an explicit, or rather of any, formal line of authority of higher level business managers over those at lower levels, which is in striking contrast to the strong hierarchical position they hold vis-a-vis the Work Community. And second, the mechanism for settling conflicts between business managers at the same or different levels through mediation rather than authority look exceedingly cumbersome. This points to the fact that, as suggested in the quote in the beginning of this paragraph, the intention is clearly to have the business management of a complex organization operate as a board, rather than give the possibility of the creation of a autocratic command pyramid.

3.2.6 The limits to the power of business managers are even more pronounced in personnel policy in general. They have virtually no autonomous power in this area. Recruitment is handled by an organ of the Workers' Council. Other committees handle disciplinary matters, including firing as the ultimate penalty, and promotions; business managers have merely the right to propose certain actions. Similarly, the more subtle means of coercion and
disciplining -- discretionary variations in personal incomes -- are almost completely absent. 1\(^\text{st}\) The level of remuneration of workers is largely determined by a complex system of "work points" 2\(^\text{nd}\) which are largely a function of objective criteria (such as education, level of skill and seniority). They are established on the basis of detailed industry-wide guidelines and are part of the SMAs on association in the BOAL. Rewards for performance are mostly distributed in the form of variations of value per work point for organizational units rather than to individuals. And whatever individual financial rewards are being granted, they are almost entirely for technical achievements (such as innovations) and again either regulated by agreements on the level of the branch with some discretionary power of self-management organs, 3\(^\text{rd}\) but little, if any, of supervisors.

3.2.7 Evidently, one of the assumptions behind the restriction of authority of managers is the assumptions that self-management will create different mechanisms of motivation and enforcement of diligence and discipline, substituting peer pressure for hierarchical coercion. A related factor is the concern for maintaining the vitality of worker's self-management. From this vantage point, discretionary disciplinary, career, and financial rewards and penalties meted out by line managers could be misused for establishing and enforcing hierarchical or personal power rather than as rewards for

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1\(^\text{st}\) In line with established socialist thought, remuneration should be for work performed, not a means to establish authority.

2\(^\text{nd}\) See para. 5.3.2 on the system of work points.

3\(^\text{rd}\) See Schrenk, pp. 43-50.
performance. As a result, managerial authority over rewards and penalties could gut the very essence of workers' self-management; control over personnel management, therefore, is to be a prerogative of self-management organs.

3.2.8 Business managers have at the same time several important oversight functions. If the Workers' Council takes decisions which are in conflict with the law or existing SMAs, the business manager has to warn it against taking such an step. If it proceeds against such warning, the business manager has to stop implementation and to report this action to the supervisory organ of the state. (ALA, Art. 518-519).

3.2.9 Each level of organization of the firm, from the Working Group (normally 10-20 workers) up to the level of the COAL has its trade union organization. Their role cuts across a variety of functions, most of which are intimately linked with the self-management organs. For example, the trade union nominates the candidates for the election of the Workers' Councils and can institute proceedings for their recall (ALA, Art. 492, 558). It is a separate party to Social Compacts (ALA, Art. 579). And it has the right to propose SMAs affecting work relations and computation and distribution of income of the organization (ALA, Art. 590). The trade union organization of the WO, and sometimes of the BOALs has, in addition, usually a number of committees which advise the Workers' Councils and their special committees on a wide variety of issues. But inspite of this involvement, no evidence is available which would suggest that career trade union representatives, within or outside the self-management organs, are active within firms.

1/ On the role of Social Compacts, compare para 5.7 below.
3.3 Elements of the Informal Management Structure

3.3.1 The institutions mentioned up to this point are those explicitly considered in the ALA as part of the management (i.e., decision-making) structure of the firm. There is a great deal of evidence that the management structure includes in addition a number of informal participants.

3.3.2 Regarding the trade unions, the traditional role of defense of the rights of workers against the owners of the means of production has no logical place under a system of social ownership. And given the procedures of income computation and distribution in Yugoslav firms, the same is true for the distribution of income between wages and profits. \(^1\) As indicated in para. 3.2.3, the trade union organizations of the OALs have the monopoly over the nomination process for the election of all self-management organs, and a great deal of influence over its actual proceedings. Therefore, a more plausible interpretation of their role might be the integration of the sentiments of the workers' community within the BOAL or the WO into a coordinated view, expressed by the Workers' Councils and their committees.

The articulation of this position is likely to go beyond articulation of the interest of the workers community within the organization itself. It is likely to include those of all workers (e.g. at the least at the level of the branch) and/or the local community. In addition, the trade unions, as cosigners of Social Compacts on broader issues of country-wide or territorial importance, are likely to see also to the protection of society from the

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\(^1\) As will be discussed in greater detail in Chapter 6, wages -- i.e., contractual remuneration per unit of time or output -- do not exist any more in Yugoslavia; workers rather earn "points" which are valued ex post and according to the results of operations and of general rules of income computation and allocation.
misuse of economic power of the firm by Self-Management organs and business
managers. The integration of the trade union of the branch into the
republican and/or federal federations of trade unions strongly supports the
assumption of such a broader coordinating function within the firm, and
intimate linkages seem to exist between the trade union leadership and the
Party.

3.3.3 The Party -- the League of Communists of Yugoslavia (LCY) -- has an
organization at the level of each SOAL. The LCY cells are at the same time
part of the corresponding organization of the local community. Formally, the
LCY does not participate in deliberations or decision-making of the SOAL, and
apparently no career cadres of the LCY are on the payroll of SOALs. The role
of the LCY rather is an indirect one: almost all elected delegates of
important organs of self-management and of the trade union within the firm,
and most appointed business managers are members of the LCY. 1/ The influence
of the LCY is largely indirect through its character as a "cadre party" which
adheres to the principle of "democratic centralism". It obliges all members
to see to the implementation of the formal decisions taken by the LCY on
political or economic matters. The leadership role of the LCY was re-affirmed
in 1972 by the famous letter of President Tito to the LCY in which he affirmed
that "the Party must ensure in future that only true Communists held positions
of responsibility in public life."

1/ There is no formal requirement of membership. To elect only members of
the LCY as business managers is rather a matter of prudence, because the
maintenance of cordial relations with the political leadership of the
local community and the republic can be as important for the success or
failure of the firm as professional competence. See Lydall, p. 119.
3.3.4 As mentioned before, there is no empirical evidence that career cadres exist within firms of either the self-management organs, the trade unions, or the LCY. On the contrary, the ALA limits all functions to election, and it limits the term of elected delegates to any of the self-management organs (delegates to the trade union and the LCY organization are reportedly also elected) to a term of two years, with the possibility of merely one additional term. (ALA, Art. 492/3). This may raise the question about their capacity to stand up to the weight of the professional competence of business managers, and to their control over the information system and the professional administrative and technical staff. There is no definite answer to this question, but the membership pattern in the LCY, and the rotation of delegation in all three bodies give some hint that the balance is less one-sided than it may seem.  

Membership in the LCY extends normally to no more than 20-30% of the work force. Since "rotation" between the three organizations, and within each organization between various functions, is part of the Yugoslav practice, essentially the same limited group of activists are likely to be extensively, if not permanently involved in issues pertaining the management of the firm in one or the other function in either of these bodies. This would go a long way to explain the high degree of competence and insight exhibited by many members of self-management organs.

3.3.5 One of the forms in which this elected leadership of the three organizations and the top business managers of firms meet on equal grounds is the so-called "Political Active" which meets in an informal setting to discuss

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\text{See Schrenk, p. 38.}
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matters of management and development of the firm. 1/ Another, somewhat more formal forum of exchange is the so-called "Collegium", comprising in most instances the business managers of all BOALs of the WO plus the chairmen of the Workers' Council and frequently the trade union. 2/ There is some evidence that policy options of the firm are extensively explored in these forums and that the consensus reached at this level translates into proposals to the full Workers' Councils or workers' assemblies.

3.4 The Yugoslav Firm

3.4.1 The elements presented in sections 3.1 - 3.3 can now be pulled together to sketch a "real model" of the Yugoslav firm. It has become obvious that in the Yugoslav system the firm is not clearly definable in legal terms, that it is missing many of the elements which constitute firms in other systems, that the lines of authority are hazy, and that there is no sharply defined locus for decision-making. This may raise questions as to the cohesiveness of the firm. A number of elements do in fact work for a strong internal cohesiveness, mostly strengthening long-term stability over short-run profitability. First of all, firms are held together by a series of interlocking Self-Management Agreements (SMA). They typically regulate medium- to long-term links between the BOALs and normally cover a number of matters, such as joint planning, pooling of financial resources, principles of computation and distribution of joint income, price formation in transactions between signatories, etc. (ALA, Art. 536). They establish a relationship between the

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1/ See Granick, p. 367; Lydall, pp. 118-119.
2/ See Lydall, p. 120; Schrenk, p. 40.
BOALs which is circumscribed as "pooling of labor and resources" and "sharing of income and risks". 1/

3.4.2 SMAs are distinct from conventional business "contracts", which regulate short-term transactions of more irregular nature, and without elements of sharing of income and risk (ALA, Art. 71, 586). SMAs share with contracts the possibility of cancellation and of compensation by parties violating the agreement for losses inflicted on others. But while enforcement of contracts and SMAs between firms is frequently lax, within firms SMAs are generally considered as sacrosanct. Attempts to abrogate or to violate them are normally countered by strong moral suasion from the formal and informal management structure within the firms, and from the outside, including the local community. SMAs also have a number of features which make them unique legal instruments. For example, they are "public" documents and have to be published to become valid (ALA, Art. 586-577), and they have to be voted upon by the workers of each co-signing BOAL either by referendum or by the respective Workers' Councils.

3.4.3 Firms are distinguishable by a number of features, most of which are regulated by internal SMAs. First, the member organizations within the firm frequently assume mutual and joint liability for debts. This greatly improves the creditworthiness of each unit. Second, units within the firm regularly pool liquid resources to facilitate meeting their payment obligations vis-à-vis other firms and banks, which reduces their requirements for working capital and investment funds. Third, financial claims among units within the firm are almost always met, while claims to outside units are frequently in arrears.

1/ SMAs can also be concluded among firms or among BOALs in different firms, see Chapter 4.
and can cause serious problems of collection. Fourth, within the firm risks are pooled. The principle of solidarity is taken very seriously on this level of the firm. If a particular BOAL is in difficulty, the normal response of the other member units is to provide almost unlimited support, apart from any formal liability which may exist in addition. Although BOALs are the units for which income statements and balance sheets are prepared, other BOALs within the firm have numerous means to avoid a single BOAL to be forced into bankruptcy and liquidation. 1/

3.4.4 Fifth, the principle of solidarity includes also a strong commitment for a coordinated, if not an integrated policy of remuneration. 2/ Similarly, if some BOALs suffer from a structural or technological redundancy of workers, the firm tends to ensure their further employment at comparable levels of remuneration by either expanding other BOALs or by diversification into new activities. Sixth, if BOALs in firms are vertically linked, fluctuations of demand and supply are largely eliminated for internal transactions, the same is true for pricing of internal transactions. 3/ Seventh, the aforementioned elements are subject of joint planning. And eighth, the internal cohesiveness of firms reduces transaction costs due to "bounded rational" by permitting for internal transactions "adaptive, sequential decision-making" and "incomplete contracts". It also reduces the uncertainties originating from strategic and tactic "opportunism" which prevails between firms, while the

1/ See Chapter 6.
2/ See Chapter 6.
joint accounting services, the daily collaboration and the physical proximity leave virtually no room for secrets or deception within the firm. 1/

3.4.5 Summarizing the observations and conjectures of sections 3.2 and 3.3 on the formal and informal management structure, two hypotheses emerge. Conceptually the firm is real in the Yugoslav context in spite of the absence of a legal definition, as evidenced by many attributes conventionally assigned to the concept of the firm. Secondly, Yugoslav firms do not have a monolithic hierarchical structure with strong and transparent lines of authority with individual responsibility and accountability, but tend to function as a complex coalition. As any coalition, it works by compromise and persuasion — and, as widely believed, with some moral suasion if compromises are difficult — with implications which are considered further in Chapter 7. Given the variety of mutual checks and balances — the discussion in Chapter 5 will point to the Socio-Political Communities (mainly the local community and the republic) as important further partners in the coalition — persuasive generalizations about the predominance of one or the other party in the coalition are presently impossible. 2/

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1/ Sacks, pp. 61-73 has elucidated these particular cohesive forces binding Yugoslav firms together.

2/ Lydall arrives at the same assessment of a number of distinct formal and informal participant individuals, groups, or organizations forming jointly the "will" of the firm, pp. 112-115.
4. RELATIONS BETWEEN FIRMS: SELF-MANAGEMENT AND THE MARKET

4.1 Self-management finds its strongest expression in the concept of "pooling of labor and resources" at the level of the firm, i.e. in SMAs among SOALs within the WO and COAL. Such SMAs frequently also shape relations between organizations which are not part of a larger one, with terms largely analogous to the internal SMAs. This seems to raise potential conflicts between the notion of self-management -- as the non-confrontational cooperative approach to joint economic problem-solving and decision-making, with a high social value assigned to long-term collaboration and solidarity among the participants -- and the market in the narrow conventional sense with its connotation of struggle and survival of the fittest. It seems to many outside observers that the two institutional concepts are contradictory and that an uncomfortable compromise has been struck between them.

4.2 For labor, a market in the neoclassical sense -- with wages and salaries as a uniform market clearing price among several inputs of the firm, -- does not exist. As will be shown in Chapter 6, wages and salaries have been abolished, not just from the terminology but as concepts as well. Workers do not receive a financial remuneration per unit of time or of output contracted ex ante for a certain period of time and in absolute terms, but they acquire the right to some share in the income of the SOAL which remains after it has honored all other obligations. As has been observed frequently, workers' remuneration in the Yugoslav system is, from the perspective of classical economics, an amalgam of reward to labor, and some part of profit and economic rent. The latter component is the result of socially owned capital used free of charge, and/or from a monopolistic position of the
firm. A closely related aspect is that labor is not purchased by organizations as a variable current input, adjustable to fluctuations of output. Since it is the "association of labor" rather than the financial assets in its books which is considered the very essence of the BOAL, workers cannot be laid off, unless expelled by their peers for gross violation of internal rules, or through liquidation of the BOAL in the wake of bankruptcy. For these reasons, they have to adjust to cyclical demand fluctuations through variation of intensity of work and remuneration levels rather than through variations in employment. And for the same reasons, the level of remuneration would without some form of intervention differ greatly within firms over time, and at any given time among firms, without equilibrating forces. Therefore, although some more subtle features of a labor market persist -- such as fringe benefits of one kind or the other to workers of scarce and critical skill -- most analysts agree that a labor market in the traditional sense does not exist.

4.3 Similarly, a capital market in the classical sense does not exist, although investment resources are not collected and allocated any more through state budgets or state-owned banks as in centrally planned socialist economies, and in spite of the existence of a large number of banks. There is no system of financial intermediation consisting of autonomous banks and other independently profit-maximizing and risk-bearing financial institutions which collect financial resources from some customers and allocate them to others, at interest rate levels clearing the market, and a spread between borrowing and lending rates reflecting return expectations and risk considerations. Yugoslav banks are similar to owner-controlled credit cooperatives. They are legally as well as by their mode of operation service organizations for their founding "members" -- depositing and borrowing firms -- that manage financial
transactions associated with "pooling of resources" among members according to
SMA's concluded between them. The only genuinely fungible bank resources are
household deposits and some share of the primary emission from the National
Bank system.

4.4 The status of banks resembles closely that of Work Communities within
firms (see para 3.1.4). It differs from that of BOALs and WOs in that they
have no right to accumulate resources of their own from their income, except a
moderate liquidity reserve 1/, but they have to distribute the surplus which
remains after paying expenses and remunerations to the staff to their members
(ALA, Art. 89). Resources provided by member BOALs remain under their perma-
nant control and are retained in their balance sheets. 2/ The allocation of
resources available to a bank is formally the prerogative of the members. It
is widely believed, however, that most of these decisions are effectively
influenced by the leadership of local communities and the republics who
support the expansion - and often the financial survival - of large existing
firms among the members. 3/

4.5 This limited institutionalized quasi-capital market is supplemented
by direct arrangements between BOALs within or among WOs on "pooling of
resources" through bilateral SMAs. It entitles the organization which makes

1/ There is no need to accumulate large reserve funds because the members
assume unlimited liability for the obligations of banks.

2/ Prior to 1972 banks were managing repayments of earlier credits provided
by the state and were permitted to keep the corresponding assets on their
books and to generate accumulation of their own. This practice, however,
was considered "alienation of surplus value from the workers" and
replaced by the present framework.

3/ See Lydall, referring to Yugoslav statements, p. 117.
financial resources available to a share in the income of the using organization, i.e. after deduction of material inputs and depreciation from its Gross Income. 1/ The reward for making resources available can take several forms. Either a credit relationship is established and the organization using the financial resources has to repay the principal plus some freely negotiated interest, similar to debt servicing to a bank. Or the two organizations agree on payment of a certain share of the Net Income of the using organization over an agreed period of time. In this latter case profits and risks are shared between the organizations, and the relationship is comparable to a joint venture over a limited time period. While repeat investment in this form is possible, permanent joint ventures with permanent income sharing on this basis are considered incompatible with socialism where income is to be based on labor and are therefore illegal (ALA, Art. 81-88).

4.6 An important feature of either of these arrangements for pooling of investment resources is that they normally are part of a wider SMA on long-run cooperation which regulates numerous other conditions as well, such as long-term delivery arrangements, joint planning, price formation and marketing. Therefore, there is no way to estimate the pure return of the financial investment (or the costs and benefits of any of the above elements). But return on investment is rarely the primary purpose for the BOAL making resources available in the first place. Within firms such pooling of resources is part of the underlying concept of "pooling of labor and resources" and regarded as an extended form of self-financing. The situation is different for pooling of

1/ This and other accounting concepts are presented and discussed in greater detail below in Section 6.
resources between firms. In such instances the primary motive for making resources available is either some other tangible benefit, such as establishing the right to priority access to scarce inputs, or the creation of captive markets, or some form of coercion from Socio-Political Communities. 1/

4.7 Regarding goods and services, the market is explicitly given a genuine role. 2/ As discussed in para 3.4.2, irregular transactions are regulated by contract, and prices are set by the parties involved as they happen to agree with each other. Such a price would tend to approximate the instantaneous or short-term market-clearing price. More regular transactions are normally regulated by SNA on explicit or implicit transfer prices. 3/ As observed before, these transfer prices are regulated in SNA on "pooling of labor and resources" of medium- to long-term duration which, in addition to the transfer prices, tend to regulate a variety of other matters as well. The benefits to the parties are determined by the aggregate gains and losses from all elements regulated by the SMA. The diverse evidence from interviews suggests that this form of price setting can cover a wide spectrum of cases

1/ See paras. 5.1-5.5 for the role of SPCs (Federation, republics and local communities).

2/ The Law on Prices of 1984, however, as well as numerous earlier documents and pronouncements leave little doubt that the concept of "market" refers primarily to long-term balancing of capacity and demand without state intervention rather than to instantaneous equating of supply and demand through the price mechanism of a perfect market.

3/ The new Law on Prices permits "in conditions of mutual linkages in the process of reproduction" (Art. 3), i.e. for vertical delivery relationships, price setting through SMAs. In the view of many Yugoslav commentators, pooling of labor and resources on the basis of SMA is considered more congenial with socialism than reliance on unfettered market forces. The formation of transfer prices and the link to income distribution is the main topic of Chapter 6.
within as well as between firms. In some instances firms simply agree to use international prices, with or without some smoothing for short-term market distortions. In others, they agree to use cost-plus prices, computed on the basis of technical standards and evidence supplied by the producing partner of the transaction. In still others, they agree -- as it seems to be the prevailing rule within firms -- to be guided by income relations, i.e. to assure comparable levels of personal incomes in the participating organizations. The anecdotal nature of the evidence on contractual pricing arrangements does not permit to indicate the prevailing rule.

4.8 The Yugoslav system has struggled for some time with defining a uniform rule for price setting. In addition to the two concepts mentioned above -- instantaneous market clearing prices for transactions under contract, and medium-term transfer prices on one or the other basis within more comprehensive SMAs -- a third approach for price formation was prominent until the enactment of the 1984 Law on Prices. It was the attempt, following Marxian traditions, to find "objective" criteria for price determination on the basis of "value", or to define corresponding "objective" rules for price formation. They would be applied by firms and supervisory organs of the state which would assure that such prices are in fact computed and applied. Due to the failure of many years of efforts to stop inflation through administrative price controls, this approach to price formation has now been abandoned with the introduction of the recent new Law on Prices. With the exception of prices for a few basic commodities (mainly primary and secondary energy, transport and communication tariffs, and a few primary agricultural outputs for which world market prices are notoriously unstable), price formation is now left entirely and without further qualification to "market forces", i.e. to the parties of the contract or agreement.
4.9  Of particular importance with respect to markets for goods and services are the prescriptions of the ALA (Art. 71-80), reinforced by the 1984 Law on Prices (Art. 9), which make it mandatory for all domestic and foreign trade organizations to operate on the basis of SMAs on "sharing of Gross Income" (approximately sales revenues). As a result, they act as agents with a fixed percentage commission, maximizing their income entirely through the volume rather than through the difference between purchasing and selling prices. This could, in vertically oriented COALs, extend the range of sharing of Gross Income all the way backwards from retail trade to primary production.
5. RELATIONS WITH OTHER ORGANIZATIONS

5.1 In the Yugoslav system the state is organized in three layers: the Federation, the republics and autonomous provinces, and the local communities. ¹/ Their common designation "Socio-political Communities" (SPC) sometimes refers to political decisions by the respective assemblies, sometimes to executive actions by the administrative organs, sometimes to both.

5.2 Although the state is not the owner of the means of production, and in spite of the emphasis on "self-management by the producers", there is a multitude of links between firms and SPCs. First, the SPC has the right to "determine, consider and assess the results of...business organizations" (AL, Art. 144). Second, "if self-management relations are substantially disrupted or social interests seriously damaged...the assembly of the SPC may...dissolve the Workers' Council...or take other measures..." (ALA, Art. 35). Third, business managers are "obliged to report to organs of the SPC unlawful decisions of the Workers' Council" (see para 3.2.8). Fourth, the SPC is one of the three parties nominating the candidates for business managers, and it can initiate their recall (see para 3.2.3). Fifth, if an organization gets into financial difficulties, "the competent organ of the SPC shall be bound...to extend to such organizations economic and other kinds of assistance and to take measures for its financial rehabilitation." (ALA, Art. 38). And sixth, local communities are reportedly "normally required to guarantee loans

¹/ The Federation consists of six republics and two autonomous provinces; for simplicity, and because in the economic sphere the differences are immaterial, this paper uses the term "republic" for both republics and autonomous provinces. The country is organized in 527 local communities with an average size of 41,300 inhabitants.
to organizations on their territory. However, other articles, and the provisions of other laws leave no doubt that this obligation to assist firms in difficulty is not an obligation for unconditional and unlimited bail out, but is combined with far-reaching rights to interfere in the activities of such a firm, as indicated above, including liquidation if the unit is not viable. (ALA, Art. 152-155, 622-635).

5.3 Although in no case the ALA specifies which level of SPC is involved, most observers agree that the relative importance is in the order local community-republic-Federation. The dominating role of the local community is stressed by Borba, the IGY daily, October 30, 1982: "The commune is so much involved in economic affairs that without its approval it is not possible to appoint a director, to build a new factory, or to pool labor and resources ... We constantly build new factories, often without justification, on the orders of the commune, because only in that way can the commune solve its local problems -- from employment to the building of flats, schools and roads. The link to the Federation is virtually non-existing, whereas the republic is somewhere in the intermediate position.

5.3 The formal prerogatives of the SPCs vis-a-vis firms give the impression that the devolution of the power of the state and its replacement by self-management is a lofty ideal far from reality. Such conclusion is unwarranted if the state is equated with the administration of the SPCs, which

1/ See Lydall, p. 99.
2/ See Lydall, p. 282.
3/ To the extent the Federation affects actions of firms, this happens either through federal laws or through Social Compacts on the federal level which are subsequently recast into republican Social Compacts.
seems indeed to have very little power to issue instructions to firms through bureaucratic channels (price control was, until recently, one of the major exceptions). However, if the state is equated with the political organs -- e.g. the respective assemblies and their executive councils, the LCY and its organs -- the picture is very different. Even more so than regarding sections 3.3 and 3.4, in the absence of hard evidence the only indications of the actual conditions can be found in anecdotal evidence as reported by Yugoslav and foreign observers. Most assume that substantial informal influences flow from these organs to firms and banks. It is another question whether this constitutes any dilution of the principle of self-management. Arguably this is not the case if, as pronouncements of Yugoslav political leaders suggest, the role of the LCY is to act as the guiding force of society in shaping economic and social development. This self-perception, together with the principle of its members acting in their respective function within firms and the administration in conformity with the decisions of the LCY, would go a long way to support this suggested fairly strong informal political influence on all major economic decisions.

5.5 Three factors have to be kept in mind in the context of the role of political guidance in economic decisions. First, the fact itself does not indicate whether this leads to an improvement or a loss of welfare. Most western economic analysts axiomatically assume that political influence on economic decisions leads automatically to undesirable consequences, and in Yugoslavia "political factories" are frequently cited as prime examples of economically disastrous interventions. On the other hand, protection of the public from gross market power, from reckless disregard at negative externalities from micro-decisions, from the consequences of gross incompetence, or
from violation of key Social Compacts, or protection of social property in cases of distress, are examples where political intervention can be beneficial. Second, political guidance does not only work top down. As Lydall has pointed out, the Political Actives of firms are not automatically transmitters of political instructions from higher levels, but can in turn act as a "lobby" for the specific concerns of the firm. 1/ Stripped of its negative connotation, the two-way communication suggests the potential of a dialogue for bridging the gap between social and political and purely micro-economic interests. And third, political guidance flows in both directions: the first and most important chamber of the assembly of the local communities is composed of delegates nominated by the Workers' Councils of firms located in the community. (ALA, Art. 239, 461, 487). Control by the local community, thus, has automatically an element of "peer control" and if a firm is very large, it may politically dominate the local community.

5.6 All firms have to be members of a branch or sector "Association". (ALA, Art. 17). Their function is coordination of views, and to some extent, of plans of their members, and to carry out analytical work for their members. In contrast to the sectoral institutions under the same or a similar designation in a number of East European countries, the Yugoslav Associations have no executive power or control function over their members, nor are they part of the formal government structure, but are restricted to coordinating and advisory functions. All Associations form an "Economic Chamber" on the level of the republic and of the Federation. Its main function is analogous to that of the Associations, with the main difference of the emphasis of

1/ See Lydall, p. 118.
cross-sect oral coordination, the concern of the economy as a whole rather than
the industrial branch, and they represent joint interests of their members
(firms in all branches) vis-a-vis the government.

5.7 Socio-political Communities (the Federation of the Republics), and
Economic Chambers, and in many instances trade unions are signatories to
Social Compacts (SC). These legal instruments fall somewhere in the range
between contracts among interested parties, executive orders of the govern-
ment, and laws. (ALA, Art. 17, 573-585). SCs regulate "socio-economic and
other relations of broader concern, in particular...in the spheres of
planning, prices, distribution of income and allocation of resources for
personal incomes and workers' collective consumption, external trade, and the
policy of employment." (ALA, Art. 579). SCs share many features with SMAs
(see para 3.4.2) which set them aside from laws, such as the need for
ratification by the affected parties, and the need for public negotiation.
However, while SMAs can be renegotiated, abrogated and — if they are violated
— trigger financial compensation for losses inflicted on other parties, and
while violation of economic laws regularly is cause for fines, no such
provisions apply to SCs, and the ALA is silent on the effects of violating
SCs. This seems a curious omission, given the importance of the issues
regulated by SCs. The most probable explanation is that SCs are enforced by
moral suasion. This may in fact be the most obvious case of an economic
instrument for which the effect rests largely on the LCY exercising its
authority over its members.
5.8 SCs and SMAs often work in packages. For example, the Federal government, the Federal Economic Chamber and the trade union congress of the Federation sign a SC on the distribution of Net Incomes of BOALs. Similar Social Compacts are then concluded among the same parties on the level of each republic, taking its specific conditions into consideration. Finally a SMA for each industry branch is prepared and signed by the Association of the branch, the responsible trade union organization and all firms of the branch. This, in turn, influences the SMAs within each firm dealing with the same issue, and eventually the distribution of the total fund for personal incomes among the workers. This example brings out a particular feature of the self-management system. The right to decide over all matters of primary interest to the workers by the workers themselves - as the very essence of self-management -- is guaranteed by the Constitution. At any given point in time, however, i.e. in all practical cases, that right is restricted by SCs and SMAs. Such a restriction is not considered as being inconsistent with the principle of self-management, because the SCs and the SMAs, in turn, are concluded between organs controlled through delegates elected by the workers.

6.1. Computation and Distribution of Income

6.1.1. Previous sections referred to the central role of income computation and distribution among BOALs the use of internal prices, and the concepts of "pooling of labor and resources" and "sharing of income and risks". This Chapter will explore these income relationships, which are the most important micro-economic features of Yugoslav self-management, in greater detail. Section 6.1 first develops the mechanics of income computation and distribution, and discusses the constraints of their application. Section 6.2 deals with the formation of internal prices and their equivalence with income sharing. Section 6.3 discusses the internal planning of firms, built around income computation and distribution, and Section 6.4 sketches the link to macro-planning.

6.1.2 In gross simplification, the income of BOALs is, according to Yugoslav accounting conventions, computed as follows:

\[
\begin{align*}
\text{Revenues from sales} & = RS \\
+ \text{Share of joint income} & = SJI \\
- \text{Gross income} & = GI \\
- \text{Material cost} & = MC \\
- \text{Depreciation} & = D \\
- \text{Income} & = I \\
- \text{Taxes and contributions} & = TC \\
- \text{Interest payments} & = IP \\
- \text{Net Income} & = NI
\end{align*}
\]

Most of the items are self-explanatory. The BOAL receives revenues from sales (RS) either to other BOALs within the firm or to outside customers, either at transfer or market prices. Alternatively, and as its reward for internal
deliveries to other vertically linked BOALs, it can receive a share of joint income (SJI) which the firm or firms realized at the final stage of the production. The sum of these items makes up the Gross Income (GI). After costs for material inputs (MC) and depreciation (D) are deducted, the remainder is the Income (I) of the BOAL. After deduction of taxes on the BOAL's Income and of contributions for financing of a variety of social and communal services (TC), and after deduction of interest payments (IP), the Net Income (NI) of the BOAL is derived.

6.1.3 Two points are worth noting: First, the computation contains no provision for wages and salaries; and second, there is no profit or loss. NI, therefore, is the residual available for distribution between the community of workers of the BOAL and society as the owner of the means of production. The workers receive Personal Incomes (PI) and some other benefits from the distribution of allocations to a Collective Consumption Fund; society receives its portion of NI in the form of allocations to the Business Fund and various Reserve Funds. In the subsequent discussion the respective second components are ignored for simplification. Since both parts come out of the residual income of the BOAL, both the income of the workers and the income appropriated by society can vary, depending on the business success. As mentioned in connection with the absence of a "labor market" (para 3.5.1), wages, as a contractual monetary reward for a unit of labor time, cannot exist in this system, neither in terminology nor in practice, nor are "labor costs" part of cost of production in the accounting sense. Workers receive monthly payment advances according to the plan and its realization. But final remuneration is only computed after the end of the business year, and it may result either in additional payments or a reduction of the advances paid during the subsequent

too frequent and too articulate to be dismissed as lip service. Second, the
year. The absence of "profit" or "loss", on the other hand, is primarily semantic. Apart from an undefined profit component distributed to the workers as part of their personal income, the allocations to the BOAL's funds are equivalent to undistributed profits under common accounting conventions.

6.1.4 The transformation of realized PI into personal income payments is carried out in two steps. First, the value per "work point" (see para 6.3.2 below) is computed by dividing aggregate realized PI by the total number of realized work points which the workers of the BOAL earned according to the SMA on association of the BOAL. And second, individual incomes are computed by multiplying the individual number of work points with the value per point. The remainder of NI is allocated to the Business Fund of the BOAL.

6.1.5 In principle, the Workers' Councils of BOALs to have the right to determine the distribution of NI into its components. In practice, however, Social Compacts (normally on the level of the republic) and SMAs (normally on the level of the industry branch within the republic and of the firm), constrain this right by establishing certain rules, frequently in the form of complex formula, for the upper limits of NI which could be distributed as PI. Into the early 1980s they tended to stipulate that in case of above-average value productivity (NI per worker) within the branch, the firm could pay an average PI to a worker above the average of the branch. If the productivity was below the branch average, the average personal income per worker in the firm would fall below the average of the branch. In either

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1/ The work force of the firm is for the purpose of these computations standardized by converting the distribution by skill categories into normalized "accounting workers."
direction, however, the differences in PI per worker were not proportional to the productivity differentials but degressive, with the effect that for BOALs above the average the share of accumulation in NI would rise with increasing margins of excess productivity, and in the obverse case it would fall; i.e., both workers and society shared the differential, but society's share was the higher, the larger the deviation. In response to the growing realization that this formula gave special rewards to workers in capital-intensive units (and penalized those in the obverse case), and in part in response to the practical difficulties with any formula based on absolute value figures under inflationary conditions, the approach was gradually changed to linking growth rates of average level of PI to growth rates of productivity. This did not change, however, the more favorable position of more capital-intensive firms.

5.1.6 The Federal SC on incomes for 1985 shifts the standard for computation of the maximum share of PI in NI from productivity to "profitability", defined as the ratio of the allocation to business and reserve fund to the sum of the adjusted value of fixed assets and working capital. The functional relationship between average personal income and profitability will be similar to that for productivity in the past, leading to rising shares of accumulation in NI with rising profitability, and vice versa. Since until recently profitability was not a factor for distribution of NI, this changeover signifies a major change in the Yugoslav system.

5.1.7 Provided NI was sufficiently high, under the previous rules the capital-intensity largely determined how much the BOAL could distribute to workers, turning accumulation from an explicit target into some form of "forced savings". This does not exclude cases of higher voluntary savings if major investment programs required a higher self-financing. Nor does this
mean that such residual forced savings were irrelevant for BOALs; since they constituted assets under their permanent control, they improved the future capacity to earn income. The decisive difference is that under the new rules accumulation is turning from a residual into the determinant for the amount of PI. This is likely to create a much stronger motivation for maximization of NI than in the past. And the linkage of accumulation to the value of employed assets (regardless of the source of financing, i.e. from permanent funds, or credits) establishes the condition for appropriation of the rent for the use of socially-owned capital by society rather than by the workers who are in the privileged position of having the monopoly of access to their use. Furthermore, excessive assets turn under the new rules from a desirable insurance against future uncertainties to an acute burden by reducing profitability and ultimately PI. This should introduce an incentive to minimize the use of assets at a given level of business activity, inducing a more rational overall use of capital.

6.1.8 It is important to keep in mind the limits to Social Compacts on incomes, and to SMAs on incomes which are spurned by them. While they deal with a great number of issues related to incomes of organizations and personal incomes in addition to the distribution of NI (such as the treatment of "windfall" gains, and minimum incomes), they do not seem to be designed as instruments for explicit macro-economic income policy. For example, they do not aim to establish particular macro-economic proportions (e.g. the share of aggregate PI or accumulation in social product), nor do they explicitly aim at certain levels or growth rates of nominal personal incomes as a means of inflation control.
6.2 Internal Prices 1/

6.2.1 If BOALs within a firm are parts of a vertically integrated chain of production, i.e. deliver parts and components and services to one another which in the sequence of production stages combine to the marketed output, the valuation of those internal deliveries has to adhere to certain rules. And as the income computation and distribution scheme of para. 6.1.2 clearly shows, the level of NI of BOALs depends predominantly from SJI, i.e. the way these internal transactions are valued. This raises the issue of "transfer prices". It is equally relevant for relations among firms which have concluded a SMA on "pooling of labor and resources", i.e. on a lasting business relationship. As mentioned before (para 4.7), transfer prices can be linked directly or indirectly to observed market prices, or to planned income relations. While the first method can raise difficult technical problems, they are not related to the economic system and are subsequently ignored. Our attention will now turn to the income-oriented transfer prices.

6.2.2 Looking back to the income computation scheme of para. 6.1.2, it is evident that there are two ways to generate a level of G.V in each BOAL which satisfies the conditions of having comparable levels of PI per worker and pre-agreed shares in total accumulation. Either it can be computed as the algebraic product of the appropriate transfer price (per unit) and the number of transferred units, or as a percentage of the total incomes realized through final sales. Once an agreement is reached on (a) the levels of average PI per worker; (b) on the respective portions of total accumulation; (c) on the value of material inputs of each unit from the outside; and (d) each unit's

1/ The conclusions of this section are based on the accounting model of the multi-unit firm, presented in the Annex.
depreciation, one can compute the shares of total generated income which have to be applied to compute the incomes of the participating BOALs. Their absolute amounts can be converted to equivalent transfer prices by dividing the totals by physical volumes of internally transferred deliveries; which of the two alternative methods -- transfer price or income share -- is being used is entirely a matter of convenience.

6.2.3 The method of using shares of total incomes has four additional advantages. First, under inflationary conditions, the agreed respective shares of each BOAL require only minor adjustment for the different rates of price increase for different inputs and outputs. Second, the principle of "sharing of income and risk", which is to underlie the notion of "pooling of labor and resources", is automatically met. If either sales prices or quantities change in the positive or the negative direction, the resulting gains and losses are automatically shared backwards in "fair" proportions. Third, basing income distribution among BOALs on sharing of incomes lends itself to an easy approach to planning. The shares can be determined ex-ante and can be applied ex-post as well. If BOALs achieve their outputs with lower material or labor inputs per unit of output than planned, they achieve a higher NI per worker, leading to higher PI per worker and higher profitability. And fourth, if the BOALs agree to redistribute NI among themselves differently, either for reasons of solidarity with a distressed BOAL, or to channel more accumulation to a BOAL which has major investment needs, this can be done easily by changing the shares in gross incomes.

6.2.4 Two possible drawbacks are also immediately evident. First, the BOALs participating in this distribution rule have little incentive to search for the cheapest source of outside inputs. Since MC is deducted from the
income computation, such savings would have to be split among all associated units and the impact on net income of each single one would normally be marginal. And second, efforts for drastic improvement in efficiency, either through reduced input or labor coefficients, would tend to be discouraged. Since equalization of personal incomes among participating BOALs is an underlying principle of the collaboration, any realized major and permanent personal income gains would tend to enter next year's planning assumptions, in order to contain internal income inequalities among BOALs. This internal income distribution model, thus, tends to produce its own version of the "ratchet effect", normally associated with centrally planned economies.

6.3 Micro Planning

6.3.1. All BOALs and firms are obliged by law to prepare their own internal plan. Given the technical links between the BOALs within the firm, the plans of the former tend to be a derivative of the latter's plan, rather than the latter a sum of the former. This hierarchical linkage is strengthened by two organizational factors as well. First, as mentioned earlier, the planning and analytical staff of the firm is concentrated in a separate unit under the direct guidance and supervision of the business manager of the firm (ALA, Art. 543-544). And second, the distribution of jointly generated income through the SMA on "pooling of labor and resources" establishes the cohesion of the firm. Planning of income, therefore, is as important as the coordination of inputs and outputs in a consolidated plan of action. Production and income planning are, in fact, part of one and the same process.

6.3.2. Since the material aspect of planning -- the matching of output and input streams of the BOALs under an overall output program -- is no different
from that of a complex firm operating under any other institutional framework, the subsequent description will concentrate on the aspect of income planning. Income planning starts from the bottom up. Each worker is assigned a certain number of "work points" per unit of time worked, which to a large extent reflects educational background and is normally the same in all BOALs of the firm and is part of its internal SMA on "pooling of labor and resources". 1/

6.3.3. On that basis the number of work points can be computed for each BOAL and for the firm as a whole. Market forecasts provide estimates of outputs, which are converted into material inputs of each BOAL though technical coefficients, and from data on fixed assets the required depreciation is computed. From recent experience, or from SCs and industry branch SMAs, estimates are provided on productivity development. After an assumption of a desired or necessary amount of allocation to business funds, the remainder - total planned personal income - is divided by total work points of the firm. On that basis the share in total income is computed which each BOAL needs to receive, either directly or through equivalent transfer prices, to meet these planned components.

6.3.4 Thus, the plan establishes simultaneously the distribution of planned NI of the firm among the BOALs and the planned distribution of personal

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1/ This description is somewhat oversimplified. It seems to be a widespread practice to provide a moderate premium in the order of up to 10% to the value of work points to specially effective workers, on the basis of suggestions of direct supervisors to a special committee of the Workers' Council. For a detailed description of the work point system, see Schrenk, pp. 51-52. There is also a bonus for seniority as a reward for "past labor" (i.e. allocations to the business fund during all previous years of employment).
incomes within each BOAL among all workers. This plan has to be ratified by all BOALs of the WO in order to come into force. The realized results in terms of actual income per work point may, of course, differ on average and among BOALs, as some BOALs are more successful than others to meet their output targets or to contain their planned inputs.

6.3.5. The same principle of planning of the shares in joint income among BOAL within the firm is applied in SMAs on "pooling of labor and resources" among firms. The common denominator of all these internal income sharing agreements can hardly be overemphasized: the organizations participating in this arrangement jointly share market opportunities as well as risks.

6.3.6. The method of setting implicit, inflation-neutral, and profit- and risk-sharing transfer prices through income sharing is logically elegant. In practice, however, it can lead to considerable conflicts which have to be resolved through tedious negotiations. One cause of such conflicts is the fact that the labor force of the participating BOALs is normally not optimal in size nor composition, and that at the planning stage there is no incentive for the BOALs to contain it since the total sum of personal incomes is generated on the basis of actual employment. Conflicts arising from this problem are apparently particularly severe in the cooperation among firms where direct evidence of overstaffing can be more easily disguised than among BOALs within a firm. Another problem is the one mentioned in para. 6.2.5 of a single BOAL generating persistently much higher personal income per worker than the others.
6.4 Link to Macro-planning

6.4.1 Micro-planning is at the same time a step towards macro-planning. In Yugoslavia this takes the form of a set of five-year plans of the SPCs (one each for the Federation, each republic and each local community). The general concept of plan preparation is rather straightforward. The planning process is to start simultaneously at the top (in the planning offices of the SPCs) and at the bottom (by the firms). While the planning offices start with macro-projections, the firms are supposed to draft their own five-year plans in which they articulate their expectations and intentions for the plan period. These micro draft plans are then to be exchanged and discussed with suppliers and customer firms, and with firms in the same industry branch. The purpose of these consultations is to induce all participants to arrive at a firmer, more realistic, and more consistent set of expectations and intentions. At the same time the SPCs gradually refine their own draft plans by filling in more details and coordinating with other SPCs. These two sets of iterative processes, referred to as "harmonization", are to converge eventually. At that point, the plans of SPCs are finalized for subsequent publication as the "social plans", with SCs as integral parts. Firms, in turn, are expected (but with the exception of certain priority sectors not obliged) to conclude SMAs which set out their course of action, consistent with the social plans and the financial plans of banks of which they are members, and -- to the degree possible -- consistent with the development plans of other firms.
6.4.2 The principal ideas are similar to those of the theory of "indicative planning". 1/ The convergence of expectations and plans of action should reduce the degree of uncertainty and the associated financial and social costs. While the organs of the state are bound by the social plans (as long as reality does not deviate too much from the basic assumptions), firms are merely obligated by the SMAs which they conclude in the context of planning. However, since violations of these SMAs does rarely cause direct harm to other firms and seems to be widely practiced whenever expectations and reality start to diverge, the commitment of firms to these plans is generally considered to be minimal. The fact that the firms' own micro-plans covers mostly a shorter period of time, are detailed only for the period for which income distribution is a key issue (i.e. normally at the annual level), or in cases of joint investment by the expected life span of the assets rather than a fixed five-year period, does not seem to make firms genuinely interested in getting more deeply involved into the overall planning exercise than required by the law. Nor do they seem to take its result very seriously in the absence of a central authority which would enforce action in accordance with plans.

What is important, however, is that major projects of firms are included in the social plans, since without such recognition, the possibilities to receive bank credits are virtually nil. 2/

1/ Meade (1970).

2/ This paper is not the place to analyze the methods and the record of Yugoslav planning. But one could add that the process of self-management planning, and in particular its stage of "harmonization", has remained a puzzle to outside observers. Most of them tend to agree that no efficient approach to decentralized macro-planning has emerged yet which would match the decentralization of the economic system. See for example Lydall, pp. 107, 137-149; Sacks, p. 15.
7. THE OBJECTIVE FUNCTION

7.1 The "objective function" of the firm, which spells out the maximand of its behavior, is not only of academic interest but also of great practical relevance. All normative statements as to how the firm "should" behave, including practical optimization rules for operational decisions, rest on an unambiguous objective function which permits maximization of the targeted variable. Obviously traditional neoclassical objective functions—like maximization of profit, market value of assets, or stream of residual income accruing to the individual owner/manager—are not relevant in Yugoslavia. The owner (society) is not controlling decisions, nor is there another manager who has the monopoly of decision-making power. More differentiating institutional neoclassical models—such as an owner/manager coalition which strikes a compromise among divergent objectives according to the relative bargaining power, resulting in more differentiated objective functions or the introduction of additional constraints to satisfy all parties to the compromise—come somewhat closer to the Yugoslav reality.

7.2 To conceive of a realistic objective function for the Yugoslav firm, one has to drop the convenient assumption of the firm behaving as a homogenous entity with a singular, consistent, and well-articulated rationale, comparable to that of the individual owner/manager of a textbook capitalist firm. Instead, one has to go back to the motivations of the groups which make up the formal and informal coalition which directly or indirectly affect the firm's decisions, discussed in Section 3.4.

7.3 Formally, the firm is to be guided by the will of the workers. Presumably, personal income in one or the other variant (for the next year,
over the remaining period of employment, with or without access to common
consumption, with a high, low, or without time preference, etc.), job security
and the quality of the work environment, are important objectives of indi-
vidual workers. But individual factors, like position in the firm, education,
skill, age, sex, family status, mobility, etc., determine largely the indi-
vidual gains and losses from particular courses of action of the firm, with
the effect that individual preferences tend to differ greatly, and sometimes
diametrically among individuals or groups within the workers' community. The
formal representation of the work force in decision-making, the elected
Workers' Council under the leadership of the trade union, has an almost
impossible task in finding a consensus covering the diverse interests of a
great number of individuals and subgroups.

7.4 The same ambiguity prevails in the case of business managers. As
individuals, they are as managers everywhere motivated by financial consi-
derations, 1/ by the professional ambition to achieve tangible success of the
firm in the form of growth, and by personal career ambitions. Regarding the
latter, success depends as much on rapport with organizations and individuals
responsible for nomination, election, reelection and recall as on professional
qualification and business success. This emphasis on cooperative behavior is
encouraged by the Yugoslav system of rotation of leading cadres between
various areas of leadership, e.g. between management positions in industry and

1/ The relative spread of salary, however, is only moderate in comparison
with capitalist firms and, according to some recent observations, does
rarely exceed the range of 4/1 between the highest and the lowest income
in a firm. In addition, the salary scale of firms is determined by a
fixed number of work points laid down in internal documents, and the
reward to the business manager rises and falls by the same percentage
that of all other workers, depending on the position and business success
of the firm.
banks, leading positions in the administration and executive bodies of SPCs, or the trade unions and the LCY. Career ambitions, thus, are best served by responsiveness to the environment surrounding the managerial position, both within the firm and externally (the local community, the LCY, and the political and administrative leadership of the republic).

7.5 External parties have a great deal of influence on the decisions of firms through the power of moral suasion they exert on Workers' Council and business managers. The position of the LCY, which in turn also affects decisions of trade unions, local communities, and higher (primarily republican) political and administrative levels, is obviously determined by its own decisions on the principles and the directions of social and economic development. The local communities pursue a variety of motives. As we have seen in para. 5.3, the strongest ones are probably creation and maintenance of local employment, financing of local housing and physical and social infrastructure from taxes and contributions from the income of firms and individuals, and maintenance of a semblance of income equality among various firms on its territory. Similarly, the republican governments have a number of legitimate objectives of their own, especially to reduce the economic and social disparities among the local communities, using spatial orientation of investment and economic growth as its major instruments.

7.6 This complex network of direct and indirect powers, with numerous SCs and SMAs as additional constraints on decisions of firms, could suggest that the influence of the workers' community on the firm's actions is fictitious in reality. However, there is evidence to the contrary. First, references by Yugoslav managers to shop floor sentiments, and the limits this poses to accumulation and to changes in work rules and enforcement of discipline, are
too frequent and too articulate to be dismissed as lip service. Second, the open political style of Yugoslavia leaves plenty of scope for expression of dissatisfaction with economic events. Third, the not infrequent incidence of "work stoppages" (brief strikes), 1/ often caused by decisions supported by self-management organs, demonstrates that the will of the formal workers' representation and the collective feelings of the unstructured community of workers are not automatically identical. Since such conflicts are considered as a contradiction to the cherished vision of social harmony and consent, firms take the likely shop floor response into consideration in their decisions. And fourth, Yugoslav managers and administrators hint that the spirit of laws and regulations SCs and SMAs has sometimes to be bent in order to maintain internal peace, and that this is in fact one of the problems underlying many of the macroeconomic problems of Yugoslavia. 2/

7.7 Given the variety of actors involved in the formation of decisions of firms, and the variety of their motives, decisions tend to be compromises of the coalition of actors. And since such compromises evade a rigorous analytical framework for evaluation of their respective gains and losses, personalities and particular circumstances tend to muddle the mode of reaching

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1/ In 1980, 245 work stoppages occurred according to the Yugoslav press (See Lydall, p. 122). The drastic decline in levels of real personal incomes thereafter is likely to have increased the frequency of spontaneous expressions of discontent.

2/ "Financial indiscipline" resulting from inconsistent application of regulations at the micro-level, motivated by concern about economic discontent resulting from rigorous application, are a common phenomenon in Yugoslavia for many years. In connection with discretionary support actions by state authorities, it contributes significantly to the pervasive efficiency losses of the system due to what Kornai called "the soft budget constraint". See Kornai (1980), Chapter 13.
decisions further. This is not to say that decisions of Yugoslav firms are "irrational". It merely indicates that Yugoslav firms are probably rarely "optimizing" according to a one-dimensional objective function in the narrow sense, but rather tend to "satisfice" the interest of the coalition of decision-makers. In the process, the loss of analytical rigor may, at least in part, be replaced by a more comprehensive input of information and by a stronger commitment for implementation as the result of the participation of all affected parties. Under these circumstances, the concept of the objective function of the firm in the crisp terms of theory appears to have little operational relevance for the Yugoslav firm.

7.8 The literature about the formal theory of the Yugoslav firm, based on specific positive or behavioral premises, is extensive. If the positive model of enterprise decision-making sketched above is a valid approximation to reality, there is limited value in reviewing the formal theory in detail, but a brief overview may be in order. The most common assumption is that the Yugoslav firm behaves like a producer cooperative and maximizes average personal income per worker. This line of analysis goes back to the seminal work of Ward on the "Illyrian" firm and was maintained by most of his successors. 1/ The model derived from this approach generates some perverse features. On the microeconomic level, it predicts a tendency towards a backward-sloped supply curve (i.e. a reduction of output and employment in response to a rising price

1/ See e.g. Ward, Vanek, Mead (1974). An excellent summary of this traditional theory of the Yugoslav firm can be found in Estrin, Chapter 2. One cannot overemphasize, however, that Ward located his model pointedly in a mythical "Illyria" rather than in Yugoslavia, indicating merely a faint association, and Vanek speaks consistently about "the labor-managed market economy" rather than a self-managing one. Much of the subsequent literature ignored these important qualifications.
of the product), resulting in unstable markets. In addition, the Illyrian firm exhibits the tendency to ever-growing capital-intensity, and it tends to reach its optimum of capital-intensity, financed from credits, as it approaches infinity and all but the last worker are dismissed.

7.9 Finally, the "Illyrian" firm has a chronic tendency to distribute all income to workers. This follows from the fact that the part of NI which is retained in the firm as accumulation is appropriated by society, giving the workers the right to earn a part of the additional income generated from the investment financed from accumulation, but no ownership right over the financial assets, nor any other rights to personal gains from liquidation or appreciation of assets. If, on the other hand, workers distribute all income to themselves, they could invest a corresponding portion into private savings accounts and earn income from interest and retain unrestricted ownership over the principal. Therefore, workers would choose the former alternative only if over the relevant time horizon the discounted value of the additional personal income exceeds cumulative interest plus the value of principal of private

1/ However, Vanek (1970) pp. 53-56, following a similar argument made by Domar (1966), has shown that a change in the model from single input/single output case to the more realistic one of multiple inputs and joint outputs, changes the supply response back to the "normal" type, although the elasticity of the supply response to price changes may be fairly low. And Lydall (1984), p. 39, demonstrated that the backward-sloped supply curve can only occur under conditions of perfect competition, hardly a realistic assumption about the prevailing market structure in Yugoslavia.
savings. 1/ Since the time horizon of financial planning for households may, in many cases, be quite short (and since the former case involves a good deal of uncertainty about the final outcome absent in the latter), workers would only in cases of exceedingly profitable investment choices be willing to sacrifice present income - whereas normally they would distribute all current income to themselves - and would prefer to finance investment from credits, or even bleed the cooperative firm financially.

7.10. The main weakness of this model is that its key assumptions are inconsistent with the present Yugoslav reality. 2/ As we have seen, due to the institutional environment in which they operate, firms do not automatically and exclusively identify with the personal income interests of the workers' community. They are not autonomous in their decisions on the distribution of net income due to SCs and SMAs and political suasion. Firms cannot lay off workers in order to increase the productivity and personal incomes of the remaining ones (except through attrition). A choice between financing investment from credits or from retained earnings does not exist in reality, since bank rules require that existing SMAs provide some of the required investment resources themselves as a condition for extending credits. And finally, the macroeconomic statistical evidence does not support the

1/ Workers would retain rather than distribute profits per dinar only if

\[(r - s)^t - 1 > (1-s)^t\]

where \(r\) is the rate of return of the investment from accumulation, \(s\) the interest rate on savings, and \(t\) the time horizon in years. If, for example \(s = 5\%\) and \(t = 5\), \(r\) would have to be in excess of 13\%, and for \(t = 3\) in excess of 27\%; in both cases the uncertainty for income from investment would require an additional risk premium.

2/ They may not always have been as unrealistic as at present. During the late 1960s, firms did have a great deal more autonomy in distributing their net income, which led to an extensive political campaign against what was then termed "group ownership behavior", denounced as inconsistent with the tenets of socialism.
predictions from this microeconomic theory. 1/ The Illyrian model of a
producer cooperative is a theoretical construct even apart from the
inconsistency of its assumptions and predictions with the Yugoslav reality.
The best known, and extremely successful real model of industrial producer
cooperatives -- the Mondragon cooperative system in Spain -- has demonstrated
that the specific institutional assumptions of the Illyrian model are by no
means inherent to the cooperative, and that in their absence none of the
perverse features discussed in the theory materialize. 2/

7.11 While maximization of personal income per worker is the most common
hypothesis about the objective function, it is not the only one. A particu-
larly interesting case has been made by the Yugoslav economist Branko Horvat,
who apparently bases his hypothesis on direct observation. Firms start the
planning process with an "aspiration level" of personal income per worker,
according to last year's incomes, sales expectations, income levels in other
firms, taxation, inflationary expectation etc. Once this ex-ante income level
is determined and entered into the plan, the Yugoslav firm behaves like a
capitalist firm by striving to maximize residual profit (accumulation). The
only difference is that ex-post realized personal incomes may deviate from the
planned level. 3/ Finally, among the numerous other conceivable objective
functions, maximization of growth of employment, sales or assets, combined
with certain constraints on personal income growth and financial ratios, would
be as plausible under the Yugoslav system as they are in a managerial-type

1/ See Horvat, p. 342.
2/ See Thomas, H. and Logan, C.
capitalist firm with dispersed and powerless shareholder ownership. Maximization of growth of sales would appear a logical choice as long as business managers, the local community and the LCY all agree (whether for the same or for different reasons) that growth is a desirable end in itself. Priority for growth would be a particularly realistic assumption if the Workers' Council is either coopted or weak, and if the workers' community is docile in the presence of local unemployment.

7.12 After this digression into the formal theory of the Yugoslav firm, another look at the implications of the norms set out in the SCs may be in order (see paras. 6.1.6-7). If the SC prescribes a link between average personal income per worker and the productivity of the firm, if all parties in the coalition agree that maximizing average personal income per worker is the ultimate purpose of all decisions, and if the firm is in reasonably healthy condition, then the most likely pattern would be the following. The firm would probably, in the short run, choose the output level (and/or price level, according to its market position) which would maximize NI. This would permit to distribute as much of it to personal incomes as permitted under the prevailing rule, maximizing at the same time its residual accumulation which can be plowed back into the firm. And the pattern of investment is likely to maximize the potential for growth of average personal income by increasing and modernizing the capital stock as much as possible within the available resources, in order to maximize growth of productivity of labor, while stabilizing employment.

7.13 If the link to profitability becomes the rule, if it is applied without additional criteria which effectively neutralize it, and if the same assumptions are made as above, the firm would, in the short run, still behave
in the same way as before. However, the thrust of the growth strategy of the firm is likely to be different. For any given level of output and prices, a technological change increasing capital-intensity will reduce total NI, due to higher depreciation, unless it would also drastically reduce the coefficients of material inputs (a rather improbable, and at best accidental side-effect of rising capital-intensity). At the same time, the share of accumulation which needs to be set aside from the reduced NI would also have to rise, in order to meet the profitability condition for higher personal income payments. This, in turn, would reduce the portion of NI available for distribution as personal incomes to the workers even further. It would take a truly spectacular increase in productivity of labor to arrive under these circumstances at higher personal income per worker. In addition, the reduction of the labor coefficient in production would, in the absence of the right of the firm to dismiss redundant workers, only be possible if at the same time output could increase drastically to keep the labor force at the same level without serious repercussions on the price level. In short, although continuation of a preference for capital-intensity for the purpose of increasing income levels cannot be ruled out, it should become distinctly less likely than under the present rule, improving both employment generation and overall efficiency of the use of capital.
8. SOME MACROECONOMIC IMPLICATIONS

8.1 Overview

8.1.1 An overall assessment of the extent, or even of the direction in which the self-management system has affected Yugoslavia's economic performance, is beyond the scope of this paper. Instead -- and more as an agenda for further inquiry than as an attempt of drawing definitive conclusions -- a few observations can be noted or components of economic performance which seem to be clearly affected by the microeconomic rules of self-management, without any claim to completeness. The paper also refrains from an attempt to speculate which of the effects are genuinely systemic, and which can be remedied by more efficient procedures and policies within the given system constraints. But before presenting the observations, a brief macroeconomic overview may be in order.

8.1.2 Until Yugoslavia was hit by the effects of the second wave of the oil price rises, by the simultaneous rise of international interest rates, the economic slack in major export countries and an acute debt crisis, her economic development was clearly a success. During the two decades from 1959 to 1979, GNP grew by an average annual rate of over 6%. Combined with an average annual growth rate of population of about 1%, the result was a very high growth of the standard of living. After 1979, however, the growth of output came to a virtual standstill. Employment generation in the social sector -- often considered by outside observers as one of the failures of the Yugoslav system -- proceeded by an impressive average rate of over 3% over 20 years of uninterrupted growth, and continued to grow by 2.6% even thereafter. This reflects the rapid transformation of the country, leading to a
massive transfer of labor force from peasant agriculture, where underemployment was endemic, to the modern sector. Nevertheless, under- and unemployment are still sizeable but they are becoming increasingly localized, with emerging labor shortages in the more developed regions, and persistent rural overpopulation and labor surplus in the less developed ones. The comparison of the growth rates of GNP and employment also suggests that until 1979 productivity grew by an impressive trend rate of around 3%, but declined in the crisis after 1979.

8.1.3 Investment in fixed assets grew between 1959 and 1979 slightly ahead of GNP, but dropped by a total of 26% thereafter. The average investment rate during the 1970s, the decade of fastest growth, was on average around 32% of GNP, but was to an increasing extent financed by foreign borrowing. The average incremental capital/output ratio (ICOR) during the decade of rapid growth came close to six. Yugoslavia had a rather high share of investments in the so-called "nonproductive" sectors (for example, housing and social infrastructure), and in heavy infrastructure (such as roads), for which the partial ICORs tend to be very high. But in spite of this qualification, and although the aggregate ICOR is a less-than-perfect yardstick for the efficiency of investment allocation even during periods of sustained rapid growth, there can hardly be any doubt that by international standards Yugoslavia was using its investment resources rather inefficiently. This is in line with the widely held view that regardless of country or economic system, the efficiency of investment allocation starts to decline rapidly if the investment rate exceeds the 30% limit.

1/ The agricultural population declined from around 57% in 1948 to less than 20% by 1981.
8.1.4 Yugoslavia's poorest record is in the areas of prices and balance of payments. During the 1970s, the average rate of inflation (wholesale price index) increased almost constantly and was on average about 18% per year. After 1978 the average rate of inflation accelerated rapidly to an average of 45% per year until 1984, and has accelerated further since. Regarding external economic relations, the current account deficits rose to about 6.5% of GNP in 1979 and its debt reached by then 25% of GNP. Due to the strident adjustment measures introduced thereafter, the current account changed to a small surplus by 1984, although foreign debt had grown by about one third in the intervening years.

8.2 Investment (see paras. 4.3 to 4.6).

8.2.1 Several interrelated reasons are frequently cited for the unsatisfactory efficiency of allocation of investment resources. First, considerations of risk hardly affect potential investors. The experience of decades has taught them that in cases of failure relief will always be available in one form or the other, with bankruptcy and liquidation as a highly unlikely outcome (see para. 8.2.5 below). Furthermore, the loss of financial assets in the case of failure is by itself no deterrent to enter into risky or questionable ventures. The loss is assumed by society as a whole rather than any particular individuals or groups, regardless of their contribution to the outcome. "Socialization of risks" or of "losses" are frequently used phrases in Yugoslavia to describe the absence of restraints on investment arising from the possibility of losses.

8.2.2 Second, the mode of decision-making by consensus and compromise within a coalition, as hypothesized in Chapter 7, removes investment choices,
more than any other type of decision, from being based on an "objective" assessment of costs and benefits and makes them largely subject to the results of negotiations among parties which can have very different perceptions as to what constitute their specific costs and benefits in the project. Under such circumstances, and if proponents or opponents of a project are very powerful, an unbiased assessment may not even be possible, given their pressures on the staff of the bank and the bureaucracy.

8.2.3 Third, Yugoslav banks are not efficient in intermediation, i.e. in channeling fungible savings (from households or firms) to uses where the rate of return is the highest. They are unable to do so because their autonomy is closely circumscribed by the fact that they are formally a service institution of their members; their scope to accept or reject credit requests on the economic merits of the proposed projects is therefore very narrow. In addition, banks are bound to give priority in their allocations to projects which have been included in the five-year plans. And they are subject to great deal of informal pressures by the governments of the republic and the local communes to give priority to projects which have the backing from either.

Fourth, the accumulation of firms remains largely under the control of the BOALs which generated it and allocated it to their business fund. This leads to a built-in tendency for self-financing, either directly in the BOAL or the firm, or through SMAs on "pooling of resources" in an associated firm. Self-financing, particularly if it is the condition for extension of additional credits, channels investment resources to recipients who were financially successful in the past, and not to those who have economically the most promising projects for the future. And fifth, until very recently, bank credits were extended at highly negative real interest rates. This added a
subsidy to borrowing and contributed to an excess of credit demand over available resources which in turn made a careful screening of all project applications exceedingly difficult, given the limitations to the analytical capacity of banks.

8.2.4 A related problem is the choice of technology. There is a great deal of evidence that most Yugoslav firms tend to choose the most advanced technology available which in many instances is also the most expensive one. The reason is the drive to maximize productivity. In part this is the response to the past income distribution rule of linking the upper limit to payments of personal incomes to the level of productivity (see para. 6.1.5), in part it reflects the belief that without the most modern technology the country has no chance to compete internationally with low-wage countries.

3.2.5 A second related problem is the entry of new firms which would increase competition by offering better and/or cheaper products, and the exit of firms which have a sustained poor record of product quality and efficiency through bankruptcy and liquidation or merger. Unrestricted entry and exit are crucial for effective competition and for vitality of the economic system. In this respect the Yugoslav record is very poor. The lack of entry is a result of the factors mentioned in paras. 8.2.2 to 8.2.3 above. Established firms, in particular big ones, tend to have a strong support for their claims to resources, due to their multiple existing connections; their major projects are also included in the social plans, assuring them priority in the access to bank resources. But potential new firms normally have no support whatever. As a result, they are unable to receive credits for a start, nor do they find partners willing to risk direct financing through pooling of resources. On the exit side, a firm in trouble normally is able to marshal strong support
for social reasons. A variety of measures is normally available. Debts are written off or extended; additional credits are made available; relief from taxes is granted; solidarity contributions from other firms are forthcoming; joint reserve funds can be tapped; payment of supplier bills is delayed, etc. These features, which characterize the "soft budget constraint" of the firm, are as endemic in Yugoslavia as in most other socialist countries and provide almost unlimited protection against failure. 1/ Another reason works against exit of failing firms as well. As discussed before, all major decisions are not taken by individuals, who can easily be held accountable and responsible, but by a coalition which -- if the project is a major one -- involves virtually every person or group or organization of any political leverage in the local community, if not the republic. Under such circumstances liquidation would expose an embarrassing collective error, and would therefore be avoided at almost any cost.

8.2.6 A factor common in several of the ones discussed above is the lack of mobility of capital, and of technical and managerial know-how associated with capital. Profitable self-managed firms have, with the exception of cases of assuring access to scarce raw materials or intermediary goods, little interest to invest in others. Under the system of social ownership, this amounts normally to transfer of at least a partial control over their financial assets, and firms would tend to prefer low-return internal investment over high-return investment elsewhere. This is also one of the reasons why there is virtually no voluntary transfer of investment resources between republics, which tends to perpetuate the inter-regional income disparities.

8.3 Labor Market (see para. 4.2).

8.3.1 The absence of an efficient labor market -- with wage rates determined for each category of workers by their marginal product throughout the economy -- is considered by many analysts as another serious impediment to efficiency. Since workers do not receive a contractual wage -- equalized either by government fiat or collective bargaining, response of firms, or mobility of workers -- but receive a share of the Net Income, personal income deviates greatly between firms even within the same industry inspite of SCs and SMAs. Much of this difference is the result of "rent" components in personal incomes, created by the free access of the already employed workers to inherited social resources of the firm for which no compensation has to be paid to society, as the ultimate owner, and by monopoly rent in the small and fractured Yugoslav market. For that reason, workers tend to stay with firms where personal incomes are highest, rather than move to jobs where the social marginal product is highest.

8.4 Commodity Markets (see paras. 4.7 - 4.9).

8.4.1 From an orthodox vantage point the institutional model of price setting for producer goods by mutual agreement is bound to lead to efficiency losses because of the suppression or exclusion of short-term market forces. And it has frequently been observed that it can reduce responsiveness to input prices in cases of vertical linking of income relations (see para. 6.2.7).

However, it should be noted that similar arrangements are standard practice in many industries of other countries which are above the suspicion of being inefficient. This is evident for industries producing a complex output, like
the automobile industry, which require close collaboration between assemblers and suppliers, ranging from product development to investment programming and quality control, which cannot function without some kind of assurance on the duration of the cooperation and on the sharing of benefits. 1/

8.4.2 Perhaps a more serious matter is the frequently voiced concern about collusion between vertically linked firms against final demand which is excluded from the arrangement. Similarly, the limited size of the Yugoslav market and the difficulty of entry for new suppliers (see para. 8.2.5) create opportunities for monopolistic practices. And the horizontal contacts which exist formally through the associations of industry branches (see para. 5.6) invites collusion among competitors. None of these distortions can be evidenced in any rigorous fashion, but references to these problems in Yugoslav sources and in contacts with Yugoslav interlocutors are too pointed to be easily dismissed as unprovable conjectures.

8.3 Inflation

8.5.1 There is no generally accepted theory on the causes of the inflationary forces in Yugoslavia, although most analysts suspect that at least some must be systemic in origin. Among the reasons for inflationary pressures is an almost persistent tendency of aggregate demand to exceed aggregate supply. Firms have an "almost insatiable investment hunger", driven by the illusion of shortages in the market, the lack of risk perception in the absence of financial penalties for failure (the "soft budget constraint"), and

1/ It is widely believed that this cooperative model is one of the reasons for the unique efficiency of Japan's automobile industry.
the moral value associated with growth. 1/ At the same time, they want to satisfy the work force through raising personal incomes by way of increasing productivity. The result is that ambitious investment projects are often initiated with insufficient funds, which the firms, in order to maintain liquidity and to complete their projects, then try to mobilize through higher prices. A second factor is the low concern about rises of input prices by SOALs or firms which are linked in a SMA on sharing of income from the final stage of production, because this transfer price arrangement does not provide an incentive to minimize material cost at any stage of production (see para. 6.2.4). And a third potential factor is the role of monopolistic or oligopolistic practices in many markets (see para. 8.4.2).

3.5.2 Another factor is inter-firm income inequality. Income distribution is fairly egalitarian within each firm, due to a scale of work points ratified by the workers’ councils themselves. But the value per work point can differ greatly between firms, due to their specific income situation, and the contributions of profit and rent to personal incomes (see para. 8.3.1). In a socialist society committed strongly to the idea of equal pay for equal work, these differences propel a constant drive for higher incomes in those firms which, from the level and structure of their income, could no longer really afford to do so, raising their prices as a result.

3.5.3 The Yugoslav system may also be conducive to perpetuation of the inflationary spiral once it has started. Since workers do not receive contractual fixed (in money terms) wages, which are changed only from time to time by change of contract, cost of living increases tend to spill over into

1/ Kornai (1980), Chapter 9.
higher personal incomes almost instantaneously, driving up income adjustment expectations and feeding back into output prices. This absence of a "wage drag" not only keeps the vicious spiral in motion, it is also a reason why devaluation and increases in interest rates have fed back on the inflationary momentum rather than induced structural improvement of the balance of payments, reduction of aggregate demand, and a more efficient pattern of investment. 1/

3.5.4 Yugoslavia's anti-inflationary policies have so far not been very successful. Until the latter half of 1984, much emphasis was given to various forms of price control which - as is now frankly been acknowledged - was ineffective in the short run and structurally distortive in the long run, and which has now been abandoned. The scope for fiscal policies is very limited. This is in part due to the federal structure of the country which reduced the federal share in revenues and expenditures, and leaves a great deal of fiscal autonomy to the republics and local communities without a mechanism to enforce coordinated action. Another factor is the peculiarity of the Yugoslav fiscal system which has virtually hundreds of specific earmarked taxes and quasi-taxes (mostly in the form of "contributions") for specific nonproductive services. In the area of monetary policy, the National Bank tries to pursue a restrictive monetary policy. But firms and banks tend to circumvent it by resorting to "financial indiscipline", i.e., by defaulting on payment or collection of debt service obligations for bank credits, or on payments due to suppliers. The effect is involuntary credit creation outside the regular monetary system, expressed in very high velocity of money.

1/ See Lytall, Chapter '3.'
Furthermore, there are limits to the rigor with which monetary policy can be pursued in a situation of extended overindebtedness because of the danger of massive financial defaults with unacceptable political and economic costs. Systematic income policy, for which in principle the instruments of SCs seem to be quite suitable, has been used merely to affect the distribution of Net Income, hardly in any systematic fashion to reduce income pressures on the price level.

8.6 **Operational Efficiency** (X-Efficiency)

8.6.1 There has been a considerable debate about the operational efficiency (X-efficiency) to be expected in the Yugoslav firm, i.e. the intensity of effort and the motivation of workers. Perfect X-efficiency would eliminate all "institutional slack" of the work process, raising output to the level which is technically attainable with the given stock of productive assets and available material inputs and the given work force. Disciplined, diligent, conscientiousness, and a sense of responsibility of the workers are the attitudes which lead to high X-efficiency. The views about X-efficiency of the Yugoslav firm vary greatly among observers.

3.5.2 Some believe that X-efficiency can only be maintained through coercion from hierarchical authority. They tend to hold the view that X-efficiency must be low under the conditions prevailing in the Yugoslav firm; the supervisors are without the power to reward or to punish workers in order to coerce or to induce them to increase X-efficiency, and the workers' collectives are too strongly affected by considerations of misplaced solidarity to

\[1\] Leibenstein (1979).
bring social pressure to bear on shirkers. 1/ Other observers hold the opposite belief that self-management creates a spirit of workers' responsibility which cannot be emulated effectively by coercion, particularly not if the result of higher X-efficiency is redundancy of some part of the labor force. Under such circumstances, the supervision cost of effective coercion can become excessively high. 2/ Tyson (1979) argues that peer control can lead to a more effective and less costly coercion than hierarchical coercion, and that the combination of profit-related personal incomes and self-management in relatively small BOALs would create excellent conditions for high X-efficiency. Since X-efficiency eludes systematic measurement, it is not possible to assess the validity of these mutually exclusive assertions.

8.6.3 It is often believed that the institution of self-management creates certain economic cost in comparison with a centralized, hierarchical institution of management, which may exceed the compensating economic benefits. For example, Horvat lists the following 'real problems' that must be carefully examined: (a) waste of time in discussions; (b) confusion between guidance (by the workers' council) and day-to-day administration (by the business managers), and the resulting conflicts and blurring of responsibility; (c) confusion among the same two organs between day-to-day management and control; (d) divorce of decision-making and responsibility; (e) popularity-based or inconsistent decisions; (f) misconceived justice and displaced solidarity; (g) impossibility of neatly separating political and administrative work, and the incidence of power based on control over information;

1/ See Lydall, Chapter 11.

2/ See for example Horvat, p. 250.
(h) fragmentation due to decentralization of decision-making and management within the firm; (i) multiplication of conflicts in the absence of conflict-resolution through hierarchical authority; (j) misuse of democratic procedures by individuals and groups in furthering their particular interests; and (k) dangers of inefficiencies from indecision, and of retrogression into statism as the solution. Since this catalogue comes from an insider and staunch proponent of the economic superiority of self-management, these managerial problems certainly have to be taken seriously.

8.7 **Adjustment Behavior**

8.7.1 The key feature of the Yugoslav system -- dependence on the level of both personal incomes and accumulation on the level of NI, i.e., their character as residuals after all costs to the outside have been covered -- results in a specific adjustment pattern. Business fluctuations, either of the firm, the industry branch, or the whole economy -- unavoidable in any decentralized economy -- do not result in fluctuations of employment as in capitalist economies, but in fluctuations of the intensity of work and in the levels of personal incomes and accumulation earned. Under these rules all workers of the firm or the branch, or all members of society share equally in the effects

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1/ The year-to-year fluctuations of personal incomes and their determination by firm-specific business cycles -- which would be predictable under the rules of Yugoslav income accounting -- was shown in the income data for four Slovenian firms over a period of ten years. In all cases the workforce grew by rather constant rates, whereas real output growth fluctuated considerably. As a result, both productivity (NI per worker) and personal income per worker fluctuated by astounding annual margins. While the average annual change of average personal incomes differed between the firms between -0.1 and -3.2%, annual changes within firms in 16 out of 36 observations exceeded 10% per year, ranging from -23% and +41% from one year to another. See Schrenk, p. 98.
of economic booms and slumps, rather than shifting the burden of adjustment to a minority.

8.7.2 In principle the same mechanism should also permit a greater flexibility in price policy. If workers cannot be laid off, firms should be more willing to reduce prices (rather than output and input) than they would tend to do if employment size were variable in the short run. In principle, a consistent application of the Yugoslav income accounting rules should be able to lead to greater social and economic stability than exhibited by a system based on rigid wage contracts, unless other rules neutralize this potential. It seems that the absence of a neoclassical labor market, considered elsewhere as an efficiency drawback, is in this line of argument turned into an advantage.

1/ It is interesting to note that this particular flexibility of a system based on a mixture of payment of contractual basic wages and success-dependent profit shares to workers -- pointing to Japan and South Korea as model cases -- has been suggested recently in the theoretical literature. See Weitzman (1985).
REFERENCES


ANNEX: REVENUE/INCOME SHARING AND TRANSFER PRICES

Planning Stage (ex ante):

1. We make the following assumptions:

   a) The firm consists of two vertically integrated BOALs (A) and (B), each of which produces a different homogenous product by a different process each; (A) supplies (B), (B) sells to the outside market.

   b) The firm plans to sell output (xb) of (B) at an expected price (Pb). (A) produces, according to a technical coefficient for (B), its output (xa) for delivery to (B); none of it is sold to the external market.

   c) At the planned level of output, the two BOALs need total material inputs from the outside in the value of (Ma) and (Mb).

   d) (Ma) is the algebraic product of the quantity of a single input material (mxa), determined by a technical coefficient in relation to (xa), and its expected price is (spa); similarly (mb) and (mpb) determine (Mb).

   e) On the basis of their respective capital stock and existing accounting rules, the BOALs have to generate depreciation in the amount of (Da) and (Db).

   f) Both BOALs have to pay taxes and contributions in the amount of (t)% on their respective level of Income (I).

   g) (A) employs (La) number of workers and (B) (Lb); all workers have the same skill, and the two BOALs agree in a SMA to plan for an equal income per worker per year (w) in both.
h) The two BOALs agree in a SMA on planning that they should receive a share of (ra) and (rb) out of total accumulation; these shares would equalize their respective planned "profitability" (P), defined as the percentage ratio of their accumulation to the value of their capital stock.

2. Using the notation of the income computation scheme of para. 5.1.1, we have the following simple model:

Planned total (i.e., jointly for both BOALs) Gross Income is

(1) \( GI = xb \cdot pb \)

Planned total Income is

(2) \( I = GI - M1 - ID1 \) \( (i = A, B, \ldots) \)

Planned total Material input value is

(3) \( M1 = (mxa * mpa) + (mxb * mpb) \)

Planned total Net Income is

(4) \( NI = I * (1 - t) \)

Planned Net Income is split into

(5) \( NI = GPI + AC \)

Total planned Gross Personal Income is

(6) \( GPI = I (L1 * w) \)

Planned total Accumulation is

(7) \( AC = NI - GPI = I (r1 * AC) \) \( (r1 = 1) \)
3. For BOAL A we can compute:

Planned Gross Personal Income

(8) \( GPI_a = L_a \cdot w \)

Planned Accumulation

(9) \( ACA_a = ra \cdot AC \)

Planned Net Income

(10) \( NIA_a = GPI_a + ACA_a \)

Planned Income

(11) \( I_a = NIA_a / (1-t) \)

Planned Necessary Gross Income

(12) \( GIA_a = I_a + (mx \cdot mp_a) \cdot \alpha \)

4. To enable BOAL (A) to pay the same personal income \( \alpha \) to its workers as \((B)\), it needs either a share from the total planned gross revenues of the firm of

(13) \( sa = GIA_a / GI \)

or a transfer price for its deliveries to \((B)\) of

(14) \( pa = GIA_a / xa \)

Resolving (13) and (14) for \((GIA)\), we derive

(15) \( sa = pa \cdot (xa/\alpha) \)

Profitability of BOAL A is

(16) \( Pa = (-\alpha \cdot AC) / K \) \hspace{1cm} (K: value of assets)
5. Equation (15) shows that the planned transfer to BOAL (A) out of the total sales revenues of the firm can be expressed either in the form of a gross revenue share (sa) or a transfer price (pa), both are equivalent, and can be transformed into each other. The same as for BOAL (A) applies for (B).

Realization (ex post):

6. **Method I**: Consider the "worst case" (in terms of distortions of realized income distribution as a result of deviations between plan assumptions and realization). Only one deviation occurs: (pxa), the input price of BOAL (A) is higher than expected, while all other assumptions materialize. Assume, further, that the income share or transfer price are computed in accordance with (13)-(15) above. Major ex post results will now differ from ex ante plan only for BOAL (A), where the increase of (Ma) will reduce only (Is) and (Nia), while (B) is not affected at all. The effect will materialize according to the adjustment rule used by (A).

7. **Rule 1**: (A) maintains (w) at the planned level. Noting realized (as compared to planned values of variables or coefficients) by adding the superscript "', the results of Ia' < Ia and wa' = wa = w are:

    \[ \text{ACa}' < \text{ACa}; \quad \text{ra}' < \text{ra}, \text{rb}' > \text{rb}; \quad \text{but} \]
    \[ \text{PA}' < \text{Pa} < \text{Pb}' = \text{Pb} = \text{P} \]

i.e., BOAL (A) adjusts its profitability.

8. **Rule 2**: (A) maintains its profitability:

    \[ \text{ra}' = \text{ra}; \quad \text{rb}' = \text{rb}; \quad \text{Pa}' = \text{Pa} = \text{Pb}' = \text{Pb}; \quad \text{but} \]
    \[ \text{wa}' < \text{wa} < \text{wb}' = \text{wb} = w; \]

i.e., the planned income equality between (A) and (B) breaks down.
9. **Rule 3**: (A) decides to maintain the same distribution of (NIA) as planned:
\[
\frac{GPIa'}{ACa'} = \frac{GPIa}{ACa}; \quad \text{but}
\]
\[
w a' < w a < w b' = w b = w;
\]
\[
ra' < ra; \quad rb' < rb;
\]
\[
P a' < P a < P' < P b' = P b = P
\]
i.e., both personal income and profitability are reduced, and (A) is now worse off than (B) on both counts, although by less than under either Rule 1 and 2.

10. The only possibility of avoiding this result is to supplement the income distribution share or the transfer price, i.e., to supplement the results of the SMAs through some form of *ex post* "solidarity" contribution from (B) to (A).

11. **Method II**: Consider the same deviation between plan and realization as in the case of Method I above, but assume a slightly different formula for transferring income to (A). In contrast to what the ALA seems to suggest, the BOALs switch from sharing revenues to sharing income, i.e. they switch from (13) to a different distribution ratio. Two of the equations above change slightly:

(13a) \[ va = I_a / I \]

(15a) \[ va = p_a * [(I_a/I)/(xa/Gia)] \]

12. Again, as described above, both the revised income sharing rule and the transfer price are equivalent and can be converted into each other. The decisive difference between the use of (va) compared to (sa) is that in this method the effects of the change of the input price of BOAL (A) is now distributed to both BOALs rather than absorbed by BOAL (A) only, i.e.:

Ia' < Ia and Ib' < Ib; \quad Nia' < Nia and Nib' < Nib.
Now compare again the same three rules as above in Method I:

13. **Rule 1**: Both BOALs maintain personal income levels, i.e.,
    \( w' = wa = w'b' = w'b = w \). The results are:
    \[ A'Ca' < ACa; \quad ACb' < ACb; \quad ra' < ra; \quad rb' > rb; \]
    \[ Pa' < Pa; \quad Pb' < Pb; \quad Pa' < Pa = Pb. \]

    i.e., both BOALs lose profits, although by a different rate, depending on the size of the input price increase and the respective shares in total labor force and total assets.

14. **Rule 2**: Both BOALs maintain their previous profitability:
    \( ra' = ra; \quad rb' = rb; \quad Pa' = Pa = Pb' = Pb = P; \) but
    \[ wa' < wa = w; \quad w'b' < w'b = w; \]

    i.e., both BOALs cut down on personal incomes, although by a different rate. Which of the two is able to retain a higher level depends again on the respective shares in total labor force and in total assets.

15. **Rule 3**: Both BOALs retain the same distribution of their respective (NI') into its two components as initially planned:
    \[ G'P'a'/ACa' = G'Pa/ACa; \quad G'P'ib'/ACb' = ACb' = G'Pib = ACb. \]
    \[ wa' = w'b' < wa = w'b = w; \]
    \[ ra' = ra; \quad rb' = rb; \]
    \[ Pa' = Pb' < Pa = Pb = P. \]

    i.e., the effects of the external factor distorting the planned outcome is equally distributed among the two BOALs in the firms. Both lose personal incomes and profitability by exactly the same rate. This is clearly the preferable solution.

16. **Conclusions**: The example considered above represents the "worst-case" because in reality all prices would tend to change in the same
direction, i.e., in terms of the model above, normally (spa), (spb) and (pb) are all moving in the same direction, and by roughly approximate rates. In this case the contrasts between the results of the two income sharing methods and the three adjustment rules would be much less pronounced than it appears from the argument.

17. The deficiencies of Method I are not very surprising by themselves. If the income of only one BOAL is reduced, obviously the income distributed to either or both of the two factors of production has to decrease to make up for the reduction. Therefore, the conclusion that Method II leads to superior results in terms of equity is not surprising either. This strongly supports the rationale for the practice observed in some Yugoslav firms of sharing revenues not of material expenses and depreciation, which in the Yugoslav accounting terminology is the same as Income of the BOALs. This solution is obviously far superior to the alternative one because it permits to apply a commonsense rule which exactly calibrates the factor (Net Income) distribution in both BOALs. This makes it easier to adhere to distributional rules set out ex ante in SMAs on planning and reduces the likelihood of divisive disputes over correction by arbitrary solidarity adjustments ex post.

18. Another point needs to be emphasized. For both methods the two solutions to the internal transfer problem — sharing of revenues/income or explicit transfer prices — are equivalent only under one specific condition: the absence of a general inflationary trend. If there is an inflationary trend in the economy — as it was the rule in Yugoslavia over the last 20 years, any method of price formation formulated in relative terms, as implied in the revenue/income-sharing approach, is inherently superior to a solution which determines absolute transfer prices. It tends to be self-
adjusting and to lead to relatively stable relations independently from the underlying rate of inflation, minimizing the conflicts between the partners and the need for almost continual re-negotiation which would inevitably result from any attempt to resolve the transfer problem through absolute transfer prices. 1/

19. One potential deficiency of the income-sharing method (Method II) cannot be ignored, however. If the responsibility for procurement of inputs rests with the consuming BOAL, and if there is potential price flexibility from the supply side, BOAL (A) would under Method I resort to aggressive shopping for the cheapest input price, but under Method II much less so, because it would incur all the search costs while the benefit (in the form of reduced income) would accrue to all BOALs. Since most Yugoslav firms tend to concentrate all supply marketing in one specialized BOAL or Work Community, this theoretical loss in efficiency is likely to be minimal in practice.

1/ Lydall has strongly emphasized this advantage of the income-sharing vis-a-vis the transfer price solution.