

THE YUGOSLAV SELF-MANAGED ENTERPRISE AND FACTORS OF ITS EFFICIENCY*

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INTRODUCTION

The topic of our study is the behaviour of an organization of associated labour which is the basic production unit in the Yugoslav economy. Here we proceed from the supposition of social ownership over the means of production and from a self-managing system, which both require a market type of economy. Economic activity is, therefore, present in decentralised economic cells. However, the connection among them is established by the market, which is adjusted through social planning.

In this respect, the basic production units — organizations of associated labour — are market cells, which appear in the market as self-managed enterprises.¹ If we suppose that they behave rationally they instigate among themselves numerous coordinative actions, which reflect their position in the social division of labour. If the aim is, for example, income, these actions are so directed as to attain as high an income as possible.

In a market economy all relatively rare commodities carry a price which reflects the alternative possibilities of their utilization. If, at a given price, the extent of goods enquiry is higher than the extent of the supply, and if there is no possibility of forming a new equilibrium price, the real price of the commodities is then

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¹ The enterprise is a cell in the social economy which independently performs an assignment in the process of social reproduction. On the basis of given socio-economic regulations, its aim is to attain the highest value of the net result. The enterprise has business uniformity and the ability to bear the risk of its management which is tested in the market. The enterprise is therefore a basic market cell in a market economy. See: D. Pučko, O nekaterih odprtih vprašanih odnosa podjetja — TOZD, Ekonomska revija, 1974, page 199-209 and J. Prašnikar, Samoupravno združeno delo in položaj samoupravnega podjetja v njem. JUNASET, 1982.

higher than the existing one. Since this happens in the Yugoslav economy by using social capital and foreign currency, they are not used in most rational way. At the same time, however, product prices do not comprise actual social production costs. The relative prices of products therefore do not maintain an equilibrium and the unfavourable market structure of the Yugoslav economy and noncoordinative social interventions also contribute their share. Bearing in mind that interventions in product prices and production factors lead to the administrative division of products and production factors, we are then confronted with additional restrictions in the functioning of self-managed enterprises.

In this paper we show the reflections of self-managed enterprises with regard to the above in their achievement and distribution of income. In this respect, we set up the following thesis: self-managed enterprises developed, in given economic conditions, a coordinative system of restrictions and actions, which reflect the basic aims of their activity. Due to the fact that the economic mechanisms impose on them the wrong restrictions, their activity does not follow a socially desirable direction, which creates fertile ground for all manner of interventions in their economic activity. The restrictions imposed by given economic mechanisms and social interventions are of two kinds: restrictions in product prices and production factors and restrictions in their quantities. The business efficiency of the self-managed enterprise will, for instance, be lower if its product prices are lower than the equilibrium prices. Its business results will also suffer if it is not able to purchase the corresponding quantities of materials on the market. Due to the fact that similar restrictions in the functioning of the self-managed enterprise appear quite often the business efficiency of a self-managed enterprise, in given economic conditions is more dependent on factors that cannot be entirely controlled (external efficiency factors) rather than on the factors that are under its control (internal efficiency factors).

This thesis is tested using an empirical analysis of data collected in 147 work organizations from all 8 Yugoslav republics and provinces. The work organizations were selected at random. The data was collected through questionnaires, interviews, annual financial statements, balance sheets and other evidence of the work organizations participating. All quantitative data is temporal (we took the period from 1975—1979) in order to diminish the impact of incidental factors on the management of the work organizations. All the empirical documentation was recorded in the Research Centre of the Faculty of Economics in Ljubljana.

1. AN EMPIRICAL ANALYSIS AND SELECTION OF VARIABLES FOR DETERMINING THE INFLUENCE OF EFFICIENCY FACTORS ON THE EFFICIENCY OF THE WORK ORGANIZATIONS INTERVIEWED

Due to the difficulties already mentioned that occur when including the actual production costs of a self-managed enterprise, a

general rate of efficiency can be seen — net income per employed worker (net income being understood in its general form $d = \sum P_i Q_i - \sum c_j z_j$) in various forms.²

Therefore, we formed a series of indicators through which we express a general rate of efficiency. Since the decision on what economic quantities appear in our economic conditions as the cost of the self-managed enterprise, is left to individual working collectives, we call the indicators (income + depreciation) per employed worker, income per employed worker, (a share of income for personal consumption + taxes + contributions from income) per employed worker, a share of income for personal consumption per employed worker, and personal incomes per employed worker, as internal indicators of efficiency. The two indicators we obtained by normalizing individual parts of the income, we call "social" indicators of efficiency. That is, by normalization we took into account the element of the economy with social assets (using the first indicator to calculate the approximate accumulation rate we took into account the concept of net accumulation and using the second the concept of gross accumulation).

We also expressed factors of efficiency through various indicators. Since the efficiency of self-managed enterprises depends upon the influence of various factors, and since at the beginning of our research we did not know which of them was more or less important, we included in the research a larger number of indicators so as not to exclude any important indicator from the analysis.

All indicators (we took 68 indicators which we supposed to show the influence of individual factors on the efficiency of self-managed enterprises) we then divided into several groups. In each individual group we put indicators treating a similar phenomenon. The groups are as follows a) indicators of the state and circulation of staff, b) indicators of the state and circulation of fixed assets, c) indicators of sales circulation and some elements of sales policy, d) indicators of purchase circulation of materials and raw materials and the circulation of some elements of purchasing policy, e) indicators of financial flows and f) indicators of price circulation and the development index of the environment in which a certain work organization operates.

In the initial phase of measuring the influence of efficiency factors on the efficiency of the work organizations interviewed a large number of indicators decided our use of a two-step analysis method: with a factor analysis of the indicators, in individual groups, we first joined the indicators into combined indicators (factors); later, with a regression analysis, we computed the dependence of the factor reflecting indicators of the general rate of efficiency on factors which reflect the factors of efficiency. Since the factors are linear combinations of various indicators, and since, therefore, regression coefficients do not reflect a uniform declaration for only one indicator, we obtained only

² For information on the function of the aim of the Yugoslav self-managed enterprise and its rate of efficiency, see: J. Prašnikar, *The Yugoslav Self-managed Firm and its Behaviour*, *Ekonomika analiza*, 1980, 2 and J. Prašnikar, *Samoupravna organizacija združenega dela v luči teoretičnih rešitev in njenega obnašanja v praksi*, doctor's thesis, 1982.

basic tendencies of influence of efficiency factors but we did not obtain a grade by which individual indicators affect the efficiency of the interviewed work organizations. We therefore continued with empirical analysis. On the basis of the results obtained and on the basis of a model of the influence of efficiency factors on the efficiency of the self-managed enterprise, we were able to define those variables which most reflect the efficiency factors of the interviewed work organizations.³

In such a way we obtained the model in which 15 independent variables⁴ take part. However, as a dependent variable a general rate of efficiency takes part, for which we already applied known indicators.

The general form of the regression equation is: $Z_1 = f(x_1, x_2, x_3, x_4, x_5, x_6, x_7, x_8, x_9, x_{10}, x_{11}, x_{12}, x_{13}, x_{14}, T)$

Where the signs are:

- Z_1 = general rate of efficiency
- x_1 = coefficient of jobs and staff with corresponding qualifications
- x_2 = number of hours of sick-pay (up to 30 days) per employed worker
- x_3 = coefficient of obsolescence of fixed assets
- x_4 = coefficient of efficiency of capacities
- x_5 = coefficient of replacement of product
- x_6 = value of inventory of finished products per conditional unskilled worker
- x_7 = capital/labour ratio
- x_8 = value of inventory of material per conditional unskilled worker
- x_9 = size of market share
- x_{10} = advertising expenses per conditional unskilled worker
- x_{11} = value of loans per conditional unskilled worker
- x_{12} = value of import minus export per conditional unskilled worker
- x_{13} = vector of equilibrium prices
- x_{14} = index of development of environment
- T = time

³ For the way we worked out indicators of the general efficiency rate and indicators of efficiency factors, the results of factor analysis and regression analysis between the factor reflecting the general rate of efficiency and the factors which reflect factors of efficiency, see J. Prašnikar, Samoupravna organizacija združenega dela v luči teoretičnih rešitev in njenega obnašanja v praksi, 1982.

⁴ A selection of the above indicators and their definition is stated in the Appendix.

2. ESTIMATION OF REGRESSION EQUATION

All estimated regression equations presented in Table 1 have a linear form. The parameters are estimated using the least-squares method. The equations include only those variables which are significant for a degree of risk of 0.05. The figures in brackets are standard errors of regression coefficients.

The outstanding results of the regression are as follows:

1) Independent variable x_1 — coefficient of jobs and staff with corresponding qualifications and x_{12} — value of import minus export per conditional unskilled worker are not statistically significant in any of the seven equations.

2) Independent variable x_{11} — value of loans per conditional unskilled worker is significant in two equations. The values of the regression coefficient are negative, which is contrary to our hypothesis.

3) Independent variable x_6 — value of inventory of finished products per conditional unskilled worker can be found in four equations. In equations (2) and (3) the regression coefficient has a negative sign, in equations (5) and (6) it has a positive one. The same tendency can be found by the variable T (time) which, in equations (1), (2) and (3) has a positive sign but in equation (6) a negative one and by the variable x_{14} — development of the environment, where the regression coefficient is positive in equations (1), (2), (3) and (4) but negative in equation (6).

4) Independent variable x_5 — replacement of product can be found in only one equation, the variable x_4 — inventory of reproduction material per conditional unskilled worker in four equations, the variables x_3 — rate of obsolescence of fixed assets, x_7 — coefficient of efficiency of capacity and x_8 — sick-pay up to 30 days per employed worker in five equations.

5) The independent variables x_7 — capital/labour ratio, x_9 — size of market share, x_{10} — advertising expenses per conditional unskilled worker and x_{13} — index of equilibrium prices are significant in all seven equations. Each particular value of the regression coefficient has the sign that was expected.

The results of the analysis lead to the following statements. The variable x_7 — volume of social capital per employed worker is highly significant in all seven equations and confirms our hypothesis that a larger volume of social capital draws a higher income. In combination with the size of the market share, achieved by work organizations, the volume of social capital is, therefore, one of the basic factors of the unjustified differences in personal incomes of the members of different working collectives and one of the basic reasons for failure to distribute income according to performance. If we also add to both factors the influence that can be detected by the variable x_{13} (vector of equilibrium prices) we may say that our hypothesis, that the efficiency of work organizations is influenced by factors over which working collectives do not have absolute control, was correct. This conclusion cannot be changed either by the fact that x_{12} (import minus export per employed worker) did not show the positive statistical significance we

Table 1: Results of regression between the composed rate of efficiency and the indicators

| Independent variables | Number of equation | Indicators | | | | | | |
|---|--------------------|------------|--------------------|------------------------------|---------------------------------------|--------------------------|--------------------|----------------------|
| | | Constant | Capital/labour | Obsolescence of fixed assets | Coefficient of efficiency of capacity | Sick-pay (up to 30 days) | Market share | Advertising expenses |
| | | | X ₁ | X ₃ | X ₄ | X ₅ | X ₆ | X ₇ |
| Personal incomes | | | | | | | | |
| per conditional unskilled worker | (1) | 71,14 | 0,0105 (0,0012) | 0,1669 (0,0283) | 14,6076 (2,9478) | 0,0316 (0,0106) | 0,1101 (0,0212) | 0,00007 (0,00001) |
| Personal consumption | | | | | | | | |
| per conditional unskilled worker** | (2) | 69,28 | 0,0141 (0,0010) | 0,2122 (0,0362) | 15,8784 (3,7886) | -0,0321 (0,0136) | 0,1238 (0,0201) | 0,00008 (0,00001) |
| (Personal consumption + taxes and duties) | | | | | | | | |
| per conditional unskilled worker | (3) | 87,04 | 0,0230 (0,0019) | 0,2718 (0,4906) | 18,6457 (4,6251) | | 0,1412 (0,0244) | 0,00011 (0,00002) |
| Income per | | | | | | | | |
| conditional unskilled worker | (4) | 164,21 | 0,0686 (0,0048) | 0,2989 (0,1065) | 27,1086 (4,870) | | 0,1776 (0,0584) | 0,00028 (0,00005) |
| (Income + depreciation) | | | | | | | | |
| per conditional unskilled worker | (5) | 189,94 | 0,0636 (0,0060) | 0,3251 (0,1315) | 33,1287 (13,7570) | -0,1051 (0,0435) | 0,2966 (0,0726) | 0,00020 (0,00006) |
| (Actual minus normalized income)₁ | | | | | | | | |
| per conditional unskilled worker | (6) | 166,52 | 0,0319 (0,0064) | | | -0,1299 (0,0579) | 0,3279 (0,0829) | 0,00022 (0,00007) |
| (Actual minus normalized income)₂ | | | | | | | | |
| per conditional unskilled worker | (7) | 86,41 | 0,0203 (0,0054) | 0,2629 (0,0486) | 26,9361 (13,4796) | -0,1269 (0,0486) | 0,3389 (0,0708) | 0,00021 (0,00006) |

Source: Questionnaire of factors of efficiency of Self-managed organization of associated labour, 1980

* In the estimation we use adjusted R²

** Personal consumption = personal income + a part of income for common consumption

which show the factors of efficiency

| Inventory of finished products | Inventory of raw materials | loans | Vector of equilibrium prices | Index of development of environment | Time | R ² * | S E E | F |
|--------------------------------|----------------------------|---------------------|------------------------------|-------------------------------------|---------------------|------------------|---------|---------|
| X ₈ | X ₉ | X ₁₁ | X ₁₂ | X ₁₄ | T | | | |
| | | -0,0003 (0,0001) | -46,2240 (6,8994) | 0,1879 (0,0171) | 1,8602 (0,3091) | 60,369 | 10,2215 | 80,4869 |
| -0,0410 (0,0166) | 0,0349 (0,0168) | -0,0004 (0,0002) | -48,5398 (8,8707) | 0,2132 (0,0222) | 3,0093 (0,4065) | 59,594 | 13,0919 | 61,4710 |
| -0,0541 (0,0202) | | | -71,1034 (10,5841) | 0,2324 (0,0259) | 2,7184 (0,4906) | 57,968 | 16,0246 | 80,1618 |
| | 0,1353 (0,0487) | | -164,1685 (25,4307) | 0,3178 (0,0619) | | 45,291 | 38,5069 | 60,3979 |
| 0,1682 (0,0595) | 0,2184 (0,0606) | | -182,2331 (32,0144) | 0,2301 (0,0790) | | 47,638 | 47,6945 | 59,0238 |
| | | | -141,4131 (37,3706) | -0,2710 (0,0874) | -5,6233 (1,6741) | 15,527 | 55,7316 | 16,0718 |
| 0,1720 (0,0579) | | | -174,1928 (31,3686) | 0,2754 (0,0773) | | 26,627 | 46,7166 | 24,1451 |

expected or the facts that x_{11} — value of loans per conditional unskilled worker shows a negative statistical significance and the variable x_3 — obsolescence of fixed assets shows a positive one. If, for the values of indicator x_{11} , we can say that in general they had an irregular circulation, we may on the other hand illustrate a negative value of indicator x_{11} and, a positive value of indicator x_3 . It is evident, that the negative value of the regression coefficient of indicator x_{11} was mainly influenced by the mode of investment which has become important in our socio-economic system. The high loan indebtedness of some work organizations is probably connected with more intensive investment in these work organizations. This is why the obsolescence of their fixed assets is minor, but these work organizations are financially burdened by payments of annuities and interest as they are chiefly faced with unfavourable loan terms as regards investment loans — the ordinary term of payment is between 5 and 7 years. However, often short-term loans are also included in the investments. The unfavourable financial structure and inefficiency of the investments resulting therefrom, are probably the main reasons why the impact of both factors on the efficiency of the work organization is contrary to that anticipated.

The variable x_4 can be found in four equations. The sign of the regression coefficient is positive and proves that, in given economic conditions, a larger value of material inventory per conditional unskilled worker contributes to better business results by self-managed enterprises. In other words, work organizations, by purchasing larger quantities of reproduction material (raw materials) insure themselves against the restrictions usually caused by the balance of payment problems of the state and against domestic bidders, who raise prices and take advantage of a position of imperfect competitors.

Significant variables which also often appear are x_4 — coefficient of efficiency of capacity and x_5 — sick-pay up to 30 days per employed worker. Both somehow reflect the influence of subjective factors — mainly work organization — on the efficiency of individual working collectives. This means that, in interpreting differences in efficiency of individual self-managed enterprises, we must also bear these factors, in mind, particularly if they are connected with the development of the environment in which the work organizations operate. Differences in the development of environments — which can be represented by the statistical significance of indicator x_{11} — are one of the basic factors by which we explained many of the differences in efficiency of the work organizations interviewed.

Our analysis of the influence of efficiency factors on the efficiency of the interviewed work organizations can be concluded in the following way: even though in our analysis a considerable number of indicators were applied, which we considered to show the influence of efficiency factors on economic efficiency a number of indicators were not statistically significant. This does not mean that in actual economic life the excluded factors have no effect on the efficiency of self-managed enterprises; it only means that it was impossible to include the influence of these factors in our analysis. By contrast, the

analysis indicated the influence of certain factors which were explained in the introduction. Although dividing efficiency factors into external and internal is somehow questionable, the result of the analysis lead us to think that the impact of some indicators on the rate of efficiency can be attributed to the external conditions in which self-managed enterprises operate. This is well substantiated by the data in Table 2 in which, according to the data of the years covered, the results of the regression analysis of personal income and indicators reflecting the factors of efficiency are stated. In all five questions with high statistical significance the following four factors can be found: capital/labour ratio, size of market share, index of equilibrium prices and index of development. We suppose that the first three factors are mainly of an external nature. Considering the relative scarcity of social capital, the working collectives that operate with a larger amount of social capital attain a higher labour productivity and therefore a higher income than working collectives who have a lesser amount of social capital at their disposal. A part of income is therefore acquired by using social capital. This is non-working income and should be excluded from income before distribution of personal incomes to members of working collectives is carried out. This task has the price for the use of social capital and should be equal to that part of income which is achieved by the self-managed enterprise, on average, through the use of social capital. A similar influence on the efficiency of self-managed enterprises also have unequilibrium relative product prices. These prices exert dual influence: 1) enterprises having a certain market strength are more successful than the enterprises lacking market strength and 2) since the given economic mechanisms and social interventions in product prices do not take into account actual production costs — real prices of the use value of social capital and real prices of foreign currency — in their own way they create the efficiency of self-managed enterprises. Generally speaking, enterprises achieve different levels of efficiency as they operate in various branches of the national economy.

CONCLUSION

In our research into the influence of efficiency factors on the efficiency of 147 interviewed work organizations, we discovered that about 60% of differences in efficiency can be attributed to factors over which the self-managed enterprises have hardly any control, and their respective influence is very slight. Only a few of the so-called internal factors of efficiency had a statistically significant influence on the efficiency of the interviewed work organizations. The most important influences on the efficiency of the interviewed work organizations were: capital/labour ratio, products prices, size of market share and development of the environment in which the work organization operates. The influence of these factors on the efficiency of the interviewed work organizations particularly indicate that present economic mechanisms stimulate an unbalanced division of income among self-managed enterprises and an unbalanced distribution of net income.

Table 2: The results of regression of factors of efficiency in personal incomes temporal sections

| Independent | | | | | | | | |
|---|--------------------|----------|------------------------|------------------------------|---------------------------------------|--------------------------|-----------------------|----------------------------|
| Personal incomes per conditional unskilled worker | Number of equation | Constant | Capital/labour ratio | Obsolescence of fixed assets | Coefficient of efficiency of capacity | Sick-pay (up to 30 days) | Market share | Advertising expenses |
| year | | | X | X ₁ | X ₂ | X ₃ | X ₄ | X ₁₀ |
| 1975 | (1) | 66,39974 | 0,0200678 (0,00326) | | 23,8737 (6,06300) | | 0,10835 (0,03100) | 0,00006373 (0,0000255) |
| 1976 | (2) | 106,5231 | 0,0170683 (0,00343) | | | | 0,123734 (0,03625) | 0,00011325 (0,0000345) |
| 1977 | (3) | 68,11884 | 0,0120810 (0,00311) | 0,215321 (0,07013) | | | 0,120846 (0,03835) | 0,000072897 (0,0000336) |
| 1978 | (4) | 77,9639 | 0,010422 (0,00265) | 0,27572 (0,08126) | | | 0,121892 (0,03292) | |
| 1979 | (5) | 49,2304 | 0,0078009 (0,00200) | 0,190113 (0,06342) | 14,6744 (6,18325) | | 0,103562 (0,03468) | |

Source: Questionnaire of factors of efficiency of self-managed organizations of associated la

Therefore, the activity of self-managed enterprises does not lead in a socially desirable direction.

The behaviour of a self-managed enterprise is not something that is permanent for all time but depends upon the conditions created by economic mechanisms. Our analysis indicates that in given economic conditions self-managed enterprises behave rationally. Since, for instance, price is an important element of their income, they try to increase income — if possible — although on the basis of product prices without asking themselves whether this is socially useful or not. In fact, this is not their concern. It is the task of economic mechanisms which should be selected so as to make possible the autonomous working of self-managed enterprises and to highpoint basic national economic aims in a self-managing socialist society.

Another necessary condition is the consideration of actual production costs as a criterion in decision-making in self-managed enterprises. Whether product prices and production factors will reflect actual production costs or not, we may expect that the activity of self-managed enterprises will integrate into a coordinative system of socialist self-managing relations.

| variables | | | | | | | |
|--------------------------------|----------------------------|-----------------|------------------------------|---|----------------|----------|----------|
| Inventory of finished products | Inventory of raw materials | Loans | Vector of equilibrium prices | Index of development of the environment | R ² | S E E | F |
| X ₆ | X ₇ | X ₁₁ | X ₁₃ | X ₁₄ | | | |
| | | | -54,6151 (13,71528) | 0,168515 | 65,065 | 8,78688 | 32,35124 |
| | | | -60,09095 (16,01665) | 0,207244 (0,03699) | 55,157 | 10,45670 | 22,72974 |
| | | | -41,56118 (17,33025) | 0,237675 (0,04172) | 53,726 | 11,5533 | 22,67258 |
| | | | -56,1255 (14,1595) | 0,25382 (0,03382) | 57,218 | 10,35201 | 35,77379 |
| | | | -31,39009 (14,82312) | 0,25487 (0,03611) | 58,884 | 10,13824 | 28,68775 |

bour, 1980

APPENDIX

Selection and definition of indicators reflecting the efficiency of the interviewed work organizations

The indicators which reflect the factors of efficiency were selected on the basis of the model of behaviour of self-managed enterprises and on the basis of the results of the previous empirical analysis. From the model of behaviour of the self-managed enterprise, we may conclude that the efficiency of the Yugoslav self-managed enterprise depends upon factors of perfect competition (influence of self-managed enterprise on the produced quantity of products, production factors); factors of imperfect competition (influence on the prices of non-working production factors, non-priced production, differentiation of products and influence on the prices of products); and factors of social intervention (restrictions, permissions, subventions and tolls).

First of all, we shall present the factors of perfect competition. If we consider that working collectives behave rationally, we may expect that they will adapt the choice of technique (combination of production factors) to the given technology and to the prices of production factors. Whether a working collective chooses an efficient combination of production factors, or whether it produces the optimum quantity of individual products cannot be measured by a certain variable that is generally valid for all work organizations, since the degree of efficient combination of production factors and optimum value of a product are different in different branches of the national economy. Somehow they also depend on the socio-economic conditions that prevail in a particular society. In any case, we can obtain indirect information about them both, if we know the number of corresponding staff of the work organization, and the degree of utilization of working time as well as the degree of obsolescence of fixed assets and their use. Work organizations that have jobs better filled with the necessary staff, that better utilize their working time, that have fewer obsolescent fixed assets, and that use their fixed assets better, should have more business success. The indicators which reflect these elements indicate whether work organizations have selected the right combination of production factors and the optimum volume of production. The same statement is also valid for measuring the selection of which products will be produced by the enterprise. In other words, when an enterprise selects possible products it is thinking about its basic aim of achieving the highest possible income. The decision on whether it selected such a production assortment to maximize its net income per employed worker, is not a priori — an enterprise in the market economy certainly expect that its choice is the optimum one. However, we can discuss this fact only when the enterprise has already made its decision. The act of correct or incorrect choice of products can only be measured indirectly. In our analysis we shall for this purpose apply two indicators: the degree of replacement of the product and the value of the inventory of finished products. If the enterprise changes its production programme faster, it means that in

its drive to reach a higher income, it is adapting itself more quickly to possible market changes. If stocks accumulate in an enterprise, its production assortment has clearly not been well chosen.

With regard to imperfect competition, we can talk of the market of production factors and the market of products. Recalling our earlier explanation, an unreal price of social capital increases the efficiency of those work organizations which make use of a larger amount of social capital. A higher volume of social assets therefore brings in a higher income, which is also evident in the increased net income per employed worker.

In order to measure the influence of the volume of social capital on the efficiency of work organizations, we took the indicator of capital/labour ratio. The unreal price of social capital is bound to the unreal price of foreign currency which has increased the dependence of Yugoslav enterprises on the import of reproduction material (raw materials). As a result of this, almost every year enterprises had to cope with the problems of the country's foreign currency deficit, and therefore they made irrational purchases of materials for stock. Larger stocks of material are in this connection a special investment by Yugoslav enterprises that plays a big part in greater efficiency. The inventory value of material per employed worker is therefore an indicator which reflects the detrimental effect of economic regulations in foreign trade and the imperfection of the market structure in the domestic reproduction material raw materials market. The size of the market share in the domestic market can be taken as the next indicator of factors of imperfect competition and their influence on the efficiency of the interviewed work organizations. The size of the market share indicates the ability of a self-managed enterprise to achieve a higher income due to its market position. The list of variables which reflect the influence of imperfect competition can be completed with advertising expenses per conditional unskilled worker by which we try to measure the influence of non-priced competition — the influence of differentiation of products, advertising, quality — on the efficiency of enterprises. In fact, non-priced competition also belongs to the elements of imperfect competition.

In the following group we have put the indicators which measure the influence of social intervention on the efficiency of work organizations. Under present conditions social interventions in the economy are of various kinds, therefore their influence cannot be completely evaluated. Therefore, only some indicators were used, which we feel show the greatest effect. The monetary system and policy of loans with a fixed interest rate which did not adapt to the inflation tendencies in the economy, gave priority to those work organizations which were able to borrow higher amounts of loans. The higher value of a loan per conditional unskilled worker should therefore have a positive effect on the efficiency of work organizations. A similar tendency also stimulates the organization of foreign trade exchange. Work organizations with higher imports than exports should, due to depreciation in the foreign exchange rate achieve a higher income. Therefore, as an indicator of the influence of depreciation in the foreign exchange rate

on the efficiency of work organizations, we took a value (import-export) per conditional unskilled worker. The crucial problem in measurement is the influence of the prices policy. In order to include the influence of the prices policy we used an equilibrium index of a specified production price from the Analysis of Price Rates in the Yugoslav Economy, by Frankovič. And finally, although in this case we cannot speak of real social subventions or duties, we also inserted in the analysis the index of development of the environment in order to include the influence of general development of the environment in which work organization operates. Since our analysis is based on data from the period 1975—1979 we also added the variable T.

The specified indicators have the following forms:

- X_1 = number of employed workers whose education suits the requirements of working jobs/total number of employed workers
- X_2 = number of hours of sick-pay up to 30 days/total number of employed workers
(the number of hours of sick-pay up to 30 days is used as an approximation of the ratio between the paid but not worked hours and the working hours which burden the income).
- X_3 = 100 minus (net value of fixed assets) purchase value of fixed assets)
- X_4 = number of effected mechanical hours (utilized capacity), planned number of mechanical hours (planned capacity)
— available capacity = installed capacity minus deductions (because of Sundays and holidays, regular repairs and maintenance)
— utilized capacity = available capacity minus not utilized capacity
— not utilized capacity = lack of production due to work done in only one or two working shifts, shortage of raw material, lack of electricity, damages, sales difficulties
- X_5 = number of new products/total number of products according to the IND-21 classification
- X_6 = value of inventory of finished products recorded at the end of the year/number of conditional unskilled workers
- X_7 = (net value of fixed assets + utilized working capital on average) / number of conditional unskilled workers
- X_8 = value of inventory of material (raw material) recorded at the end of the year/number of conditional unskilled workers
- X_9 = share of sales in the market
- X_{10} = advertising expenses / total number of conditional unskilled workers
- X_{11} = value of loans recorded at the end of the year/number of conditional unskilled workers
- X_{12} = (value of imports minus value of exports) / number of conditional unskilled workers
- X_{13} = vector of equilibrium prices

We took the vector of specific production price from the analysis by V. Frankovič of the normal price in the Yugoslav economy.⁵ The analysis by Frankovič indicates that this price is best adapted to the real conditions of prices in our economy. For a correct understanding we have to explain the relation between actual prices and computed prices. The vector of actual prices in all branches is one. Branches in which prices should be increased have a value of more than one and branches in which prices should be reduced have a value of less than one. A work organization therefore has the value of the branch to which it belongs according to the highest share of production.

X_{14} = index of development of the environment

We applied the synthetic index of a relative level of development of the Yugoslav republics and provinces from the analysis of J. Bajec.⁶ It seems that this measure of development is more appropriate than the usual way of measurement by per-capita social product. A work organization has the value as obtained in the analysis by the republic or the province in which the work organization operates.

T = time

This variable has five values: (1 for 1975, 2 for 1976, 3 for 1977, 4 for 1978 and 5 for 1979).

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SAMOUPRAVNO PREDUZEĆE JUGOSLAVIJE I FAKTORI NJEGOVE EFIKASNOSTI

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Re z i m e

Dva temeljna problema jugoslovenske privrede su neuravnotežena cena upotrebe društvenog kapitala i neuravnotežena cena deviza. Pošto ne uključuju stvarne privredne troškove neuravnotežene su i relativne cene proizvoda. Do toga dovode i neodgovarajuća tržišna struktura i neusklađene društvene intervencije u privredu. Budući da intervencije u cene proizvoda i u cene proizvodnih faktora vode u administrativno određivanje njihovih količina, u svom delovanju samoupravno preduzeće se susreće sa pogrešnim ograničenjima. Kako se to odražava na njegovu

⁵ Konzorcijum ekonomskih instituta za međurepubličko-pokrajinski i jugoslovenski projekat »Privredni sistem SFRJ«: Sistem sticanja i raspodele dohotka, Institut ekonomskih nauka — Beograd, 1980, page 293—305

⁶ More in: J. Bajec, Društveni razvoj i mogućnost njegovog merenja, Savremena administracija, Beograd, 1977, page 120.

uspešnost poslovanja? Ako se kao opšta mera uspešnosti samoupravnog preduzeća uzme čist dohodak po zaposlenom radniku (zbog problema sa određivanjem stvarnih proizvodnih troškova samoupravnog preduzeća predstavljamo je sa više pokazatelja), njena vrednost u većoj meri zavisi od faktora na koje samoupravno preduzeće svojim delovanjem općenito ne može uticati (spoljni faktori uspešnosti), nego od faktora koje samoupravno preduzeće svojom aktivnošću može kontrolisati (unutrašnji faktori uspešnosti). U empiričkoj analizi uticaja faktora uspešnosti (faktori uspešnosti izraženi su sa 68 pokazatelja) na uspešnost 147 slučajno izabranih radnih organizacija autor konstatuje da se čak 60% razlika u njihovoj uspešnosti može pripisati faktorima na koje samoupravna preduzeća nemaju gotovo nikakvog uticaja ili je njihov uticaj vrlo mali. Samo mali broj unutrašnjih faktora uspešnosti pri tome pokazao je statistički značajan uticaj na uspešnost anketiranih organizacija. Najznačajniji je uticaj sledećih faktora: kapitalna opremljenost rada, cene proizvoda, veličina učešća u tržištu i indeks razvijenosti područja, na kojem deluje radna organizacija. Upravo uticaj tih faktora na uspešnost privredivanja anketiranih radnih organizacija možemo uzeti kao znak da sadašnji ekonomski mehanizmi pobuđuju neuravnotežnu raspodelu dohotka između samoupravnih preduzeća i neuravnoteženu raspodelu čistog dohotka samoupravnih preduzeća. To vodi grupnovlasničkom prisvajanju radnih kolektiva i menjaju društvene u grupnu svojinu radnih kolektiva.

AN EXPERIMENT ATTRACTING WORLD-WIDE ATTENTION

Chen CHANGRONG*

(1) Since October 1978, China has been carrying out an experiment on extending the authority of enterprises in Sichuan Province, one of the country's industrial centres. Sichuan is the country's most populous province, with a population of 98.19 million according to the 1980 statistics, amounting to 10% of China's total population of 982.55 million. The experiment was launched in the light of the principle laid down at the December 1978 3rd Plenary Session of the Chinese Communist Party's 11th Congress to adapt China's current system of economic administration to the needs of building a powerful modernized socialist country. In the past 3 years this experiment has led to important developments in the economic field, bringing about significant changes in economic and social relations between China's industrial enterprises. It has not only attracted great attention from Chinese economists and sociologists, but has also aroused wide interest among foreign colleagues in various countries. The author himself, for example, has received many economists, sociologists and other research workers from Yugoslavia, Japan, Britain, the United States, France, West Germany, Australia, etc., wishing to make on-the-spot investigations in Sichuan. Some of them have later written articles and monographs on their findings. Now both Chinese and foreign opinion unanimously hold that this experiment in Sichuan represents the first step in the reform of China's system of economic administration.

(2) To understand the significance of the Sichuan experiment, it is necessary to look back at the history of China's system of economic administration. During the period of almost 30 years from 1949 (when the People's Republic of China was founded) to 1978 a highly centralized administrative system was used for enterprises under the ownership of the whole people (state enterprises). Among its characteristics were: the enterprise had its production plan mapped out and assigned by the state; means of production, funds for production and the labour

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