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# Markets, Property Rights, and the Economics of Joint Ventures in Socialist Countries[1]

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This paper develops formal models of joint ventures between Western firms and enterprises in three socialist countries, Hungary, Rumania, and Yugoslavia. In each case, the optimal resource allocations from the point of view of each partner are derived. In all cases, we find that the desired resource allocations are suboptimal and are strongly influenced by the structure of property rights in the socialist economy and the extent to which that economy makes use of markets to determine prices. *J. Comp. Econ.*, June 1977, **1**(2), pp. 167–181. New York University, New York.

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## INTRODUCTION

In recent years, three socialist countries, Hungary, Rumania, and Yugoslavia, have enacted legislation permitting the establishment, within their borders, of joint ventures with Western firms. In all three countries the Western partner contributes capital, shares in the management, and profits of the venture and has some rights over the disposal of his share of the enterprise.[2] Partly because of the novelty of this new, transideological way of doing business and partly because of the similarities in the legal regulations framed to govern Western participation in the three countries, the literature on joint ventures

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[2] For details see McMillan and St. Charles (1973). By 1974 some 100 joint ventures were in existence with at least 66 more under negotiation. See Business International (1974).

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has tended to view Western experiences in the three countries within a common framework.[3]

The purpose of this paper is to demonstrate that despite superficial similarities in legal and organizational structures, joint ventures in the three socialist countries differ in terms of the criteria for resource allocation, economic motivation of the participants, and the nature of the economic benefits about which the partners must negotiate. The chief determinants of the compatibility between the interests of the Western firm and those of the socialist partner are the distribution of property rights within the socialist economy and the degree to which the socialist economy makes use of the market to allocate resources. Not surprisingly, the more similar these two elements are to Western norms, the smaller the scope for conflict between the two partners.

## 1. JOINT VENTURES IN RUMANIA

Although Rumania has been quite progressive in developing economic relations with the West, the Rumanian economy continues to operate along the lines of the classical Soviet model of central planning.[4] Resources are allocated by the plan, and prices reflect neither the cost of production nor the interaction of the forces of supply and demand.

The establishment of joint ventures between Rumanian and Western firms is governed by Law No. 1, which was enacted in 1971 and was supplemented by Decree Nos. 424 and 425 of 1972. The joint venture, which may involve the participation of more than one Western firm or Rumanian enterprise or centrale, may undertake industrial or agricultural production or the provision of services. The partners may choose one of two corporate forms as the basis for their cooperation, the joint stock company or the limited-liability company. The primary difference between the two is that in the former case stock certificates are issued and a Board of Directors is chosen by the stockholders to manage the firm. In the latter form, ownership shares of the participants are merely stipulated in the contract of association and a management committee oversees the operation of the venture.

The key element in the establishment and operation of the joint venture is the contract of association. This document establishes the operating procedures for the joint venture, the managerial rights and responsibilities of the partners, the nature and value of their capital contributions, the expected volume of production, and the quantities and prices of inputs to be supplied to the venture by each partner.

While the contract of association gives the partners a great deal of flexibility in structuring the operation of the joint venture, there are several important

[3] Examples are Knirsh (1975) and Kretchmar and Foor (1972).

[4] For details see Murgescu (1974) or Spigler (1973).

features of Rumanian joint venture legislation to which the contract must conform. The first is that the Western partner may not own more than 49% of the venture.[5] Second, the joint venture must maintain its accounts and undertake all transactions in the convertible currency of the partners' choice. When transactions are to be made in lei, as, say, for the wages of Rumanian employees, the venture exchanges the convertible currency for lei at its bank, the Rumanian Foreign Trade Bank. Finally, the joint venture is required to draw up annual and 5-year plans, primarily so that the activities of Rumanian suppliers and subcontractors can be adequately planned. In order to ensure that Rumanian interests and laws are observed, the Rumanian partner must, during the course of contract negotiations, consult with the State Planning Committee, with the Ministries of Finance, Foreign Trade and International Economic Cooperation, and Labor, and with the Rumanian Foreign Trade Bank. The contract of association and other corporate documents must be approved by the Council of Ministers and the Council of State. Finally, the profits of the venture must be shared by the partners in proportion to their ownership shares and are subject to a 30% profits tax and a 10% repatriation tax on the profits repatriated by the Western partner.[6]

One of the more interesting features of joint venture negotiations in Rumania is the need to specify the quantities and prices of the inputs to be supplied by the two partners, and the amount of effort and time consumed by the negotiations over such input decisions.[7] The need to negotiate the prices of the inputs purchased within Rumania is quite evident. Some inputs, such as land, may have no prices at all, while others have prices which reflect neither their costs of production nor the demand for them. In addition, many Rumanian inputs, such as labor, are nontraded goods so that no world market price can be used as a starting point for the negotiations. Finally, the Western firm faces tremendous uncertainty about the appropriateness of the exchange rate utilized to convert lei prices of Rumanian inputs into the accounting currency of the joint venture.

The interest of the Rumanian government in negotiating the prices of these inputs is to obtain as high a price as possible. This is because, as the owner of all factors of production in Rumania, it derives profits not only from its share of joint venture profits but also from sales of inputs to the joint venture at

[5] The Western partner can, however, maintain an effective voice in the management of the joint venture by including in the contract a provision on voting rules for the Board of Directors which gives the Western partner an effective veto over Board decisions, by assigning Western management personnel to the venture and by arrogating certain functions such as quality control exclusively to Western personnel.

[6] Provisions are also made for tax relief during the early years of the venture and for reinvested profits. See Articles 3 and 4 of Decree 425, *Official Bulletin of the Socialist Republic of Romania*, No. 121, 1972.

[7] McMillan and St. Charles (1973, p. 37). My own interviews with Western negotiators support these findings.

above-cost prices. The lack of market-determined prices or a meaningful exchange rate in Rumania combined with the nontraded nature of many of the Rumanian inputs no doubt aids the Rumanian negotiators in negotiating advantageous prices since the Western firm has no frame of reference for evaluating the validity of these price demands. Consequently, for one joint venture in Rumania unit labor costs are higher than in the Western partner's home country although labor productivities in Rumania and the Western country are similar.[8]

It may be argued that the Western partner can also benefit from sales of inputs to the joint venture at inflated prices. However, for a number of reasons, the opportunities for negotiating such inflated prices are much more circumscribed for the Western firm than for the Rumanian government. Western inputs must, by virtue of the location of the joint venture, be tradeables and thus their prices can be ascertained from world markets. Furthermore, the Rumanian negotiators can obtain quotations from other Western firms in order to determine the going price for a Western input. Finally, American firms as well as those from some other Western countries are prohibited by law from selling to their subsidiaries at prices other than those that they charge to third parties. Consequently, although Western firms may make some profit from sales of inputs to the joint venture, there is likely to be a much smaller divergence between price and cost for Western inputs than for Rumanian inputs. Therefore, to simplify the subsequent discussion, we assume that the Western partner makes no profit on sales to the joint venture.[9]

The wide span of state ownership and above-cost prices of Rumanian inputs tend to create conflicts in the operation of the joint venture. One such conflict is likely to develop over input prices, the level of utilization of various inputs, and the appropriate level of output for the venture. Consider, for example, a venture producing one product which is sold at a fixed price, and which uses Western and Rumanian inputs purchased at prices specified by the contract.

Let

$P$ = price of output,

$X_i$ = amount of the $i$th input provided by Western partner,

$V_i$ = price of $X_i$,

$Y_i$ = amount of the $i$th input purchased in Rumania,

$W_i$ = price of $Y_i$ (in foreign currency),

$C_i$ = cost of producing $Y_i$ in Rumania (in foreign currency),

$s$ = Western partner's share of profits.

[8] Interview material.

[9] See Brada (1977) for a discussion of joint venture negotiations if both parents are able to gain from sales.

In order to simplify the model we further assume that all inputs are supplied at constant cost by both the Western partner and Rumania. The volume of output, $Q$, is given by

$$Q = F(X_1, \ldots, X_m, Y_1, \ldots, Y_n),$$

where $F_{x_i} > 0$, $F_{y_i} > 0$, $F_{x_i x_i} < 0$, and $F_{y_i y_i} < 0$.

In the negotiations regarding the input utilization and operation of the joint venture the Western partner seeks to achieve an allocation of resources which will maximize his profits:

$$\pi = s\left[PF(X_1, \ldots, X_m, Y_1, \ldots, Y_n) - \sum_{i=1}^{m} V_i X_i - \sum_{i=1}^{n} W_i Y_i\right].$$

The first-order profit-maximizing conditions are

$$\partial\pi/\partial X_i = s[PF_{x_i} - V_i] = 0,$$
$$\partial\pi/\partial Y_i = s[PF_{y_i} - W_i] = 0,$$

or

$$PF_{x_i} = V_i, \tag{1}$$

$$PF_{y_i} = W_i, \tag{2}$$

indicating that the Western partner will seek to utilize all inputs up to the point where the value of their marginal product equals their price, and to produce at a level of output which equates the marginal cost to the output price.

The Rumanian government quite naturally seeks to have the joint venture operate in such a way that Rumanian profits are maximized. However, these profits expressed in foreign currency differ from those of the Western partner in that they include gains on sales to the joint venture. The Rumanian objective function can be written as

$$\pi^* = \sum_{i=1}^{n} (W_i - C_i) Y_i + (1 - s) \times$$
$$\times \left[PF(X_1, \ldots, X_m, Y_1, \ldots, Y_n) - \sum_{i=1}^{m} V_i X_i - \sum_{i=1}^{n} W_i Y_i\right].$$

The first-order profit-maximizing conditions are

$$\partial\pi^*/\partial X_i = (1 - s)[PF_{x_i} - V_i] = 0,$$
$$\partial\pi^*/\partial Y_i = W_i - C_i + (1 - s)[PF_{y_i} - W_i] = 0,$$

implying

$$PF_{x_i} = V_i, \tag{3}$$

$$PF_{y_i} = \frac{C_i - sW_i}{1 - s} = W_i - \frac{W_i - C_i}{1 - s}. \tag{4}$$

Thus the Rumanian partner will seek a pattern of input utilization characterized by a relatively greater intensity in the use of Rumanian inputs than

that desired by the Western partner and a level of production beyond the point where marginal cost equals output price.[10]

The difference in input and output criteria of the two partners has several consequences. The most obvious is, of course, that decisions regarding resource pricing and allocation are likely to be a major source of disagreement in the negotiations leading up to the establishment of a joint venture in Rumania. Second, the use of prices diverging significantly from costs for Rumanian inputs leads to suboptimal input decisions by both partners. This can be easily demonstrated by maximizing the total profits of the joint venture:

$$\pi + \pi^* = \sum_{i=1}^{n} (W_i - C_i)\, Y_i + PF(X_1, \ldots, X_m, Y_1, \ldots, Y_n) - \\ - \sum_{i=1}^{m} V_i\, X_i - \sum_{i=1}^{n} W_i\, Y_i.$$

However, maximization of total profits requires that

$$PF_{x_i} = V_i \tag{5}$$

and

$$PF_{y_i} = C_i \tag{6}$$

implying a level of production and input utilization different from that desired by either partner in maximizing his own profit. Thus, to the extent that each partner seeks to negotiate the resource allocation which maximizes his profits, the joint venture will have a lower level of total profits to share between the two partners than could be available if the Pareto-optimal allocation of resources implied by Eq. (5) and (6) were employed.

Finally, an examination of the comparative statics of the solutions generated by Eq. (1) and (2) and by Eq. (3) and (4), presented in Table 1, reveals that changes in output price and in the price of Western inputs will elicit responses from the two partners which, while not necessarily of the same magnitude, are in the same direction. However, for changes in the prices or costs of production of Rumanian inputs, there is no similarity in the desired responses of the two partners. In view of the fact that, despite his minority ownership, the Western partner in a joint venture tends to retain sufficient strength on the board of directors to exercise a veto over the board's decisions, changes in input utilization in response to changes in $W_i$ and $C_i$ will be difficult if not impossible to achieve, leading to an inflexible and inefficient allocation of resources within the venture.

[10] Note that since profit maximization by the Rumanian partner involves a higher level of production than that desired by the Western partner, the volume of Western inputs implied by Eq. (3) and (4) may be greater than that implied by Eq. (1) and (2) despite the Rumanian partner's discrimination in favor of domestic inputs.

TABLE 1

RESPONSES OF THE WESTERN AND RUMANIAN JOINT VENTURE PARTNERS TO CHANGES IN EXTERNAL PARAMETERS

| Increase in | Response of Western partner | Response of Rumanian partner |
|---|---|---|
| $P$ | Increase output | Increase output |
| $V_t$ | Decrease output | Decrease output |
| | Decrease use of $X_t$ | Decrease use of $X_t$ |
| | Increase use of substitutes | Increase use of substitutes |
| | Decrease use of complements | Decrease use of complements |
| $W_t$ | Decrease output | Increase output |
| | Decrease use of $Y_t$ | Increase use of $Y_t$ |
| | Increase use of substitutes | Decrease use of substitutes |
| | Decrease use of complements | Increase use of complements |
| $C_t$ | No response | Decrease output |
| | | Decrease use of $Y_t$ |
| | | Increase use of substitutes |
| | | Decrease use of complements |

## 2. JOINT VENTURES IN HUNGARY

In contrast to the Rumanian system of central planning, the Hungarian economy has, since 1968, made extensive use of decentralized decision making based on market prices. While the government retains a large number of formal and informal levers for influencing economic activity at the macro- and micro-economic levels, Hungarian enterprises are granted considerable independence in responding to market forces so as to maximize their profits.[11]

The legislation permitting the establishment of joint ventures in Hungary is found in Law Decree 19 of 1970 and is amplified by the Ministry of Finance's Decree No. 28 of 1972. The most striking feature of the legislation is that it prohibits a joint venture from undertaking any production and from owning large amounts of productive equipment. Consequently Hungarian joint ventures are limited to research and development, trading, and provision of services.[12]

The joint venture is established at the initiative of the partners, who are

[11] For greater detail on the Hungarian economic mechanism see Balassa (1970) or Friss (1971).

[12] McMillan and St. Charles (1973, pp. 61–63). Also see Hewett (1975). The Hungarian regulations do provide for exceptions to these and other restrictions in unspecified "exceptional" circumstances.

usually a Western firm, a Hungarian industrial enterprise, and a Hungarian Foreign Trade Corporation. There is little government interference in the negotiations leading up to the Articles of Association which, when approved by the Minister of Finance, establish the venture. Likewise the joint venture legislation is sufficiently broad to permit the partners to organize the operations, management, financing, and accounting of the venture in such a way as to meet their needs best. Once established, the venture is governed by the regulations which apply to all enterprise in Hungary save the need to pay taxes on fixed capital, depreciation changes, and levies on wage increases. Instead of these taxes, a profit tax of 40% is levied on profits up to 20% of the venture's assets and 60% on additional profits. The Western partner is free to repatriate his share of the profits provided that sufficient convertible currencies have been earned by the venture.

Most ventures in Hungary engage in trade activities, exporting a product manufactured in Hungary to Western specifications often using Western technology and know-how. The Western partner in the venture contributes the technology, convertible currency, and perhaps some specialized production or testing equipment. The principal Hungarian partner is the enterprise which produces, under contract to the joint venture, the product which the joint venture then sells either abroad or in Hungary. The other Hungarian partner, the Foreign Trade Corporation, merely undertakes the physical activities of importing inputs for or exporting the product of the joint venture. In view of this rather inconsequential role of the Foreign Trade Corporation, we ignore it altogether and focus on the relationship between the Western partner and the Hungarian producing enterprise which participates in the joint venture.

The joint venture utilizes Western and Hungarian resources to generate sales. Since there are at least partly functioning markets in Hungary and a meaningful exchange rate for the Hungarian forint, there is no reason to anticipate that the Hungarian inputs to the joint venture will be excessively overpriced. Furthermore, the Hungarian partner has no particular interest in the benefits that overpayment for such inputs could provide to the Hungarian suppliers of the inputs. Therefore it seems safe to assume that there is no desire on the part of the Hungarian partner to overutilize Hungarian inputs in the operation of the venture. The price at which the Hungarian partner supplies the product to the joint venture is assumed to be fixed by the contract at $P'$. We further assume that the joint venture sells the product at a fixed price $P$. The volume of sales, $Q$, achieved by the joint venture is determined by the resources expended on distribution.

Thus

$$D = D(Q),$$

where $D$ is the distribution cost. The profit of the Western partner is

$$\pi = s[(P - P')Q - D(Q)]$$

and assuming $D_Q > 0$, profit is maximized when

$$P - P' = D_Q, \tag{7}$$

or the per unit markup is equal to the marginal cost of selling the unit.

The volume of sales, $Q$, must also be the volume of production of the Hungarian partner, whose profit comes not only from a share of the venture profits but also from profits from producing the product sold by the joint venture. Letting the cost of production depend on $Q$, the volume of output,

$$C = C(Q),$$

the Hungarian partner's profit is

$$\pi^* = (1 - s)[(P - P')Q - D(Q)] + P'Q - C(Q),$$

and $\pi^*$ is maximized when

$$\partial\pi^*/\partial Q = (1 - s)[(P - P') - D_Q] + P - C_Q = 0$$

or

$$(1 - s)(P - P' - D_Q) + P' - C_Q = 0. \tag{8}$$

Note that if the transfer price $P'$ is set by negotiation at $C_Q$, the marginal cost of production, Eq. (8) reduces to

$$P - P' = D_Q$$

and there is no disagreement between the partners regarding the operation of the venture.[13] If $P' > C_Q$, then the Hungarian partner would desire a higher level of output than would the Western partner. Nevertheless, in contrast to the Rumanian case, there is only one price, $P'$, for the two parties to negotiate over. Furthermore, both the costs of the Hungarian firm and relevant international cost and price information can be utilized to document a realistic transfer price in the market-oriented Hungarian context. Consequently it is likely that the Hungarian joint venture will be a relatively efficient user of resources and untroubled by conflicts over resource allocation between the two partners.

## 3. JOINT VENTURES IN YUGOSLAVIA

Even more than Hungary, Yugoslavia places great reliance on decentralized decision making and on the use of markets to allocate resources. Enterprise management is the responsibility of the workers at each enterprise who, through their Workers' Council, determine the business policy of their firm.[14]

[13] Furthermore, Eq. (7) characterizes the Pareto-optimal level of output. See Hirshleifer (1956).

[14] Good surveys of the Yugoslav economy are Pejovich (1966) and Brainard and Kaufman (1974).

Yugoslav joint venture legislation, enacted in 1967 and amended frequently since then, leaves much of the initiative to Yugoslav enterprises or more recently to organized associations of labor which have replaced the enterprise as the basic productive unit.[15] Unlike the previous types of joint venture regulations, Yugoslav law prohibits the formation of a new enterprise especially created for a joint venture. Rather, the Western partner invests directly in an existing Yugoslav enterprise, sharing in the profits of the venture according to the Contract of Joint Investment which formalizes the arrangement. The parties are free to draw up the contract to meet their needs, specifying the capital contribution of each partner, accounting procedures, management rights, etc. The only restrictions imposed by legislation are that the venture may not engage in banking, domestic communications, or municipal services. Western ownership must be no more than 49% and the rights of the Workers' Council to manage the enterprise must be safeguarded by the management board which is responsible for the joint venture's operation. The joint venture, once its contract is approved by the Federal Secretariat of Economic Affairs, operates as and is subject to the regulations covering any Yugoslav enterprise. Profits are taxed at a rate of 35% with generous rebates for reinvestment and for location in underdeveloped parts of the country. The Western partner is free to repatriate his share of profits up to the amount of hard-currency earnings retained by the enterprise.

Retaining, mutatis mutandis, the nomenclature and assumptions of the Rumanian case of Section 1, the profits of the Western partner can again be written as

$$\pi = s\left[PF(X_1, \ldots, X_m, Y_1, \ldots, Y_n) - \sum_{i=1}^{m} V_i X_i - \sum_{i=1}^{n} W_i Y_i\right]$$

and the first-order profit-maximizing conditions are Eqs. (1) and (2):

$$PF_{x_i} = V_i,$$
$$PF_{y_i} = W_i.$$

Thus the Western partner, as in the Rumanian case, wishes to utilize each input to the point where the value of its marginal product is equal to its price.

Since markets and market-clearing prices exist for the inputs which the joint venture purchases from the Yugoslav partner or from any other source within Yugoslavia, there are few or no possibilities for the distortion of input utilization through excessively high transfer prices on the part of either the Yugoslav partner or the Yugoslav government, and we assume that Yugoslav inputs are supplied at a constant cost which is equal to their price. Thus, the existence of markets for the inputs of both partners resolves one of the fundamental conflicts evident in the Rumanian joint venture.

[15] For details on Yugoslav legislation and examples of Western experiences see Holt (1973) and Sukijacovic (1970).

However, discrepancies between the two partners in economic motivation and input utilization continue to exist, owing to differences in property rights. In contrast to the capitalist firm which maximizes profits, the Yugoslav firm, being the property of the workers, seeks to maximize income per worker, where income is equal to the wage rate plus profit per worker. Letting $Y_1$ represent the Yugoslav labor input to the joint venture, $W_1$ the wage rate, and $\pi_T$ the total profit of the joint venture, the income per worker is

$$I = [(1-s)\pi_T / Y_1] + W_1.$$

The Yugoslav worker–managers will seek to have the joint venture utilize inputs so as to maximize

$$I = \frac{(1-s)}{Y_1}\left[PF(X_1,\ldots,X_m, Y_1,\ldots,Y_n) - \sum_{i=1}^{m} V_i X_i - \sum_{i=1}^{n} W_i Y_i\right] + W_1.$$

The first-order profit-maximizing conditions are

$$\frac{\partial I}{\partial X_i} = \frac{(1-s)}{Y_1}(PF_{x_i} - V_i) = 0,$$

$$\frac{\partial I}{\partial Y_i} = \frac{(1-s)}{Y_1}(PF_{y_i} - W_i) = 0 \qquad \text{for } i = 2,\ldots,n,$$

$$\frac{\partial I}{\partial Y_1} = (1-s)(PF_{y_1} - W_1) - \frac{(1-s)}{Y_1} \times$$

$$\times \left[PF(X_1,\ldots,X_m, Y_1,\ldots,Y_m) - \sum_{i=1}^{m} V_i X_i - \sum_{i=1}^{n} W_i Y_i\right] = 0,$$

and inputs will be utilized so that

$$PF_{x_i} = V_i,$$

$$PF_{y_i} = W_i \qquad \text{for } i = 2,\ldots,n,$$

$$PF_{y_1} = W_1 + (\pi_T / Y_1). \tag{9}$$

Thus the Yugoslav workers utilize the same rules as the Western firm for determining the employment of nonlabor inputs. However, so long as profits are greater than zero, it is evident from Eq. (9) that the Yugoslav workers will seek a lower level of employment than will the capitalist partner. To the extent that the volume of labor employed influences the marginal products of the other inputs, conflicts between the capitalist firm and the Yugoslav workers will extend to the utilization of all inputs and to the volume of output as well.

Furthermore, as in the Rumanian case, an examination of the comparative statics of the optimal allocations implied by the Western and Yugoslav first-order conditions indicates that the responses of the two partners to changes in external parameters are mutually inconsistent in a number of cases. Table 2 presents the results of the comparative statics exercises. As the table shows, the finding of Ward (1958) and Domar (1966) that the worker-managed firm will

TABLE 2

RESPONSES OF THE WESTERN AND YUGOSLAV PARTNERS TO CHANGES IN EXTERNAL PARAMETERS

| Increase in | Response of Western partner | Response of Yugoslav partner |
|---|---|---|
| $P$ | Increase output | Decrease output |
| | Increase use of inputs | Decrease use of $Y_i$ |
| | | Other inputs increase or decrease[a] |
| $V_i$ | Decrease output | Indeterminate change in output |
| | Decrease use of $X_i$ | Decrease use of $X_i$ |
| | Decrease use of complements | Increase use of $Y_1$ |
| | Increase use of substitutes | Indeterminate changes in other inputs |
| $W_i$ $(i=2, \ldots, n)$ | Decrease output | Indeterminate change in output |
| | Decrease use of $Y_i$ | Decrease use of $Y_i$ |
| | Decrease use of complements | Increase use of $Y_1$ |
| | Increase use of substitutes | Indeterminate changes in other inputs |
| $W_1$ | Decrease output | No change in output |
| | Decrease use of $Y_1$ | No change in inputs |
| | Decrease use of complements | |
| | Increase use of substitutes | |

[a] Whether a given input increases or decreases depends on the degree of its complementarity with labor, where complementarity is defined by the sign of $\partial X_i/\partial W_1$ or $\partial Y_i/\partial W_1$ for the capitalist partner.

decrease production in response to an increase in the price of the output carries over to the joint venture situation. Similarly, responses to changes in nonlabor input prices differ between the two partners. In all, it would appear that the Yugoslav joint venture will experience some conflict and difficulty in adjusting to changes in input and output prices.[16] Changes in the wage rate deserve further mention. In the standard analysis of the Yugoslav firm, the income of labor is simply the residual remaining after all nonlabor costs have been paid. Thus the workers are indifferent between wages and shares of profit since any increase in wages decreases profit by the corresponding amount and income per worker remains the same. However, this is not the situation in the joint venture case. An increase in wages of 1 dinar will reduce profits by 1 dinar. However, the net result for the Yugoslav worker is, ceteris paribus, an

[16] Western firms apparently recognize the potential for such conflict, and the primacy, under Yugoslav law, of the Workers' Council in management decisions. Consequently some firms have inserted a clause in the joint venture contract enabling them to withdraw from the venture should the Workers' Council continually obstruct the activities of the management board. See McMillan and St. Charles (1973, pp. 53–54).

increase in income of $s$ dinars. This is due to the fact that his wage income increases by 1 dinar but his share of the profit declines by only $(1 - s)$ dinars, since the Western partner bears part of the decline in profits. Thus a further source of conflict in the joint venture will be the division of workers' income into wages and shares of the profit.

## 4. CONCLUSIONS

We have constructed models of joint ventures in Rumania, Hungary, and Yugoslavia and have examined the implications, from the standpoint of each partner, of profit maximization on resource allocation under various property rights arrangements. In the Rumanian case, the property rights of the Rumanian partner extend to the entire domestic economy. Consequently, the objective function of the Rumanian side extends far beyond the profits of the joint venture, encompassing all of the venture's relations with the domestic economy. This leads the Rumanian partner to seek to charge the venture excessive prices for domestic inputs and to endeavor to induce the joint venture to utilize excessive amounts of such inputs. Furthermore the lack of a meaningful exchange rate and of markets and consequently of meaningful prices probably contributes significantly to the ability of Rumanian negotiators to obtain favorable prices for domestic inputs from Western firms.

In the Hungarian case, the much narrower scope of interest of the Hungarian enterprise and the existence of markets reduce the conflicts observed in the Rumanian case. Since the interests of the Hungarian partner do not extend to the rest of the Hungarian economy, there is no incentive to have the joint venture pay higher prices for these inputs, nor is there any incentive to pay higher prices for inputs utilized to produce the products sold by the venture.[17] The existence of functioning markets within the Hungarian economy would also seem to preclude the possibilities of negotiating excessively high prices for domestic inputs. Nevertheless, conflict between the two partners over resource allocation may exist if the price at which the Hungarian partner sells output to the joint venture is not equal to the marginal cost of its production. However, given the existence of markets, it is not unlikely that agreement on the proper transfer price and consequently on a Pareto-optimal level of output can be reached.

[17] The United Nations Economic Commission for Europe (1973) suggests that while the interests of Western participants in joint ventures and other forms of industrial cooperation are microoriented (profits), the interests of the East European governments tend to be macrooriented (hard-currency earnings, growth, technological progress, etc.). However, only in the Rumanian case do the property rights of the East European partner correspond to these macrogoals. For a more detailed discussion of these goals see Holt (1976). Hewett (1975) presents evidence on the effects of this discrepancy between goals and property rights in the case of industrial cooperation in Hungary.

In the Yugoslav case, the structure of property rights also creates a conflict between the two partners, over the utilization of labor, the short-run responses of the firm to changes in prices, and the wage level of the Yugoslav worker–managers. Although the question of wages may be amenable to solution by appeal to the market-determined wages which exist within Yugoslavia, the remaining issues may be a potential source of conflict.[18]

In all three cases, differences in property rights between the two participants in the East–West joint venture may create conflicts of interest. The narrower the scope of the property rights of the socialist partner, the greater the availability of market-generated information on the true value of socialist inputs, the more circumscribed this area of conflict appears to be.

It should, however, be noted that the conflicts described in this paper are not the only barriers to the formation of joint ventures. This seems evident from the fact that Yugoslavia, and to a lesser extent Rumania, leads Hungary both in the number of joint ventures formed and in those under negotiation, despite the conclusions of our analysis indicating that conflicts are likely to be less frequent in Hungary than in the other two countries (Business International, 1974). The answer to this paradox, I would suggest, lies in the motivation of the East European partner. In Rumania, because of the wide range of benefits to the economy from a joint venture, the government has been very aggressive in seeking such ventures. In Yugoslavia, the worker–managers apparently anticipate greater incomes from joint venture operations and are similarly agressive in seeking to cooperate with Western firms. In Hungary, as Hewett (1975) has so ably shown, the kind of wider economic benefits which help motivate the Rumanian government do not influence enterprise decisions and most Hungarian enterprises are either sufficiently well-off or see no material benefits from joint ventures. Thus it would seem that for establishing joint ventures in the real world a strong incentive to overcome conflict through negotiation may be of greater value than minimal obstacles combined with weak incentives.

## REFERENCES

Balassa, Bela, "The Economic Reform in Hungary." *Economica* **38**, 1:1–22, Feb. 1970.

Brada, Josef C. "Profit Maximization and Resource Utilization in the Transideological Corporation." *Riv. Internaz. Sci. Econ. Commerciali*, in press, 1977.

Brainard, Lawrence, and Kaufman, R. *Yugoslavia*. New York: Chase Manhattan Bank, 1974.

Business International, *Eastern Europe Report* **3**, 37, Sept. 18, 1974.

Domar, Evsey D. "The Soviet Collective Farm as a Producer Cooperative." *Amer. Econ. Rev.* **56**, 4(Part 1):734–757, Sept. 1966.

Friss, Istvan, ed., *Reform of the Economic Mechanism in Hungary*. Budapest: Academia Kaido, 1971.

[18] The difficulty in determining the market "wage" in Yugoslavia is the difficulty in distinguishing between profit income and wages in the Yugoslav enterprise. See McMillan and St. Charles (1973, p. 47) on this point.

Hewett, Edward A. "The Economics of East European Technology Imports from the West." *Amer. Econ. Rev.* **65**, 2 (Proc.):377–382, May, 1975.

Hirshleifer, Jack, "On the Economics of Transfer Pricing." *J. Bus.* **29**, 3:172–184, July 1956.

Holt, John B. "Joint Ventures in Yugoslavia: West German and American Experience." *MSU Business Topics* **21**, 2:51–63, Spring 1973.

Holt, John B. "Mutual Benefits in East–West Industrial Cooperation and Joint Ventures." In Josef C. Brada, ed., *Quantitative and Analytical Studies in East–West Economic Relations*. Bloomington, Ind.: International Development Research Center, 1976.

Knirsh, Peter, "Industrial Cooperation between East and West." In John P. Hardt, ed., *Tariff, Legal and Credit Constraints on East–West Commercial Relations*. Ottawa: Carleton University, 1975.

Kretchmar, Robert, and Foor, R. *The Potential For Joint Ventures in Eastern Europe*. New York: Praeger, 1972.

McMillan, Carl H., and St. Charles, D. P. *Joint East–West Ventures in Production and Marketing*. Ottawa: Howe, 1973.

Murgescu, Costin, *Romania's Socialist Economy*. Bucharest: Meridiane, 1974.

Pejovich, Svetozar, *The Market-Planned Economy of Yugoslavia*. Minneapolis: Univ. of Minnesota Press, 1966.

Socialist Republic of Romania, *Official Bulletin of the Socialist Republic of Romania*, No. 121. Bucharest, 1972.

Spigler, Iancu, *Economic Reform in Rumanian Industry*. London: Oxford Univ. Press, 1973.

Sukijacovic, Miodrag, *Yugoslav Foreign Investment Legislation at Work: Experience so Far*. New York: Oceana, 1970.

United Nations Economic Commission for Europe, *Analytical Report on Industrial Cooperation Among ECE Countries*. Geneva: United Nations, 1973.

Ward, Benjamin, "The Firm in Illyria: Market Syndicalism." *Amer. Econ. Rev.* **48**, 4:566–589, Sept. 1958.