

SOME PROBLEMS OF WORKERS' SELF-MANAGEMENT SPECIFIC
TO INTEGRATED, CYCLICAL, OLIGOPOLISTIC INDUSTRIES: STEEL

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I. INTRODUCTION

In spite of a spate of articles and books elaborating on hypothesized economic consequences flowing from worker's self-management, there is a dearth of empirical analysis at the firm or industry level. This essay attempts to show how to bridge the gap between the theory as institutionalized in the constitutional and legislative framework in Yugoslavia, and its application in the context of a specific industry. The steel industry has been selected for examination because of its industrial importance, and its structural characteristics.

To be sure, the data that might permit a full-scale and in-depth exploration of decision-making in the industry are not at present available. Nevertheless, there is sufficient material to enable one to arrive at some tentative generalizations and to indicate useful lines along which inquiry might be pushed in the future.

Yugoslav self-management can be regarded as a type of socialist economy where workers in democratically organized production groups, in bargaining with each other about prices, determine income distribution among industries and firms. In its most recent manifestations the system extends bargaining to plant or shop units previously dependent on more or less centralized income determination, within firms. At least in the formal model embodied in the 1974 Constitutional and in the 1976 Associated Labour Act, Yugoslav self-management now seems to entrust to negotiations between relatively small independent units the most important price, income distribution, and investment decisions.

In their negotiations, the relative bargaining power of the parties, both in the formal product market and within a firm, obviously assumes strategic importance. Although the nature of the dilemma posed by oligopolistic market power in socialist economies has been recently examined in an elegant and comprehensive fashion by Marie Lavigne,¹⁾

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¹⁾ "L'Oligopole dans la Planification", *Economies et Sociétés*, June—September, 1977, Series G. No. 34, pp. 991—1042.

socialist economies and, with rare exceptions, socialist economists, have tended to minimize the problem presented by market concentration in industry,²⁾ and, *a fortiori*, within firms.

Those few Yugoslav economists who have mentioned the problem of market power tended to dismiss it as relatively unimportant. Following the lead of certain United States economists, they see "workable competition" as compatible with a concentrated market structure³⁾ or they conclude that the Yugoslav economy is closely disciplined by import and export competition.⁴⁾ The institutional mechanism by which the import discipline has been maintained in concentrated industries has, however, not been elaborated.

In Yugoslavia, the market power problem could appear in an especially acute form because the domestic consumption of many products, particularly those of heavy industry, is so small relative to the output of an efficient plant. If firms are to attain optimum size, then only one or a few producers will monopolize sales. In many markets, therefore, consumers will confront a highly concentrated oligopoly, with the power to raise prices to a level that will provide abnormally high incomes to their workers. By entering foreign markets, the Yugoslav firms may be able to reach a minimum optimal size of plant, but export competition is not sufficient to protect domestic customers against monopoly pricing. In some circumstances, it is true, import competition could prove a check on unrestrained price increases, but such competition makes it even harder for domestic producers to reach a minimum efficient scale of output. Not all Yugoslav markets are large enough to accommodate both optimum-sized domestic plants, and vigorous competition from outsiders. If sub-optimal plants persist, their workers must either accept relatively lower incomes, or be dependent on subsidies from the rest of the community.

Those characteristics of the Yugoslav steel industry presenting difficult problems for resolution by a highly decentralized decision-making process may be briefly noted.⁵⁾ If we define the industry to include members of the Yugoslav Steel Association, it is made up of seven firms (or groups), ranging from the largest, Zenica, with over 1 million tons of raw steel capacity, to the smallest, Jadranska, operating two

²⁾ "In Yugoslavia up to now very little attention has been paid either in economic theory and empirical research, or in economic policy, to market structure as an element in business behavior and performance". Sofia Popov, "Basis of Behavior of Yugoslav Firms and Some Implications", in Smiljan Jurin, ed., *Privredni Sistem SFRJ*. Belgrade: Naučna Knjiga, 1977, p. 334. Popov's study showed that market concentration was positively associated with personal income levels. During the years 1960-1974, 36% of variations in relative personal income levels was accounted for by differences in market concentration rates. Apparently, she did not determine whether the other significant independent variable, capital intensity, might not itself be a function of market power.

³⁾ Milo Jamnik, "Functioning of Market Structures" in Jurin, *op. cit.*, pp. 188-189.

⁴⁾ Jamnik, *op. cit.*, p. 190; Zoran Pjanić, "Place and Role of Production of Goods", in Jurin, *op. cit.*, p. 86.

⁵⁾ For a more detailed analysis see Joel B. Dirlan and James C. Plummer, *An Introduction to the Yugoslav Economy* (Columbus: C. H. Merrill, 1973), pp. 132-136.

electric furnaces. Two small plants in the Slovenian group produce specialty steels. In 1977, Yugoslavia still produced 50 percent or 1.6 million tons of its crude steel by the open hearth process. The electric furnace accounted for 0.9 million tons, and the oxygen converter 0.7 million tons.⁶⁾ Firms belonging to the YSA are, to a greater or lesser degree, integrated. That is, they are engaged not only in the production of finished steel products, but operate melting shops, and in the case of Zenica, Jesenice, Sisak, Skopje and Smederevo, blast furnaces as well. Raw steel, semi-finished, and finished steel capacities are not, however, in balance. Skopje and Smederevo, for instance, depend on import of semi-finished products to keep their rolling mills busy.⁷⁾ Moreover, the finished products do not dovetail with the needs of some important consumers, such as construction and shipbuilding, necessitating appreciable imports of structural shapes and plate.⁸⁾ No tin plate is now produced. Additional semi-finished steel is imported in large amounts, in the form of billets, slabs, and hot-rolled bands, for further processing by newly built finishing plants, not members of the YSA. In 1977, these imports were at an all-time high. The new independent plants roll typical "minimill" items concrete reinforcing bars and mesh, wire rod and welded pipe; some even produce cold rolled sheets and strip.⁹⁾ In the meantime, the domestic mills have lost markets for their finished products. They cannot sell additional quantities of semi-finished steel products on the open market because imports are priced too low. About ninety percent of the imports come from the East European countries.

A more fundamental weakness for the Yugoslav integrated firms is rooted in their scale of operations. Although total output and employment have continued to rise over the years, (in the first three months of 1978, crude steel output was 13.3 percent above the 1977 level)¹⁰⁾ only one plant, Zenica, boasts as much as a million tons of capacity.¹¹⁾ Total output of raw steel in 1978, at all plants, is supposed to reach 4.1 million tons and in 1980, 6.3 million tons.¹²⁾ While comparisons of output per man are unsatisfactory at best, especially when product mixes and extent of integration differ, it is significant that crude steel output per steelworker in Yugoslavia is about one-fourth of the United States level. Italy, with 15 percent more workers in the

⁶⁾ IISI, *Steel Statistics*, 1978, Table 6.

⁷⁾ The long-term steel plan would adjust product flow by installation and expansion of both basic and semi-finished capacity, with the goal of ultimately drastically cutting imports of semi-finished items.

⁸⁾ See *Celik*, No. 70, Dec. 1977, p. 10.

⁹⁾ The import problem for semi-finished products is reviewed in *Celik*, No. 71, Feb. 1978, pp. 9-13. It is interesting to recall the assurance of one Yugoslav economist that the import quotas of hot-rolled steel products allowed "sufficient" quantities to enter the market, Jamnik, *loc. cit.*, p. 193. No test of "sufficiency" was provided. According to the Yugoslav steel association, of course, imports have been excessive. In 1977 the volume of hot-rolled semi-finished products imported was about 9 times the 405 thousand tons sold by domestic producers on the open market.

¹⁰⁾ *Yugoslav Export*, July-August, 1978, p. 4.

¹¹⁾ Roughly Youngstown Sheet and Tube's Campbell plant capacity.

¹²⁾ *Celik*, No. 70, Dec. 1977, p. 8.

industry, produces about 7 times as much steel.¹³) Taken together with other natural disadvantages of the industry — absence of tidewater plant,¹⁴) no domestic coking coal, and wide dispersion of plants requiring long distance rail transport of iron ore to most blast furnaces — it appears inevitable that Yugoslav domestically produced finished steel should incur high costs, compared with imports.

These characteristics confront policy-makers with difficult problems. If the market is to be shared by only a handful of domestic steel producers, organized, to boot, in a close-knit trade association, how can competition be expected to achieve either a self-management or a Pareto optimum, without state intervention? Somehow a reasonable balance must be struck among unpalatable alternatives. Imports will be choked, but not eliminated; prices will be controlled, but not frozen; and, as an offset, financing will be found, but not in abundance, for personal income growth and investment.

II. THE ASSOCIATED LABOUR ACT AND STEEL INDUSTRY

Adopted by the Assembly of Yugoslavia on November 25, 1976, the Associated Labour Act was supposed to mark a new era in the organization of worker self-management. From the debates and associated circumstances, including certain provisions of the 1974 Constitution, it would seem that the Parliament was guided by the belief that the Act would perform two functions. On the one hand, it could serve to reduce the power of the technical experts and the professional managers in firms by bringing more of the important decisions down to the plant or shop level. In addition new legislation could improve efficiency by making workers in each Basic Organization of Associated Labour, or BOAL, responsible for determining the principles of their own income distribution. Actually, the Act codified and extended measures (initiated as early as 1972) designed to reduce the power of centralized direction in large firms.¹⁵)

Summarizing, the Act provides that relationships among the BOAL within what formerly was known as "enterprise" are to be determined by agreements on the "pooling of labour" and resources provided by each of the BOALS. Allocation of enterprise income among the BOALS is to be by agreements negotiated among them. This agreement among BOALS contains the basic provisions for the functioning of the work organization (the erstwhile "enterprise"), including such matters as coordination of production plans, standards for cost, criteria for determining depreciation rates, provision of working capital, setting of

¹³) See IISI, *Steel Statistics*, 1977, Tables 6 and 52.

¹⁴) With the exception of Jadranska, the minimill at Split.

¹⁵) Joel B. Dirlam, "Problems of Market Power and Public Policy in Yugoslavia", in Morris Bornstein, *Comparative Economic Systems: Models and Cases* (Homewood, Ill.: Richard D. Irwin, 3rd ed., 1974), p. 204.

prices and numerous other highly important matters.¹⁶) The distribution of income among workers in each BOAL, the scales adopted to evaluate specific jobs, and the evaluation of job performance are ruled by an internal BOAL agreement. Every worker must subscribe to this agreement if he wishes to retain his job.

Provision is also made for negotiated agreements that will bring together the distinct, yet closely-knit BOALS, of the so-called work organizations (a rather colorless term, unfortunately) into larger composite organizations of associated labour. It should be noted that as one moves from the basic organizations, which may be thought of as equivalent to a shop or a plant, (where much the same technical process is carried on) to ever more complex organizations, the workers are represented by delegates to workers' councils at these higher levels. Thus the BOAL, the work organization, and the composite organization has each its workers' council. Their respective powers are presumably to be determined by the self-management agreements.

In spite of its length — 348 pages in English — it is obviously impossible for Associated Labour Act to provide for all of the eventualities and the details that must be taken into account in agreements shaped to the needs of specific firms and industries. It is necessary to mention here, however, the most important characteristics and powers of the BOALS in order to see how they might be articulated in a typical steel firm. Workers in a unit of a work organization whose product can be expressed "in terms of value within the work organization or on the market" have the duty to organize as a BOAL.¹⁷) Every BOAL — just like every work organization — is to have its own business manager. Each is endowed with autonomy in deciding on how its activities should be coordinated with those of other BOALS in the work organizations. Each BOAL decides not only how its income shall be allocated between consumption and investment, but what percentage of personal income shall be a reward for "past" labour.¹⁸)

What then is the major difference between a BOAL and a work organization? In spite of its powers, a BOAL is not allowed to exist outside of a work organization. According to the definition in the law the work organization is an independent self-managing organization of associated labour, whereas a basic organization is formed for each unit of a work organization. Nevertheless powers of the workers' council of the BOAL have much the same scope as those of a work organization. Both may formulate business policy; adopt a plan; and elect and relieve of duty business managers.¹⁹)

Although the Associated Labour Act does not specify how arrangements among BOALS might be set up in an industry where the eco-

¹⁶) An outline of the activities covered appears in Article 68 of the Associated Labour Act. Various other provisions of the Act, such as those relating to labour, discipline, designation, of specific management personnel, and selection of members of workers' councils will affect the specific terms of self-management agreements.

¹⁷) Article 14.

¹⁸) Article 105 and 110. No guidelines are even suggested in the 1976 Act to determine the level of compensation for past labour.

¹⁹) Compare Article 495 with Article 527.

nomies of vertical integration are substantial, the possibility of such organization is clearly taken into account. For instance, one BOAL which sells products to another within a work organization for further production is directed to determine prices in agreement with the BOAL that buys these products.²⁰ And the Act contemplates the possibility that it may be necessary to allocate fixed assets among BOALs and that the same fixed assets may be used by workers in two or more BOALs.²¹

Vertical integration is also recognized by providing that gross income (sales revenue) or income²² "jointly realized" by disposal of goods resulting from "production in several stages" shall be shared by the workers responsible.²³ The details of the allocation of income among the BOALs that may be active at different stages of production are left to the self-management agreements. The act states only that the workers shall enjoy "equal terms... according to their contribution to the realization of such income."²⁴ The act further provides that where there are several BOALs which pool labour and resources, the workers in them shall be entitled to a share according to the contribution they have made from their current and past labour to the generation of income.²⁵

Not much additional light is thrown on the status of BOALs in the steel industry by considering the prerequisites to their establishment. First, the results, i. e., the product, of a BOAL must be able to be "independently expressed in terms of value within the work organization." Secondly, the BOAL must "make up a working whole". Thirdly, workers in this "working whole" must be able to realize their socio-economic rights.²⁶

The broad terms in which the Act provides for duties and powers of the BOALs call for a detailed review of agreements not only in steel but in other industries, to determine in how many pieces the cake has been cut, and whether the criteria could be and have been applied in practice. On the one hand a major purpose of the Act was to promote the setting up of the BOALs; on the other hand it seems to require that all three of the basic criteria be satisfied before a BOAL can be set up. The Act seems to presuppose that in most industries there exists an open market at every stage of production. What if the market is thin or disappearing? What if the market is dominated by a single seller?

With this statutory background in mind, it is useful to raise questions of applicability of the law to an industry where total or partial vertical integration is the rule. In such an industry, even though it may be possible to separate production levels by their technological processes without much difficulty — for instance, in the steel in-

²⁰ Article 67.

²¹ Article 333.

²² Article 48, Gross income (sales revenue) less cost of materials and supplies and depreciation equals income.

²³ Article 67.

²⁴ Article 64.

²⁵ Article 66.

²⁶ Article 320.

dustry, rolling mills are not only technologically distinct from raw steel production but are generally housed in a different building — nevertheless the determination of the value of the product at each stage, and hence of the gross income to be enjoyed by a BOAL, present obvious problems. Possibilities of conflict of interest certainly arise, and their resolution is not explicitly provided for or, indeed, recognized in the Associated Labour Act. Assuming, for illustrative purposes, that the workers in the melt shop press strongly for a self-management agreement that gives them a large share of the gross income ultimately realized by a vertically integrated work organization such as Smederevo, they may conceivably obtain higher personal income than workers in other BOALs in the same work organization, producing flat rolled products.²⁷

In case of disputes, or failure to reach an agreement, the bargaining strength of a strategically placed BOAL could be limited by recourse to one of the counts provided for in the Associated Labour Act. There, it might be argued that income should be limited to, or rather by, the revenue which the BOAL could obtain were it to sell its product on the open market. In effect, the division could be based on a reasonable transfer price from one BOAL to another within a vertically integrated firm. In a leading United States steel firm, transfers are made at prices set by central accounting, using market prices where available. This practice is in accordance with recent accounting doctrine.²⁸ But allowance must also be made for incentives, so that the transfer price does not necessarily determine income for managers and workers in the basic steel or semi-finishing unit. Transfer prices, therefore, serve more than one purpose.²⁹ It is far from clear that market values are available for most of the raw metal or semifinished steel products in Yugoslavia, or that they should determine relative BOAL income if the prices can be found. How meaningful are market prices of agglomerated iron ore pellets, pig iron, steel ingots, or blooms? Would workers in a Zenica BOAL producing bars, billets, or hot-rolled bands be satisfied with a clearing account price based on imports from Czechoslovakia or Bulgaria?

Up to now, relatively little information has been published that would enable us to determine how the problems of reconciling transfer pricing with production incentives, quality control, and coordination of production schedules have been resolved by steel firms under the new dispensation. As late as June 1977, the Skopje complex had not determined the basis for arriving at division and level of revenues

²⁷ *Čelik*, No. 62, Aug. 1976, p. 43. Actually Smederevo is called a Kombinat, that is a composite organization, just as is Zenica, which is a larger firm. In Smederevo there are 19 BOALs plus an organization for management services.

²⁸ Itzhak Sharov, "Transfer Pricing — Diversity of Goods and Practices", *Journal of Accountancy*, April 1974, pp. 52—62; Billy Goetz, "Transfer Prices: An Exercise in Relevancy and Goal Congruence", *Accounting Review*, July 1967, p. 435; and David Solomon, *Divisional Performance* (New York: Financial Executives Research Foundation, 1965).

²⁹ Communication from an executive in a leading United States steel firm, December 1, 1978.

among the BOALs.³⁰) Zenica transfer prices were yet to be fixed in 1976,³¹) but in the course of 1977 a number of agreements appear to have been adopted.³²)

Summing up, there appear to be technical considerations in the production of steel in integrated forms that present complex problems for solution by the negotiating process. Even partially integrated mills, such as those of Smederevo, Skopje, and Sisak must work according to production schedules set usually on a three month basis. Coordination of the flow of raw materials and semi-finished product purchases through the mill to finished product requires careful dovetailing of each stage of production, and adjustment to the state of the market. Since the transfer of product from one stage to another is to be at agreed upon values in order to determine gross income at the BOAL level, then arrangements must be made for independent control at every level by inspectors owing allegiance to the succeeding stage of output. Failure to satisfy physical and chemical specifications must inevitably result in rejections — or in renegotiating agreements between the BOALs. Delays occasioned by failure to deliver finished products on time can jeopardize payments under contracts or result in penalties, so there must be some method whereby the interests of the work organization as a whole can be brought to bear at every production stage represented by a BOAL. A detailed flow of information must accompany the production process at every stage in a virtually integrated steel mill, even a partially or imperfectly integrated one. This again implies central coordination and control.

And if worker remuneration is keyed to reaching output goals, or failing to do so, then again the interdependence of the BOALs cannot be ignored. Achieving targets in one BOAL depends on the BOALs precedent in the productive process meeting their targets, and hence on the timing and quality of their deliveries.

When production activity requires such close supervision, and when interdependency of productive levels is pervasive, the introduction of independent decision-making at each stage could jeopardize output.³³) Yet, there is nothing to show that the steel mills in Yugoslavia have suffered appreciably from what could have been an excessive use of manhours in negotiation and bargaining. But this raises a

³⁰) *Čelik*, No. 67, June 1977, p. 12.

³¹) *Čelik*, No. 62, Aug. 1976, p. 48.

³²) An article based on certain self-management agreements with Zenica does no more than repeat, with slight variations, the relevant text of the provisions of the Associated Labour Act. For instance, transfers of products within the organization for which there is no market price are at prices "arrived at internally". I. Pašić, "L'Autogestion dans le combinat Zenica", *Questions Actuelles du Socialisme*, Vol. XXVIII, No. 10, Oct. 1978, p. 56. And the principle of equal income "for work socially regarded as equal" will be applied in dividing the receipts from production in which units have participated in common. *Ibid.*, p. 57.

³³) One wonders how the problem could be resolved when, according to a Yugoslav expert, "[I] has been made impossible for supervision to act as a separate force above the direct producers, administration has been separated into a joint service, and the sole business executive is located in the basic organization". K. Mandić, "The Evolution of Self-Management", *Business Policy*, 1978, p. 18.

question about just how much independence, as a practical matter, has been enjoyed by a typical BOAL in the steel industry.

In the day-to-day operations of Zenica, it is clear that the production targets, set for each unit in accordance with the annual plan for the whole organization, have top priority. As far as the individual worker is concerned, the major change in 1977—1978 would appear to be the adoption, or improvement, of an incentive system.³⁴)

III. EXTERNAL VARIABLES AND THE ROLE OF THE BOALS IN STEEL

A partial explanation of the relative insignificance of the role of self-management agreements among BOALS in the steel industry, or indeed any other tightly knit vertically integrated industry lies, of course, in the unwillingness of workers who are closely associated with others, even though they may be in different shops or plants, to see their fellows earning substantially more for jobs that seem to require roughly the same amount of training or to be no more dirty or unpleasant.³⁵) And, on the other hand, tendencies toward equality will be resisted by workers traditionally receiving higher wages.

An examination of the Yugoslav wage system as of 1973 concluded that wage levels varied among industries largely in conformity with average productivity, which in turn could be explained by the capital endowment of the industry. Moreover, those industries with high capital/labour ratios tended to enjoy high wages.³⁶) Would the same variations appear within a work organization in the steel industry?

There may be, however, an even stronger reason for accepting past relationships and avoiding trials of strength at the present time.

Pressure at the level of the firm — that is, what is now called the work organization — to maintain incomes in the face of losses has consequences similar to those resulting from pressures toward wage equality throughout a firm or Kombinat. In 1976 the Yugoslav steel industry had the largest reduction in realized income per worker in relation to 1975 of all important Yugoslav industries.³⁷) The total loss after paying personal income (wages) and collective consumption plus reserves amounted to 1.9 billion dinars or about 3 percent of total revenue. According to one report, two firms, Skopje and Smederevo,

³⁴) See "Record Monthly Output in New Steel Unit" *Čelik*, No. 70, Dec. 1977, pp. 45—46, and "RMK Zenica's Plan for 1978", *Čelik*, No. 71, Feb. 1978, pp. 3—7. "The yearly plan is the main regulator of all relations... not only physical output, but realization and amount of personal income". "Adoption of Production. Financial Plan for 1978", *ibid.*, pp. 46—47. This policy of central coordination and direction of production again conforms to practices in one of the largest United States steel firms. See footnote 29.

³⁵) The desire for equality appears to explain a strike earlier this year in Ravne Steel works, for the purpose of getting average monthly net income up to the level of the average worker in the Slovenian steel combination. *Tanjug*, Feb. 1978; *Večernje Novosti*, March 3, 1978.

³⁶) H. Wachtel, *Workers Management and Workers' Wages in Yugoslavia* (Ithaca: Cornell University Press, 1973), p. 183.

³⁷) *Čelik*, No. 67, June 1977, p. 4.

were responsible for the bulk of this loss.³⁸) But at the same time that losses were being registered, personal income per worker was rising above 1975 levels. This was achieved, however, only by drawing on existing assets, not on realized income. In short, wages were increased in the face of business losses. To quote an analysis of the problems of the Skopje mine and steel works, in circumstances when [enterprise] income fell substantially in comparison with 1975 while the cost of living rose for the same period from 12 to 16 percent... it would be difficult to adhere to the principle of distributing personal income according to labour. Actually for the iron and steel industry as a whole, and in spite of the fall in realized income, personal income rose by 10 percent.³⁹) The analysis went on to add, significantly, that during the same period there had been a reduction, or in some cases a suspension of production in some shops and for some products. In these circumstances, it was observed personal income must be regarded as a fixed cost. Since nominal personal income in the steel industry did not fall the following year when combined losses amounted to almost 6 percent on the equity (or poslovní fond), this policy must have been continued through 1977.⁴⁰)

Besides suffering from a decline in profitability attributable to a world-wide steel recession, the Yugoslav steel firms face an interrelated and interlinked thicket of problems. They are so strikingly similar to those faced by the United States, and to a certain extent the French, as to suggest that the Yugoslav industry will adopt strategies similar to those supported by the French in the EEC and advocated by the American Iron and Steel Institute in the United States.⁴¹)

The level of Yugoslav steel production has reflected in 1976 and 1977 a diminution in demand for some of its products, and a substantial decline in the rate of increase of output below that which had been projected for the industry. As a key industry, it has for some years been subjected to federal price control, using a system called the "mechanism", which except for rare increases of modest amounts across the board tied domestic steel prices to the export prices of the European Economic Community producers. But increases in import prices of raw materials and of domestic services such as railroad transport and electric energy have not been as closely controlled. The resulting squeeze on margins has made it impossible for the industry to finance from earnings the heavy investments required to upgrade steel-making facilities, and to bring raw steel into balance with finishing capacity. Intensifying the price squeeze, the volume of imports

³⁸) *Celik*, No. 66, April 1977, pp. 10—11.

³⁹) *Celik*, No. 67, June 1977, p. 12.

⁴⁰) *Ekonomiska Politika*, May 15, 1978, p. 13.

⁴¹) For details on these policies see Walter Adams and Joel B. Dirlam, "Import Quotas and Industrial Performance", in A. P. Jacquemin and H. W. de John, *Welfare Aspects of Industrial Markets* (Leiden: Martinus Nijhoff, 1977), pp. 165—172; Hans Mueller and Kiyoshi Kawahito, *Steel Industry Economics* (New York: International Public Relations Co., Ltd. — Japan Steel Information Center, 1978); and American Iron and Steel Institute, *Economics of International Steel Trade: Policy Implications for the United States* (Cambridge: Putnam, Hayes & Bartlett, Inc.), May 1977.

failed to drop with recession, and took a larger share of domestic consumption than had been anticipated. In fact, imports in 1977 were only about 6 percent less than in 1976. As in the United States and Western Europe, representatives of the industry complained that domestic capacity was not being utilized, while importers and their customers were making special deals at low prices to bring in products that could have been made in Yugoslavia. To add to the complexity of the problem those independent BOALs that imported semi-fabricated steel products were said to have a better financial showing than the integrated steel mills.⁴²)

IV. CONFLICT RESOLUTION, THE 1974 CONSTITUTION, AND THE LEGISLATIVE FRAMEWORK

The 1974 Constitution, in setting forth the guidelines for relations between buyers and sellers, and for the distribution of income within an organization uses general terms such as "responsibilities towards other workers"⁴³) and "principles of cooperation."⁴⁴) And, as we have seen, the identities of firms have been intentionally blurred, in the hope that the economy will, as far as possible, be guided by interpersonal, or at least inter-BOAL relations.⁴⁵) Implicit in the Associated Labour Act appears to be an assumption that relations between work organizations and their customers will be shaped in the same atmosphere of altruistic forbearance that should prevail in negotiations among BOALS within the same firm.

Along similar lines, at one time it seems to have been assumed that disposal of industry output would be assured at continuously rising amounts by long-term agreements between suppliers and consuming industries. According to the basic steel plan for 1976—1980, some 40 contracts were to become operative. They were to embrace not only the sale of finished products to important customer groups but also the long-run supply of raw materials and energy. But these agreements did not, in fact, govern the flow of inputs and outputs as had been hoped. Expansion in the steel industry suffered from imbalances, and the customers were not sufficiently in accord with the program as designed.⁴⁶)

True, Zenica signed a contract with some 26 trading organizations by which prices would be set according to Zenica's costs, the trading companies would take minimal amounts for five years, and would

⁴²) For a brief review of these global problems of the Yugoslav steel industry see *Celik*, No. 67, June 1977, pp. 3—5; *Celik*, No. 70, Dec. 1977, pp. 3—5; and Dirlam and Plummer, *op. cit.*, pp. 132—136.

⁴³) Article 17.

⁴⁴) Article 43.

⁴⁵) Associated Labour Act, Articles 62 and 67.

⁴⁶) *Celik*, No. 70, Dec. 1977, p. 19. See also discussion of an earlier broadly conceived agreement which was to "regularize the supply of products for the domestic market, except for concrete reinforcing bars and mesh". *Celik*, No. 60, April 1966, p. 12.

agree to import only if Zenica could not make the products available.⁴⁷⁾ It is far from clear how this arrangement or similar ones could fully cope with the competition, allegedly at dumping prices, offered by semi-finished steel imported under special agreements between Yugoslav fabricators or minimills and the foreign firms for whom they may be manufacturing parts or fully assembled products.⁴⁸⁾ In addition, it must be remembered that at least 72 trading organizations are authorized to import steel.⁴⁹⁾

Although the installation of new rolling capacity, the substitution of electric furnaces or oxygen converters for SM furnaces and the use of continuous casting may be expected to reduce costs, the view of the individual firms and their association is that the industry's markets still need protection against imports. Moreover, necessary investment requires an improved monetary and credit policy.⁵⁰⁾ In realizing both these objectives, the Steel Association would have to work through the Komora (Chamber of Commerce) as well as through delegates to political bodies to accomplish its aims. But in all this activity, the role for the individual BOAL must remain minor, at most.

In the strategic area of pricing, BOAL, or even work organization, autonomy is severely limited. As we have seen, price levels are controlled by the Federal Executive Council. In 1977, the Council issued a decree which, although it failed to set a floor to import prices, allowed for a 7.2% overall increase on steel products, plus an adjustment to the previous basis for range of variation with export prices from developed countries. Nevertheless, in accordance with the Associated Labour Act, the actual prices could still be determined in agreements with customers.⁵¹⁾ Apparently, only three such agreements have been signed, all for relatively unimportant products. Future agreements with designated or specific customers will necessarily conform to the terms of the Federal Executive Council decree. The delegate system, provided for in the 1974 Constitution⁵²⁾ and the Associated Labour Act⁵³⁾ obviously forecloses the possibility that the specific terms of any such agreement between work organizations would be referred back to the BOAL for approval.

That the Yugoslav Federal Executive Council should feel itself obliged to intervene by limiting steel price increases should come as no surprise to observers of the international steel industry under inflationary conditions. Regardless of their expressed attachment to free market principles, most capitalist countries have not left a key oligopolized industry wholly free to set its prices.

On the other hand, intervention by the state has often set floors to steel prices. Imports threatened the solvency of all but the most efficient companies in steel industries of Western Europe and the United States during the recent recession. In this crisis the leading firms have

⁴⁷⁾ *Celik*, No. 69, Oct. 1977, pp. 19—24.

⁴⁸⁾ *Celik*, No. 64, Dec. 1977, pp. 3—5.

⁴⁹⁾ *Celik*, No. 66, April 1977, p. 24.

⁵⁰⁾ *Celik*, No. 64, Dec. 1976, pp. 3—5; *Celik*, No. 70, Dec. 1977, pp. 3—5.

⁵¹⁾ Article 63.

⁵²⁾ Article 101.

⁵³⁾ Articles 473—482.

called for protection of various sorts, with the justification that only in this way could necessary growth be financed by internally generated funds. Minimum prices under the Davignon Plan in the EEC, and trigger prices in the United States are designed to permit the domestic firms to raise their prices to what they regard as a reasonable level. Unfortunately without some mechanism for determining whether or not domestic steel is produced efficiently these procedures inevitably contribute to inflationary pressures. There is no reason to believe the economy functions differently in Yugoslavia.⁵⁴⁾

The drafters of the Associated Labour Act hoped that the social compacts with governmental units and self-management agreements among BOALs in different work organizations would produce not only an equitable distribution of incomes among firms and within the work organizations but also permit through the exercise of bargaining some sort of guarantee that the price structure of Yugoslavia would promote efficient economic growth. Yet, as we have seen, the steel industry has been criticized for the fact that it was unable to raise any but a very small proportion of its long term investment needs through internally generated funds. This presents an interesting parallel with the United States industry which would like to extract from the consumer funds it claims are necessary to create the capacity that may be necessary in the future if we are to avoid imports. In neither Yugoslavia nor the United States is the organized steel industry willing, when push comes to shove, to rely on the market to provide outside financing for whatever replacement or expansion of capacity seems to be necessary. In Yugoslavia, of course, the social plan for the steel industry sets a goal for the relative shares of domestic and imported product as well as for projected expansion in the various stages of steel capacity. But how these goals are to be reconciled with the BOAL autonomy remains a mystery.

The BOALs, their associated work organizations and the composite firms had taken root in the steel industry even before the passage of the Associated Labour Act. We are still far from understanding their role in the economy. Some aspects of the BOAL are similar to profit centers which have been found to be effective institutions for decentralizing corporations in the Western capitalist economies.⁵⁵⁾ Such profit centers are not, it would seem, as autonomous as the BOALs.

It is inconceivable that the executives of IBM or General Motors, or more relevantly Inland Steel or Allegheny Ludlum could manage their firms efficiently on the basis of agreements between autonomous divisions or profit centers that would be subject to renegotiation every year or when one party became dissatisfied. One can only assume that in actuality some informal mechanism has been devised in Yugoslavia to permit the firm as a decision-making unit in an integrated industry to concentrate power at a level where it can be used without clearing decisions with each BOAL. While no detailed study, to my knowledge, has been published on this aspect of the new law, it is possible to draw some insights from the experience at Zenica. In the middle of July of 1976

⁵⁴⁾ Analysis of Professor A. Bajt, *Politika*, May 7, 1977, p. 12; N. Dodge, "Inflation in Socialist Economies", in *The Roots of Inflation* (New York: Burt Franklin, 1975), pp. 211—238.

there was a two day conference of the Communist Alliance of the Kombinat to develop a program for the 43 BOALs in the fields of mining, metallurgy, and metal products that were associated in Zenica. (There are now 50 BOALs and more to come.⁵⁵) The meeting was attended by the general director of Zenica as chairman of the workers' council, the secretary of the opština League of Communists and the members of the Socialist Alliance for Bosnia and Herzegovina. At this meeting it was emphasized that the task of the Communists was to set up objective criteria that would be used by the workers in the various BOALs to govern their relationships with each other. There was discussion of prices of goods and services transferred between the BOALs within the Kombinat and how income would be determined and distributed. As an expression of solidarity and unity in the Kombinat those BOALs which suffered losses would be compensated by others. Finally, it was made plain that in a complex or composite organization like Zenica the task of the Communists in the period to come would be to impose themselves decisively in the BOALs in conformity with the Associated Labour Act and the delegate system, to make possible maximum growth of productivity and prevent the appearance of anti-self-management activities. In short, given the decentralization framework required by the Associated Labour Act some compensating institution was required to make an integrated steel works function successfully. Only in this way will it be possible to achieve the necessary coordination.⁵⁷)

The Zenica meeting is merely one illustration of the prevailing policy. The Introduction to the Report on the Activity of the League of Communists and of the Central Committee, submitted to the 11th Congress, stressed the key role of the League of Communists in shaping decisions of the self-management institutions. The task of the League of Communists and the Social Alliance is to carry through the »integration of the working class and society in spite of conflicts of interest originating in the scarcity of resources and the limitation of possibilities to satisfy all needs.«⁵⁸) The League of Communists regards the process of achieving this integration of the interests of the working class and society, in the face of scarcities and conflicts of interest, as a form of

⁵⁵) The justification for profit centers is that the firm has grown too big to be managed by old-fashioned functional lines of authority.

⁵⁶) Pašić, *op. cit.*

⁵⁷) "...The new system will require an enormous amount of negotiating... It will be a very time-consuming process, and... It will necessitate the establishment of numerous committees, commissions, and boards... Self-management duties are generally performed after ordinary working hours... Board members must sit and listen to tedious procedures and monologues that sometimes extend for hours. People with a second job are not very prone to participate in self-management [which] can be exceedingly time consuming..." M. J. Broekmeyer, "Self-management in Yugoslavia, *The Annals of the American Academy*, May 1977, pp. 137-138. See also Joel Dirlam, "Problems of Market Power and Public Policy in Yugoslavia", in Bornstein, *op. cit.*, pp. 204-225.

⁵⁸) „Continuité de la Revolution Yugoslave", *Questions Actuelles du Socialisme*, Vol. XXVII, No. 5, May 1978, p. 63 and 69.

class struggle, where the »dictatorship of the proletariat« is necessary to resolve the conflicts.⁵⁹)

V. CONCLUSION

In this necessarily sketchy summary I have endeavored to grapple with some of the questions raised by the adoption of the form of industrial organization envisioned by the Associated Labour Act in an oligopolized, vertically integrated, cyclicly sensitive industry. It has been suggested that state intervention of one sort or another will be required in the interest of the economy in general during periods of inflation, and will be promoted by the industry itself to cope with problems generated by the recession in steel and other capital goods industries. Furthermore, it appears that the model provided in the Associated Labour Act must inevitably be very different in its application to such an industry than to others which may not have the same technological or economic foundation. It would be useful to have an industry-by-industry examination to bring out the role for the BOALs and their self-management agreement for income distribution in industries enjoying relatively high profits or which are conglomerate or composite in nature without being based on transfer of product from one stage of production to another. On the other hand, there may be some similarities between the steel industry, petroleum, and agro-business work organizations which control farms, food manufacturing and retail food chains. It is not surprising that the press has already taken note of efforts by strategically situated BOALs to prevent transfer of their higher personal incomes to others.⁶⁰)

At the close of a 40-page article reviewing in some detail the doctrinal origins and development of the self-management system, a Yugoslav political scientist makes passing reference to the possibility that decisions of the self-management units may not coincide with the general interest. He calls for a practical solution to such problems. But to find the solution requires »research efforts of truly voluminous proportions.«⁶¹) I hope the present essay may have made some small contribution to this task.

NEKI PROBLEMI RADNIČKOG SAMOUPRAVLJANJA KARAKTERISTIČNI ZA INTEGRISANE, CIKLIČKE, OLIGOPOLISTIČKE INDUSTRIJE: ČELIK

Joel B. Dirlam

R e z i m e

Prema Ustavu iz 1974. godine i Zakonu o udruženom radu (1976. godine) jugoslovenski samoupravni model izgleda da najvažnije cene, ras-

⁵⁹) *Ibid.*, p. 63.

⁶⁰) *Borba* noted that Sombor agro-industrial plant endeavored to prevent income from being transferred to less profitable sectors. *Borba*, May 1977, p. 2, column one.

⁶¹) B. Pribičević, "Les Cadres Internationaux de la Théorie et de la Pratique de l'Autogestion Socialiste en Yougoslavie", *Questions Actuelles du Socialisme*, Vol. XXVII, No. 6, June 1978, p. 81.

podelu dohotka i investicione odluke prepušta dogovaranju i sporazumevanju relativno malih nezavisnih jedinica.

U procesu dogovaranja relativna pregovaračka snaga partnera, i na tržištu proizvoda i unutar preduzeća, očigledno ima strateški značaj. Verovatno zbog toga što se pretpostavlja da je centralnim planiranjem moguće eliminisati sukobe interesa, socijalističke ekonomije, i, sa retkim izuzecima, socijalistički ekonomisti, ignorišu dileme koje postavlja tržišna moć bilo unutar sektora ili preduzeća. Na mnogim jugoslovenskim tržištima potrošači se suočavaju sa visoko koncentrisanim oligopolima koji imaju moć da podižu cene do nivoa koji njihovim radnicima obezbeđuje abnormalno visoke dohotke. Jugoslovenska industrija čelika sastoji se od malog broja postrojenja (fabrika) koja nisu dostigla optimalnu veličinu. Kad ne bi bilo konkurencije uvoza, čeličane bi mogle da naplaćuju monopolističke cene.

Državna intervencija je pozvana da se nosi sa tržišnim nesavršenstvima utvrđivanjem plafona cena. Istovremeno, industrija čelika je bila nezadovoljna velikim obimom uvoza koji joj odvlači važne kupce, te je stoga ulagala napore da se putem dugoročnih ugovora podigne trgovinske barijere. Sve dosad ovakva taktika, međutim, nije se pokazala uspešnom.

Unutar vertikalno integrisanih preduzeća, ili radnih organizacija kako se ona sada nazivaju, normalan način poslovanja sastoji se u koordiniranom planiranju i striktnoj kontroli kvaliteta proizvoda u svim fazama procesa proizvodnje. Glavni proizvođači čelika u Jugoslaviji nisu napustili ove uobičajene postupke. U stvari, izgleda da su intenzivirani programi stimulacije na nivou pogona. Postoji veoma mali broj detaljnih informacija o samoupravnim sporazumima sklopljenim u vertikalno integrisanim organizacijama za proizvodnju čelika. Iz publikovanih svodnih prikaza i godišnjih izveštaja, međutim, moglo bi se zaključiti da radne organizacije u industriji čelika ulažu napore da ujednače dohodak OOUR-a (najmanjih jedinica koje uživaju autonomiju u pogledu odlučivanja o cenama, dohotku i investicijama). Ali prava OOUR-a koja im daje Ustav i Zakon o udruženom radu, izgleda da OOUR-i ne realizuju u slučajevima gde dolazi do izražaja pregovaračka moć. Umesto toga, davanjem prioriteta proizvodnom planu preduzeća kao celine, transakciona nezavisnost OOUR-a u velikoj meri apstraktnog je karaktera. U uslovima datih tehnoloških karakteristika vertikalno integrisanih proizvođača čelika, ovakav ishod ne treba da iznenadi, ako se želi očuvati interna efikasnost.

Organizacija industrije čelika u Jugoslaviji može se smatrati specijalnim slučajem u jednoj privredi koja je zasnovana na radničkom samoupravljanju. Njeno iskustvo pokazuje da se neke ključne odluke o promenama cena i investicijama ne mogu efikasno donositi na nivou preduzeća ili radne organizacije, a još manje na nivou OOUR-a. Pored toga, izgleda da je u ovoj industriji uloga OOUR-a ograničena barem kad je reč o odnosima unutar radne organizacije. Istraživanje drugih industrija, međutim, može otkriti veoma različite obrasce ponašanja u oba pomenuta slučaja.

INFORMATION ASPECTS OF MULTI-LEVEL PLANNING SYSTEMS IN SELF-MANAGEMENT ECONOMY

Slobodan OSTOJIC*

I INTRODUCTION

New trends in planning theory (particularly within the framework of mathematical economics) clearly indicate the need for new ways of organizing the information and decision processes. According to Mallinvaud and Bacharach,¹⁾ the planning theory developed around the notion of activity analysis would have to study the properties of various planning procedures implying different kinds of organization. Unfortunately, the information aspects of planning processes have up-to-now been most extensively dealt with by the mathematical theories of decentralized economic planning (relying heavily on the restricted framework of the general equilibrium (GE) school) which have very little practical significance.

Attempts to investigate the information aspects of planning processes in a more realistic setting have been made by Kornai²⁾, the followers of the theory of optimally functioning socialist economies (Kantorovich et. al. as discussed by Ellman³⁾ and by cyberneticians such as Maimians⁴⁾ and Greniewski⁵⁾, who have attempted to apply cybernetics and general systems theory to economics. The works of these latter authors served as a starting point for Kornai in setting his general model of the economic system, which hopefully provides a broader conceptual framework for investigating the information aspects of planning processes.

There is no systematic description of the information structure of the planning sphere of the economy in contemporary system literature. In the USSR, the followers of the theory of optimal planning have contributed significantly to the reorganization of information collection and processing in OPOs (Central Planning Offices) and the change of the structures of information flows between enterprises and planners (Ellman³⁾). Kornai has also contributed to the topic by suggesting the approach to modification of the existing information structure of the planning systems, particularly having in view the multi-level planning

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