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ECONOMIC ANALYSIS

ЭКОНОМИЧЕСКИЙ АНАЛИЗ

ORIGINALNI NAUCNI ČLANCI

Branko HORVAT: *Model heterogenog kapitala*

Mark S. ELLIS: *Strana ulaganja u Jugoslaviji — prikaz Zakona o zajedničkom ulaganju sa amandmanima i predloženim izmenama*

Marta BAZLER-MADŽAR: *Regionalna diferencijacija nivoa razvijenosti i efikasnosti privređivanja*

PREGLED OBLASTI

Zlatko KOVAČIĆ: *Makroekonometrijski modeli u Jugoslaviji*

PRIKAZI KNIIGA

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C A S O P I S

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SADRŽAJ

ORIGINALNI NAUČNI ČLANCI

A Model of Many Capital Goods — Model heterogenog kapitala

Branko HORVAT 227

Foreign Investments in Yugoslavia — A Review of the Joint Venture Law with Amendments and Proposed Changes — Strana ulaganja u Jugoslaviji — prikaz Zakona o zajedničkom ulaganju sa amandmanima i predloženim izmenama

Mark S. ELLIS 235

Regional Differentiation of Development Level and Efficiency of Growth — Regionalna diferencijacija nivoa razvijenosti i efikasnosti privređivanja

Marta BAZLER-MADŽAR 271

PREGLED OBLASTI

Makroekonometrijski modeli u Jugoslaviji — Macroeconomic Models in Yugoslavia

Zlatko KOVAČIĆ 289

PRIKAZI KNJIGA

John W. Sewel, Stuart K. Tucker, and contributors: Growth, Exports, Jobs in a Changing World Economy. Ed.: Overseas Development Council, New Brunswick (USA), and Oxford (UK), 1988, pp. 275

Željko ŠUSTER 321

Jugoslavija i Evropska Ekonomska Zajednica. Zbornik radova. Redaktor: Ljubiša Adamović. IMMP — Institut za međunarodnu politiku i privredu, Beograd, 1988. str. 258

Jasenka TOMAŠ-JURIŠIĆ 323

A MODEL OF MANY CAPITAL GOODS*

Branko HORVAT**

A. CHANGING LABOUR

Quantity equations

Consider an economy with one consumer good (X_1) and two machines (X_2, X_3). Let the life-span of the two machines be the same ($n_1 = n_2 = n$). The number of quantity equations matches the number of variables:

$$\begin{aligned} \lambda_1 X_1 + \lambda_2 X_2 + \lambda_3 X_3 &= L \\ r\kappa^1_1 X_1 + r\kappa^1_2 X_2 + r\kappa^1_3 X_3 &= rK^1 = X_2, & \kappa^1_i &= \frac{K^1_i}{X_i} \\ r\kappa^2_1 X_1 + r\kappa^2_2 X_2 + r\kappa^2_3 X_3 &= rK^2 = X_3, & \kappa^2_i &= \frac{K^2_i}{X_i} \end{aligned} \quad (1)$$

where K^1 and K^2 are stocks of machines of type one and two, and X_2 and X_3 are per period outputs of the same machines.

The last two equations in (1) represent a homogeneous system. If X_1 is eliminated from these two equations, X_2 bears a fixed proportion to X_3 as given by

$$\frac{X_2}{X_3} = \frac{K^1}{K^2} = \frac{rb_2 + \kappa^1_1}{rb_1 + \kappa^2_1}, \quad \begin{aligned} b_1 &= \kappa^1_1 \kappa^2_2 - \kappa^2_1 \kappa^1_2 \\ b_2 &= \kappa^2_1 \kappa^1_3 - \kappa^1_1 \kappa^2_3 \end{aligned} \quad (2)$$

If either $r = 0$ or $b_1 = b_2 = 0$, the proportion in which the two types of machines are produced is equal to the ratio of capital coefficients of those machines in the consumer-good industry. Now the role of machine-worker ratio (the degree of mechanization) is replaced by machine-output ratio (capital coefficient); $b_1 = b_2 = 0$ implies .

Savez republičkih i pokrajinskih samoupravnih interesnih zajednica za naučni rad SFRJ učestvuje u troškovima izdavanja ovog časopisa.

Na osnovu mišljenja Republičkog komiteta za kulturu SR Srbije br. 413-319/88-06 od 24. II 1988. godine oslobođeno plaćanja poreza na promet.

* A sequel to the article in the previous issue of the EAWM.

** University of Zagreb.

$$\frac{\kappa^1_1}{\kappa^2_1} = \frac{\kappa^1_2}{\kappa^2_2} = \frac{\kappa^1_3}{\kappa^2_3} = \frac{K^1}{K^2} = \frac{X_3}{X_2}$$

In other words, it is implied that in each industry machines of type 1 and 2 are used in the same proportion in which they are produced.

From $K^1/K^2 = X_2/X_3$ it follows that $X_3/K^2 = X_2/K^1$, i.e., gross investment rates are the same in both industries. Generally, the ratio X_2/X_3 will be a function of the investment rate and all capital coefficients (changing under TP).

The elimination of X_1 from the first two equations gives

$$(rm^1_3 + \lambda_1) X_2 + rm^1_1 X_3 = r\kappa^1_1 L$$

$$m^1_1 = \kappa^1_1 \lambda_3 - \kappa^2_3 \lambda_1, \quad m^1_3 = \kappa^1_1 \lambda_2 - \kappa^1_2 \lambda_1$$

Use (2) to obtain

$$X_1 = \left(\frac{1}{\lambda_1} - \frac{r^2 C + rD}{\lambda_1 (r^2 A + rB + \lambda_1)} \right) L, \quad A = \frac{b_2 m^1_3 + b_1 m^1_1}{\kappa^1_1}$$

$$X_2 = \frac{r (rb_2 + \kappa^1_1)}{r^2 A + rB + \lambda_1} L, \quad B = \frac{m^1_3 \kappa^1_1 - m^1_1 \kappa^2_1 + \lambda_1 b_2}{\kappa^1_1}$$

(3)

$$X_3 = \frac{r (rb_2 + \kappa^2_1)}{r^2 A + rB + \lambda_1} L, \quad C = \lambda_2 b_2 + \lambda_3 b_1$$

$$D = \lambda_2 \kappa^1_1 + \lambda_3 \kappa^2_1$$

The introduction of just one additional machine makes life quite complicated. That explains the popularity of one-machine economies, or of a triangularity of input matrix, or of machines being produced by labour alone.

Price equations

Price equations are also fully determined and also more complicated because each equation has two rental terms corresponding to two capital goods.

$$rp_2 \kappa^1_1 + rp_3 \kappa^2_1 + \lambda_1 = p_1$$

$$rp_2 \kappa^1_2 + rp_3 \kappa^2_2 + \lambda_2 = p_2$$

$$rp_2 \kappa^1_3 + rp_3 \kappa^2_3 + \lambda_3 = p_3$$

(4)

Machine prices are determined exclusively by the coefficients of their own industries. Once determined, they can be used to find out the consumer good price.

$$p_1 = \frac{r^2 (\lambda_1 b_3 + \lambda_2 b_2 + \lambda_3 b_1) + r (m^1_3 + m^2_1) + \lambda_1}{r^2 b_3 - r (\kappa^1_2 + \kappa^2_3) + 1} \quad b_3 = \kappa^2_3 \kappa^1_2 - \kappa^1_3 \kappa^2_2$$

$$p_2 = \frac{\lambda_2 + rm^2_2}{r^2 b_3 - r (\kappa^1_2 + \kappa^2_3) + 1}, \quad m^1_2 = \kappa^1_2 \lambda_3 - \kappa^1_3 \lambda_2$$

$$p_3 = \frac{\lambda_3 - rm^1_2}{r^2 b_3 - r (\kappa^1_2 + \kappa^2_3) + 1}, \quad m^2_2 = \kappa^2_2 \lambda_3 - \kappa^2_3 \lambda_2$$

$$m^2_1 = \kappa^2_1 \lambda_3 - \kappa^2_3 \lambda_1$$

$$m^1_3 = \kappa^1_1 \lambda_2 - \kappa^1_2 \lambda_1$$

(5)

For $r = 0$, all prices reduce to their labour coefficients, $p_1 = \lambda_1$, $p_2 = \lambda_2$, $p_3 = \lambda_3$. If $m^1_2 = m^2_2 = 0$, the ratio of machine prices is equal to the ratio of labour coefficients, $p_2/p_3 = \lambda_2/\lambda_3$. Note that m^i_j are not the same mechanization indices as before. For instance, $m^1_2 = 0$ implies

$$\frac{\kappa^1_2}{\lambda_2} = \frac{K^1_2}{X_2} \Big/ \frac{L_2}{X_2} = \frac{\kappa^1_3}{\lambda_3} = \frac{K^1_3}{X_3} \Big/ \frac{L_3}{X_3}$$

and

$$\frac{K^1_2}{L_2} \neq \frac{K^1_2}{L^1_2}, \quad \frac{K^1_3}{L_3} \neq \frac{K^1_3}{L^1_3}$$

L^1_2 is the number of workers who operate K^1_2 machines of type one in industry two. L_2 is the total number of workers employed in industry two, $L_2 = L^1_2 + L^2_2 + L^3_2$. Thus, K^1_2/L^1_2 is a proper degree of mechanization, and K^1_2/L_2 may be called quasi intensity of mechanization. But equal quasi mechanization in machine industries is not a sufficient condition for the two ratios to be equal when consumer good price is considered. For that five additional conditions are required:

$m^1_3 = m^2_1 = 0$, and $b_1 = b_2 = b_3 = 0$. Note, however, that $b_1 = b_2 = 0$ implies $b_3 = 0$. In other words, apart from equal quasi mechanization ratios in all industries, the proportions of machines produced and used in each industry must also be equal.

The wage curve

Per capita consumption of a single consumer good represents the real wage. It follows from the first equation of (3)

$$\bar{w} = x_1 = \frac{1}{\lambda_1} - \frac{r^2 C + rD}{\lambda_1 (r^2 A + rB + \lambda_1)} \quad (6)$$

The curve is now considerably more complicated than before because r^2 appears in the numerator and denominator.

If $w(r)$ is to be made linear, some coefficients must be zero: $C = A = B = 0$. That implies uniform quasi mechanization ($m^1_1 = m^1_3 = 0$) and also uniform capital-output intensity ($b_1 = b_2 = 0$). Under these conditions the wage curve reduces to a straight line

$$\bar{w} = \frac{1}{\lambda_1} - r \frac{D}{\lambda_1^2} \quad (7)$$

Since there is only one consumer good, maximum per capita consumption remains the same as in the standard two-sector model and is determined by the labour coefficient of the first industry, $W(r=0) =$

$\frac{1}{\lambda_1}$. That also follows from the first equation in (1) when we put $X_2 = X_3 = 0$. But maximum rental depends apparently on all capital and labour coefficients and is determined by a quadratic equation

$$R(w=0) = R^2(A-C) + R(B-D) + \lambda_1 = 0$$

This equation can be somewhat simplified if it is recalled that in the labour system the real wage is the reciprocal of the price of the consumer good. Using (5), we obtain

$$\bar{w} = \frac{1}{p_1} = \frac{r^2 b_3 - r(\kappa^1_2 + \kappa^2_3) + 1}{r^2 (\lambda_1 b_3 + \lambda_2 b_2 + \lambda_3 b_1) + r(m^1_3 + m^2_1) + \lambda_1} \quad (8)$$

As a ratio of two second degree polynomials, the wage curve may have three inflection points [since $d^2\bar{w}/dr^2 = f(r^3)$].

For $r=0$ or $b_1 = b_2 = b_3 = m^1_3 = m^2_1 = 0$, the wage curve reduces to a straight line

$$\bar{w} = \frac{1}{\lambda_1} - r \frac{\kappa^1_2 + \kappa^2_3}{\lambda_1} \quad (7a)$$

which is identical with (7) because

$$\frac{D}{\lambda_1^2} = \frac{\kappa^1_2 + \kappa^2_3}{\lambda_1}$$

if $m^2_1 = m^1_3 = 0$.

The maximum wage remains, of course, the same, $\bar{w}(r=0) = \frac{1}{\lambda_1}$, but the maximum $R(w=0)$ results from a simpler quadratic equation

$$r^2 b_3 - r(\kappa^1_2 + \kappa^2_3) + 1 = 0 \quad (9)$$

and depends *exclusively* on capital coefficients in machine industries. An analysis of equation (9) and of its solutions

$$R_{1,2} = - \frac{(\kappa^1_2 + \kappa^2_3) \pm \sqrt{(\kappa^1_2 + \kappa^2_3)^2 - 4b_3}}{2b_3}$$

reveals the classifying role of b_3 , i.e., of the interrelations among four capital coefficients of the two machine industries:

$$\begin{aligned} b_3 > 0 & : R_1 > 0, R_2 < 0 \\ b_3 = 0 & : R = \frac{1}{\kappa^1_2 + \kappa^2_3} \\ 0 < b_3 < \left(\frac{\kappa^1_2 + \kappa^2_3}{2}\right)^2 & : R_1, R_2 > 0 \\ 0 < b_3 = \left(\frac{\kappa^1_2 + \kappa^2_3}{2}\right)^2 & : R = \frac{2}{\kappa^1_2 + \kappa^2_3} \\ b_3 > \left(\frac{\kappa^1_2 + \kappa^2_3}{2}\right)^2 & : R_1, R_2 \text{ do not exist} \end{aligned}$$

R is unique in two cases: for $b_3 = 0$ and $b_3 = \left(\frac{\kappa^1_2 + \kappa^2_3}{2}\right)^2$.

For negative b_3 , only one R is positive and that one is admissible. Both

R 's are positive for positive b_3 smaller than $\left(\frac{\kappa^1_2 + \kappa^2_3}{2}\right)^2$. In

this case only the smaller of the two is admissible because $\bar{w}(r) \geq 0$

and decreasing. Finally, b_3 cannot be larger than $\left(\frac{\kappa^1_2 + \kappa^2_3}{2}\right)^2$

because in that case the wage function does not exist. Note that

$\frac{\kappa_2^1 + \kappa_3^1}{2}$ is an average of the own capital coefficients in two machine industries and $b_3 = \kappa_3^2 \kappa_1^1 - \kappa_1^3 \kappa_2^2 = 0$ implies $\frac{\kappa_3^2}{\kappa_1^3} = \frac{\kappa_2^2}{\kappa_1^2}$, i.e., equal ratios of machine-output intensities in the two machine industries.

B. TECHNOLOGICAL PROGRESS

Capital coefficients unchanged

Let us again consider labour augmenting unembodied technological progress. As two different machines are produced, we now have two investment equations:

$$\text{Labour equation: } \sum_{i=1}^3 (\lambda_i \Gamma_i^{-1}) X_i H_i = (\Gamma^{-1} L) \Gamma = L \quad (9)$$

$$\text{Investment equations: } \sum_{i=1}^3 \kappa_i^j X_i (h_i^j + \delta_i^j) = (h^j + \delta^j) K^j = X_j$$

$$\sum_{i=1}^3 \kappa_i^2 X_i (h_i^2 + \delta_i^2) = (h^2 + \delta^2) K^2 = X_2$$

Three equations determine three H_i .

The vertical summation of the components of quantity equations evaluated and the corresponding prices produces the Pasinetti system of price equations

$$p_2 \kappa_1^2 r_i + p_3 \kappa_1^3 r_i + w \lambda_i = p_i, \quad i = 1, 2, 3, \quad r_i = h_i^1 + \delta_i^1 = h_i^2 + \delta_i^2 \quad (10)$$

In each industry i , K_i^1 and K_i^2 expand at the same rate h_i determined by the expansion of effective labour, which is different for each industry. This implies three different profit rates h_i , one for each industry.

Gross investment rates $r^i = h^i + \delta^i$, determined by two investment equations in (9), represent averages for two types of machines and they are equal, $r^1 = r^2$. This is the required uniform rental which implies a uniform profit rate.

With uniform r , prices are labour prices constructed in such a way that individual stationary costs are augmented by the (average) investment costs (corrected for replacement reduction) incurred by the economy in order to employ workers rendered redundant by technological progress.

If working hours are also changing, the (positive or negative) rate of change must be included in the rental rate

$$r = \delta + \pi, \quad \pi = GH - 1 \quad (11)$$

If the durability of machines differs, $n_1 \neq n_2$, there will be two different δ 's.

They will be related as follows

$$\frac{\delta^1}{\delta^2} = \frac{\pi}{\Pi^{n_1} - 1} \bigg/ \frac{\pi}{\Pi^{n_2} - 1} = \frac{\Pi^{n_2} - 1}{\Pi^{n_1} - 1}, \quad \Pi = 1 + \pi \quad (12)$$

For $\pi = \text{const.}$, (12) holds strictly; if π changes in time, (12) is an approximation.

Now all rental rates are different

$$r^j = \delta^j + \pi, \quad j = 1, 2 \quad (11a)$$

where the superscript j indicates the type of the machine. The profit rate is uniform

$$\pi = GH - 1 = g + h \quad (12)$$

and it may be positive, zero or even negative for a sufficiently large contraction of labour ($g < 0$).

Capital coefficients change

If both labour productivity and capital efficiency improve, the situation becomes somewhat messy. Let L^s_j represent the number of workers in industry j operating machines of type s . Productivity of that group of workers increases by Γ^s_j and output by H^s_j . The output of corresponding machines must also increase by H^s_j . Their efficiency increases by $^* \Gamma^s_j$. The labour and machine balances amount to

$$\begin{aligned} (\Gamma^1)^{-1} L^1 H^1 + (\Gamma^2)^{-1} L^2 H^2 + (\Gamma^3)^{-1} L^3 H^3 &= (\Gamma^1)^{-1} L^1 H^1 \\ (\Gamma^2)^{-1} L^2 H^2 + (\Gamma^2)^{-1} L^2 H^2 + (\Gamma^3)^{-1} L^3 H^3 &= (\Gamma^2)^{-1} L^2 H^2 \\ (\Gamma^1)^{-1} L^1 H^1 + (\Gamma^2)^{-1} L^2 H^2 &= L \\ (^* \Gamma^1)^{-1} K^1 H^1 + (^* \Gamma^2)^{-1} K^2 H^2 + (^* \Gamma^3)^{-1} K^3 H^3 &= (^* \Gamma^1)^{-1} K^1 H^1 \\ (^* \Gamma^2)^{-1} K^2 H^2 + (^* \Gamma^2)^{-1} K^2 H^2 + (^* \Gamma^3)^{-1} K^3 H^3 &= (^* \Gamma^2)^{-1} K^2 H^2 \end{aligned} \quad (13)$$

These balances may be simplified. We do not know separate outputs for the two machines. They jointly contribute to the same output and so $H^1_j = H^2_j$. Next, we may assume that the efficiency of a machine,

and the corresponding productivity of labour, increase about equally in all uses, ${}^* \Gamma^s_j = {}^* \Gamma^s_i = {}^* \Gamma^s$, $\Gamma^s_j = \Gamma^s_i = \Gamma^s$. Consequently,

$$\begin{aligned} (\Gamma^1)^{-1} (L^1_1 H_1 + L^1_2 H_2 + L^1_3 H_3) &= (\Gamma^1)^{-1} L^1 H^1 \\ (\Gamma^2)^{-1} (L^2_1 H_1 + L^2_2 H_2 + L^2_3 H_3) &= (\Gamma^2)^{-1} L^2 H^2 \\ (\Gamma^1)^{-1} L^1 H^1 + (\Gamma^2)^{-1} L^2 H^2 &= L \\ ({}^* \Gamma^1)^{-1} (K^1_1 H_1 + K^1_2 H_2 + K^1_3 H_3) &= ({}^* \Gamma^1)^{-1} K^1 H^1 \\ ({}^* \Gamma^2)^{-1} (K^2_1 H_1 + K^2_2 H_2 + K^2_3 H_3) &= ({}^* \Gamma^2)^{-1} K^2 H^2 \end{aligned} \quad (13a)$$

where $H^1 = H^2$.

Transformed into quantity equations, the first three equations may be simplified further into

$$\lambda_1 X_1 H_1 + \lambda_2 X_2 H_2 + \lambda_3 X_3 H_3 = L$$

where the new labour coefficients are

$$\lambda_j = \frac{L^1_j (\Gamma^1)^{-1} + L^2_j (\Gamma^2)^{-1}}{X_j}, \quad j = 1, 2, 3 \quad (14)$$

As in (9), (13a) reduces to three equations which determine three H_j . The average productivity factor for labour employed in industry j is

$$\Gamma_j^{-1} = \frac{L^1_j (\Gamma^1)^{-1} + L^2_j (\Gamma^2)^{-1}}{L_j}, \quad j = 1, 2, 3 \quad (15)$$

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FOREIGN INVESTMENT IN YUGOSLAVIA — A REVIEW OF THE JOINT VENTURE LAW WITH AMENDMENTS AND PROPOSED CHANGES

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In the light of Yugoslavia's current economic crisis, Yugoslav officials have reiterated that joint venture investment with foreign partners provides an economically sound way of attracting foreign cooperation, needed foreign exchange and technology for the rehabilitation of Yugoslavia's economy. In support of this proposition, Yugoslavia considerably liberalized its Joint Venture Law¹ in 1984 and made several additional amendments in 1985, 1986 and 1987. Nevertheless, there still remains considerable confusion and controversy relating to several aspects of the Law. As a result, the Yugoslav Government is presently considering substantial revisions to the Joint Venture Law which, if adopted, would significantly liberalize foreign investment in Yugoslavia.

The purpose of this paper is to review and clarify the pivotal provisions of the Joint Venture Law, as well as proposed changes, and assess their applicability to foreign investors in Yugoslavia. In discussing the proposed changes, it should be noted that all changes are part of the proposed amendments introduced in the current Draft Law on joint ventures.² Although the proposed amendments represent substantial changes in the present Law, the changes must be in conformity with constitutional revisions. Consequently, the Federal Work-

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¹ The Law on Investment of Resources of Foreign Persons in Domestic Organizations of Associated Labour (*Official Gazette of the Socialist Federal Republic of Yugoslavia (SFRY)*, No. 18/78, No. 64/84, No. 5/85, and No. 38/86). (hereinafter cited as the »Joint Venture Law«).

² See The Second Draft Law of the Joint Venture Law, Federal Committee on Energy and Industry (FCEI), Working Group (Belgrade, September, 1987), (hereinafter cited as the »Second Draft Law«).

ing Committee for Social-Economic Order³ has recently proposed amending the Constitution in order to provide the necessary forum for adopting fundamental changes to the Joint Venture Law. The Constitutional changes would be in the form of Amendment 12, which would grant foreign investors unprecedented opportunities to formulate Western style joint ventures. Revising the Yugoslav Constitution, however, will take a minimum of one year. Thus, the proposed changes discussed in this paper are presented as a way of illustrating the current views of legislative committees and as a forum for discussing future changes in Yugoslavia's investment climate.

THE BASIS OF THE LAW

The primary objective of the Joint Venture Law is to attract foreign investment in a Yugoslav business organization⁴ for the purpose of sharing the risk and income of joint business. Yugoslavia hopes the

³ Skupština SFRJ Komisija za Ustavna Pitanja Koordinaciona Grupa — radna podgrupa za društveno-ekonomsko uređenje (May 26, 1988, Belgrade) (hereinafter cited as »Amendment 12«).

⁴ In this paper, the term »Yugoslav business organization« denotes the different organizations of labour within Yugoslavia's unique »workers' self-management« system. Although a complete exposé of the various organizations is beyond the scope of this paper, it is important for the reader to have a general knowledge of the distinctions among the organizations. The Joint Venture Law stipulates that a joint venture contract may be concluded by a foreign investor with any of three organizations of associated labor: a basic organization of associated labor (BOAL), a work organization (WO), or a composite organization (CO). A BOAL is the basic form of associated labour in which workers directly exercise their self-management rights and decide on all questions concerning their work and status. A BOAL is formed for each unit of a work organization which makes a working unit or technological whole. For example, in an integrated cotton textile mill, there would exist BOAL's in the spinning process, weaving process, and continuing to the retail outlet. The combined working units (i. e., the mill itself) would be considered a work organization. A composite organization is a form of associated labor where work organizations merge. For instance, the cotton mill joined with a synthetic textile mill form a composite organization. If a joint venture contract is entered into by a work organization (WO) or a composite organization (CO), then one or more of the basic organizations (BOAL) must be designated by the contract and vested with the rights and obligations stemming from the contract and the rights and obligations of the WO or CO which formed the contract shall be defined by it. See *Joint Venture Law*, *supra* note 1, at art. 9. It is the Yugoslav business organization that has the status of a legal entity and makes use of the invested resources of the foreign partner. See *Joint Venture Law, Commentary*, *supra* note 1, at art. 8. All other organizations (i. e., the WO or CO) are acting as an agent on behalf of the disclosed BOAL. A joint venture can be concluded between a foreign partner and an existing WO or CO. In this situation, one of the existing BOAL's of the WO or CO is divided, thus creating a new BOAL which is vested with the contractual rights and obligations of the joint venture. If the joint venture contract is with a newly formed Yugoslav partner, then a WO must be created through an »act of foundation« which establishes the WO as a legal entity. Since a BOAL cannot exist separately from a WO, it is the WO and not the BOAL which is created first.

Joint Venture Law will enable it to capitalize on its comparative advantage in the international division of labor, thereby increasing its exports, and to procure modern technology. The joint venture must be of a »long-term nature«, and its exact duration must be stipulated in the contract.⁵ This is to assure that the Yugoslav business organization will benefit from an extended period of resource investment and technology transfer by the foreign partner. Nevertheless, the Joint Venture Law does not permit the foreign partner to extract a »permanent share« of the income generated through the joint venture.⁶ Thus, the joint venture cannot be of indefinite duration.⁷ Although the Joint Venture Law does not stipulate the upper and lower limits of a contract, practical experience shows that a duration of between 5 to 20 years is the acceptable norm.⁸

Among the more interesting proposals for liberalizing the Joint Venture Law is a provision which would permit the partners to form a joint venture contract for a »definite or indefinite period of time.«⁹ So long as the partners did not object, a contract concluded for a definite period of time could be »automatically renewed« for a further defined period of time.¹⁰

In addition, there is a proposal to permit Yugoslav private firms to enter into joint ventures and to expand the definition of a foreign partner to include a Yugoslav citizen who has a registered business abroad.¹¹ Under the Second Draft Law, the Yugoslav investor may be an artisan cooperative or other cooperative, or a Yugoslav citizen who has at his disposal resources in conformity with the foreign exchange laws.¹²

One of the significant advantages of Yugoslavia's Joint Venture Law is the great flexibility afforded the parties in devising a contract that will realize their common objectives. The Joint Venture Law mandates only that certain broad parameters be included in the contract.¹³

⁵ *Joint Venture Law*, *supra* note 1, at art. 3.

⁶ *Id.*, at art. 18.

⁷ A joint venture contract must provide for the termination of the foreign partner's share in the income of the joint venture. *Id.*, at art. 21.

⁸ There are cases where the agreed upon period has exceeded 30 years. See Tešić, *The Yugoslav Model of International Transfer of Technology*, Exportpress (Belgrade, 1986) at 145.

⁹ See »The Second Draft Law«, *supra* note 2, at art. 44.

¹⁰ *Id.*, at sec. 2.

¹¹ *Id.*

¹² *Id.*, at sec. 3 and Amendment 12, *supra* note 3.

¹³ The Joint Venture contract shall regulate in particular: (1) the subject matter of the joint venture, (2) the manner for determining the foreign partner's share in the income generated by the joint venture, (3) the terms, manner and time limits for paying the foreign partner's share of the income generated by the joint venture, (4) the terms, manner and time limits for returning to the foreign partner the remaining value of the resources invested, (5) the mutual obligations of the contracting parties in the event of business losses, and other obligations concerning risk bearing, (6) the composition and powers of the joint venture board, and mode of its election, and (7) the manner of settling mutual disputes. *Joint Venture Law*, *supra*, note 1, at art. 7.

It is advisable, however, to include in the contract the fullest possible provision for all issues involved in the joint venture, including an »article of definitions« to help clarify Yugoslav legal and economic terms. Direct discussions with foreign investors reveal that such meticulous preparation will greatly facilitate the operation of the joint venture. This includes stating what the »common goals« of the joint venture are to be. This is important because the failure to adhere to the predetermined goals of the joint venture is grounds for terminating the contract.

APPROVAL OF THE JOINT VENTURE CONTRACT

The approval of a joint venture contract is subject to only one Yugoslav federal agency: the Federal Secretariat on Foreign Economic Relations (FSFER)¹⁴. This amended provision is a significant simplification from the 1978 Joint Venture Law¹⁵ which required the parties to obtain approval from various federal and republican agencies. The application for approval is accompanied only by the text of the

¹⁴ This Secretariat was recently formed (May, 1988) through the reorganization of the Federal Committee on Energy and Industry (FCEI) and the Federal Secretariat of Foreign Trade. Although the 1984 Joint Venture Law virtually abrogates the authority of the various federal, republican and provincial agencies (Yugoslavia is divided into six republics and two autonomous provinces) in approving joint venture contracts, the law does require »opinions« and »comments« from several of these agencies. See *Joint Venture Law, supra* note 1, at art. 50. Once the contract is completed and approved by the workers' council of the Yugoslav business organization in which the resources are invested, the Joint Venture Law requires that prior to submitting the contract to the FCEI (i. e., now the FSFER), the Yugoslav partner must inform the Yugoslav Chamber of Economy of its intention to form a contract. *Id., supra* note 1, at art. 46. Since the Yugoslav Chamber of Economy is a nonprofit, »service« association of labor, organized to assist in the formulation and cooperation of economic activities throughout Yugoslavia, its involvement in joint ventures is viewed primarily as an exercise in record keeping. Official interpretation, however, suggests that the Yugoslav Chamber of Economy may inform the Yugoslav partner of any possible problems that might arise in cooperation with the foreign partner. Although the legal consequences of such »suggestions« are not indicated in the Joint Venture Law, practical experience shows that the Yugoslav partner is expected to comply with changes to provisions of the contract which the Chamber finds to be contrary to the requirements of the law. In addition, the FCEI (i. e., the FSFER) is required to obtain an opinion by the Federal Office of Social Planning as to whether the provisions of the contract are contrary to the social plan of Yugoslavia. Another opinion is provided by the Yugoslav Chamber of Economy as to whether the provisions of the contract are contrary to the established strategy of Yugoslavia's technological development. The Committee may also seek the opinions of federal, republican and provincial authorities. *Id., at art. 50.*

¹⁵ The Law on Investment of Resources of Foreign Persons in Domestic Organizations of Associated Labor (*Official Gazette of the SFRY, No. 18/78*) (hereinafter cited as »the 1978 Joint Venture Law«).

joint venture contract¹⁶ and a feasibility study.¹⁷ Upon receipt of this information, the FSFER has 60 days to render a ruling on the application for approval of the joint venture contract.¹⁸ If the application is not approved an appeal may be lodged with the Federal Executive Council¹⁹ within 15 days from the date of service of the ruling.²⁰ The ruling of the Council is final and no administrative appeal is permitted.²¹

Although it is not uncommon for the approval process by the FSFER to exceed the legal 60 day limit,²² the delay is more often caused by repeated requests by the FSFER for amendments to the contract.

Currently, there is discussion on changing the approval period from 60 to 30 days. This change would bring Yugoslavia in line with

¹⁶ If the joint venture involves technology transfer, long-term industrial coproduction or business and technical cooperation, then separate contracts for these areas are also included in the application for approval.

¹⁷ The feasibility study is an economic and technical study which provides information on: (1) the sources of assets, (2) technological requirements for manufacturing products, (3) equipment, intermediate and raw materials to be imported, (4) the state of the professional staff to be employed, and (5) marketing. See *Joint Venture Law, supra* note 1, at art. 48. The preparation of the feasibility study may take from two to six months depending on the size of the joint venture. It is the responsibility of the Yugoslav partner to prepare the study which, of course, will be completed with the cooperation of the foreign partner. The importance of this study should not be underestimated. Not only is the study a basis for approval by the Yugoslav authorities but it represents the intentions of the parties to undertake contractual obligations based on its contents. Large size ventures will require the participation of various experts in the fields of law, accounting, marketing, engineering, etc. It may be appropriate for a small size venture, where the partners do not possess the experienced specialists, to contract with a qualified institution or company to formulate the feasibility study. Preparations can be costly. Discussions with foreign investors estimate that for a 1 million dollar contract, it will cost between 5 to 15 thousand dollars for the study, in addition to 10 to 20 thousand dollars for market research. Assistance is often available, without fee, through the Yugoslav bank which is participating in financing the joint venture. There also exists the International Investment Corporation of Yugoslavia (IICY) which can provide the foreign investor with assistance at a fee. The IICY is a consortium of 55 Yugoslav and major international banks established for the promotion of investments in Yugoslavia. In addition, there is the center for International Economic Cooperation which provides assistance to foreign investors. It is imperative that the foreign partner hire a Yugoslav attorney during the preliminary stages of the contract. The FCEI does not allow the foreign investor to be present during discussions. Only the Yugoslav partner may be present. The foreign investor, however, can be represented at the Committee discussions by a Yugoslav attorney.

¹⁸ *Joint Venture Law, supra* note 1, at art. 50.

¹⁹ The Federal Executive Council is the executive political body of the Yugoslav Assembly. The status and powers of the Council are similar to these of cabinets in other countries.

²⁰ *Joint Venture Law, supra* note 1, at art. 50. Since the Law does not state which party may appeal, the foreign party may lodge an appeal. See J. Barbić, M. Hanžeković, Z. Sakač, *Strana Ulaganja u Jugoslaviji*, (Informator, Zagreb, 1986).

²¹ *Joint Venture Law, supra* note 1, at art. 50.

²² Of the most recent 13 joint ventures in Yugoslavia, only 3 have been approved within one year. See *Politika*, 11 May 1987, p. 12.

other developing countries whose joint venture laws require a maximum of 30 days for approval. Notwithstanding, the proposed draft would retain the provision which permits the FSFER to wait 60 days from receipt of the application before rendering a decision as to the validity of the contract.²³

There are essentially five areas where the FSFER will deny approval.²⁴ A joint venture contract will not be approved if the contract: (1) infringes upon the equality of the Yugoslav business organization and the foreign partner, i. e., the foreign partner cannot act in a multinational fashion and »control« the joint venture, (2) restricts exports of products manufactured by the Yugoslav business organization which are the subject matter of the contract and such restrictions are contrary to Yugoslavia's policy and system of foreign economic relations,²⁵ (3) incorporates provisions which are contrary to the social plan of Yugoslavia, (4) incorporates provisions which are contrary to the established strategy of technological development of Yugoslavia, and (5) incorporates provisions which are contrary to the defense and security interests of Yugoslavia.

There are also several »de facto« areas where joint ventures are not permitted.²⁶ They include insurance,²⁷ trade and social activities, i. e., education, cultural areas, social security, child care, etc.²⁸ A new exception to this provision is health and recreation related services. Thus, joint ventures are permitted in services involving outpatient and inpatient care, medical rehabilitation, dental care, pharmacies and recreational activities.²⁹

Foreign investment in the banking and armaments sectors of the Yugoslav economy is regulated by separate laws.³⁰

²³ See Second Draft Law, *supra* note 2, at art. 52.

²⁴ *Joint Venture Law*, *supra* note 1, at art. 49.

²⁵ This provision does not preclude the foreign partner from restricting the sale of products to countries where it has existing production or exclusive licensing arrangements.

²⁶ *Joint Venture Law*, *supra* note 1, at art. 11.

²⁷ This restriction could be amended depending on the outcome of the GATT discussions regarding restrictions of insurance services. Nevertheless, discussions with Zlatko Mandžuka, Secretary for Relations with OECD Countries in the Yugoslav Chamber of Economy, reveal that Yugoslavia is not presently contemplating changes in the law which would permit joint ventures in the insurance sector.

²⁸ The Federal Executive Council can grant an exemption to this provision and permit joint ventures in certain social activities if this will contribute to the development of the activities concerned. *Joint Venture Law*, *supra* note 1, at art. 11.

²⁹ The inclusion of recreational activities corresponds to article 33 of the Joint Venture Law which permits the foreign partner to contribute services to the joint venture in lieu of income. These provisions are intended to attract foreign investors to Yugoslav tourist projects.

³⁰ For banking: The Law on the Yugoslav Bank for International Economic Cooperation and on Joint Financial Organizations (*Official Gazette of the SFRY*, No. 55/78) and the Law on Joint Banks (*Official Gazette of the SFRY*, No. 32/87). For armaments: Regulation on the Investment of Resources of Foreign Legal Entities and Physical Persons in Domestic Organizations of Associated Labor Manufacturing Armaments and Military Equipment (*Official Gazette of the SFRY*, No. 65/84).

Upon approval by the FSFER, the contract must be registered in accordance with the Joint Venture Law within 15 days of the date of approval.³¹ The FSFER will then notify the authorities of the republic or autonomous province where the Yugoslav business organization is located.³²

The Yugoslav partner is responsible for forwarding to the FSFER, the Yugoslav Chamber of Economy and the appropriate republican or provincial authorities annual reports on the achievements of the joint venture with respect to the success of the business, imports, exports, technical equipment, technology applied and other relevant data pertaining to the operation of the joint venture.³³ The annual report must be submitted by April 30 of the current year for the previous year.³⁴

THE VALUE AND FORM OF INVESTMENTS BY THE FOREIGN PARTNER

The capital invested by the foreign partner may be in the form of foreign exchange, tangible assets and »rights which constitute instruments and objects of labor« (i. e., intangible assets and labor).³⁵ The most common arrangement is where the foreign partner contributes intangible assets and cash³⁶ and the Yugoslav partner contributes fixed assets.³⁷ Intangible assets include patent rights, trademark and brand rights, rights to production and technical documentation, and know-how.³⁸ Investment of intangible assets must also adhere to

³¹ Article 51 of the Joint Venture Law lists the information required for registration.

³² *Joint Venture Law*, *supra* note 1, at art. 51.

³³ *Id.*, at art. 56.

³⁴ Detailed regulations of the report is set by the FSFER in cooperation with the Public Accounting Office.

³⁵ *Joint Venture Law*, *supra* note 1. Since foreigners cannot own property in Yugoslavia, the invested capital cannot be in the form of land or buildings.

³⁶ Prior to 1984, the investment had to be in a convertible currency. New changes in the law, however, now permit investment in any foreign currency. The investment cannot be in the form of dinars unless the foreign partner is reinvesting into the joint venture.

³⁷ The latest figures from the Yugoslav Federal Office of Statistics show that in 1983, total foreign resources invested through joint ventures comprised 82% cash, 11% equipment and 7% intangible assets. Other studies have shown a somewhat smaller proportional representation with 57% investment in cash, 24% in intangible assets and 19% in equipment. See P. Artisien, *Joint Ventures in Yugoslav Industry*, (Grower Press, 1985), at 124. The differential may be explained by the percent of the foreign partner's investment share. When the share is relatively large (i. e., above 25%), cash contribution is significantly higher than other forms. When the investment share is less than 25% (usually denoting a smaller foreign firm with less cash) contribution through intangible assets becomes increasingly more important. See Artisien, *Id.* The Yugoslav partner, however, is permitted to invest intangible rights and labor.

³⁸ Under previous joint venture laws, the foreign partner could not contribute know-how without allowing the Yugoslav partner to use the technological improvement brought about during the duration of the con-

the requirements of the relevant laws.³⁹ For this reason, it is important to survey and clarify the relationship among the particular laws which are included in the joint venture contract. For instance, if the joint venture contract includes a licensing agreement, then that agreement will also be subject to different regulations other than the Joint Venture Law. Thus, it is important to stipulate which laws will have priority in case of conflict. Furthermore, there should be a clause in the joint venture contract which addresses the consequences of changing one of the incorporated agreements in relation to the joint venture contract as a whole.

In addition, the foreign partner may invest equipment and intermediate or raw materials. This is permissible, however, only when the goods are not produced in Yugoslavia in appropriate quality and quantities and at appropriate prices.⁴⁰

The total value of the resources necessary for the joint venture is freely determined by the partners in accordance with the specific conditions and requirements of their project. An important change already adopted in the existing Joint Venture Law, which could greatly enhance the partners' ability to structure a flexible investment, pertains to the maximum level of investment for the foreign partner. The previous joint venture laws required the foreign partner to maintain a minority investment position in the joint venture. Thus, the foreign partner's share of the invested capital in the joint venture had to be less than 50%.⁴¹ The present Joint Venture Law permits the foreign partner's investment share to exceed the parity level and thus the foreign partner may now hold a majority »equity« position. The Law also abolishes the lower investment requirement limit for the foreign partner.⁴² The removal of the lower limit requirement is an attempt

tract. This is no longer a requirement under the current Joint Venture Law. Intangible assets may also include the value of human capital in the form of management and manpower.

³⁹ In the areas of patent, trademark and brand rights, the applicable law is The Law on the Protection of Inventions, Technical Improvements and Trademarks (*Official Gazette of the SFRY*, No. 34/81). If the joint venture provides for the investment or procurement of technology, then the applicable law is the Law on Long-term Coproduction, Business and Technical Cooperation and Acquisition and Assignment of Material Rights to Technology between Organizations of Associated Labor and Foreign Persons (*Official Gazette of the SFRY*, No. 30/83) (hereinafter cited as the »Law on Long-term Cooperation«).

⁴⁰ The opinion as to the »appropriate quality and quantities« and »appropriate prices« is rendered by the Yugoslav Chamber of Economy. See *Joint Venture Law*, *supra*, note 1, at art. 12.

⁴¹ The 1967 Joint Venture Law (which was actually a combination of four different laws) provided for a maximum foreign investment of 49%. See The 1967 Joint Venture Law (*Official Gazette of the SFRY*, No. 31/67). The 1978 Joint Venture Law also provided for a maximum of 49%. See The 1978 Joint Venture Law, *supra* note 15.

⁴² In accordance with the Decree on the Minimal Amount of Resources which a Foreign Person Must Invest into the Domestic Organization of Associated Labor (*Official Gazette of the SFRY*, No. 45/78), the minimum investment was the lesser of either 10% of the »total value of the joint project« or five million dinars.

by Yugoslav authorities to attract smaller investors into Yugoslavia.⁴³

It is important to note, however, that the ability of the foreign partner to acquire a majority investment share in the joint venture does not imply an interest in property rights. The total value of each partner's investment share denotes only a contractual right and acts as the basis for determining each partner's share in the income generated by the joint venture.⁴⁴

Furthermore, the foreign partner's status as the majority investor in the joint venture does not include operational control over the joint venture. The responsibility of managing the joint venture is the function of a joint business board which will be discussed in a separate section of this article.

These limitations may change with the adoption of Amendment 12 to the Constitution. Provisions in that Amendment would allow the joint venture partners to determine their respective rights and obligations through collective agreement.⁴⁵ Theoretically, the foreign partner could gain significant control over the operation of the joint venture. The proposed Amendment, however, does state that these freely defined rights and obligations could not be in conflict with federal law.⁴⁶ Consequently, there is sufficient opportunity for the Yugoslav government to restrict the perceived liberalization.

Finally, the ability of the foreign partner to acquire a majority investment share in the joint venture does not abrogate the obligation of the Yugoslav business organization to share the risks of the joint venture. In fact, a joint venture is illegal unless it provides for the sharing of business risks.⁴⁷ The very nature of joint ventures in Yugoslavia is »joint risk sharing«, not nomination by multinationals.⁴⁸ Thus, the Yugoslav business organization must contribute to the investment into the joint venture.

The exact share of each partner's investment, however, is determined by the contracting parties. Consequently, whereas a 100% majority investment share by the foreign partner would not be permitted, there is no legal impediment to the foreign partner acquiring a 99% investment share.⁴⁹ Although such a high proportional investment share by the foreign partner is legally permissible, the practical concern is whether the Yugoslav authorities would grant approval to the contract.

This aspect of the Joint Venture Law would also change with the adoption of Amendment 12. The provisions of the Amendment

⁴³ There is some confusion as to whether a minimum investment would be required under the new Joint Venture Law. The Second Draft Law states that the share of foreign capital invested in the joint venture »shall not amount to less than 20%« of the total investment.

⁴⁴ See *Joint Venture Law*, *supra* note 1, at art. 18.

⁴⁵ Amendment 12, *supra* note 3, at sec. 3.

⁴⁶ *Id.*

⁴⁷ *Joint Venture Law*, *supra* note 1, at art. 27.

⁴⁸ See Orbe, »The Multinational in Yugoslavia«, 19 *The International Lawyer* 632 (1985).

⁴⁹ This view was supported by members of the Yugoslav Government during the U.S. Overseas Private Investment Corporation (OPIC) mission, held in Belgrade, May 26, 1987 (hereinafter cited as the »OPIC meeting«).

would allow for the creation of »mixed companies« and »wholly-owned« foreign companies within certain designated »free trade zones.«⁵⁰

It is common that the joint venture contract evokes the principle of limited liability for the foreign partner. In this way, the foreign partner is liable only for the amount of his initial capital investment.⁵¹ Thus, the contract should also stipulate that any losses⁵² incurred through the joint venture will be covered by the partners in proportion to their invested shares. If the foreign partner fails to cover his proportion of losses with additional resources, then his initial resources will be reduced by the corresponding amount.⁵³ Since, however, the foreign partner is entitled to the »premature« termination of the contract after two consecutive years of losses,⁵⁴ it is unlikely that all of his resources invested in the joint venture would be used to cover the losses.

LOANS

Because of changes incorporated in the Joint Venture Law, the resources required to finance the joint venture can now be obtained from a credit or loan.⁵⁵ This is an important amendment because it eliminates the necessity of the partners to secure 100% of their required contributions to the joint venture in the form of equity. Still, a major drawback to this provision is that the amount of the loan cannot exceed the amount of equity invested by the contracting parties. Thus, the debt: equity ratio cannot exceed 1:1. The debt: equity ratio, however, applies only to »joint loans.« It does not apply to credits taken independently by the foreign partner or the Yugoslav business organization.⁵⁶ When the joint venture does obtain a »joint

⁵⁰ Amendment 12, *supra* note 3, at sec. 3.

⁵¹ *Joint Venture Law*, *supra* note 1, at art. 28. Article 28 reads: »Foreign persons shall be liable for obligations arising from joint ventures to the extent of the resources they have invested, unless they have assumed greater liability under the joint venture contract« (emphasis added).

⁵² Losses occur when the income generated by the joint venture is smaller than the agreed upon amount for workers income or smaller than the amount of personal income guaranteed by the law for the period for which the workers have not been paid. In addition, losses occur when the income is smaller than the amount of liabilities to be met under law out of the income of the joint venture. See *Joint Venture Law*, *supra* note 1, at art. 29.

⁵³ During the year where losses are recorded, the foreign partner cannot share in the income generated by the joint venture. It is important to note that other than when the joint venture records a loss, the foreign partner cannot be compelled to invest additional resources into the joint venture.

⁵⁴ *Joint Venture Law*, *supra* note 1, at art. 13.

⁵⁵ *Id.*, at 8.

⁵⁶ Either party may obtain financing for its own invested share. Consequently, the repayment of the loan comes from the partner's share of income (or other sources) after distribution of the joint venture income. For instance, the Yugoslav partner may obtain its share of assets from three sources: (1) his own accumulated funds, (2) a contract with another Yugoslav business organization to supply assets, or (3) a loan from a Yu-

loan,⁵⁷ the ultimate user is the Yugoslav business organization (i.e., the BOAL). Although there is a legal distinction between the joint venture entity and the participating BOAL as to their respective capacity to acquire a joint loan, the practical effect is the same.⁵⁸

The »joint loan« must be repaid from the income generated by the joint venture and prior to its distribution between the partners. Assuming it is stipulated in the contract, each partner's share in the repayment of the loan principle is determined by their proportional investment share. The interest payments, however, are deducted prior to reaching the net income (i.e., as an expense) and, therefore, are not proportionally allocated between the partners.⁵⁹ Prior to a 1986 amendment,⁶⁰ the emphasis was on the ability of the joint venture to generate sufficient funds for the repayment of the loan. If the income generated by the joint venture was not sufficient for repaying the loan, the partners were obligated to repay the loan »proportionally to the stipulated risk of the joint venture.«⁶¹ At present, if there does not exist sufficient income for repayment, the necessary funds can be obtained by »other means«, in conformity with the contractual provisions. Since the amended law permits the partners to define the term »other means«, it is likely that the proportional risk sharing aspect of »joint loans« would still apply since it is an important reaffirmation of the foreign partner's limited liability.

goslav bank. The foreign partner may also independently take loans to finance operations which contribute to the aims of the joint venture. For instance, the foreign partner may, through credit, supply the equipment for the construction of the plant which is the subject matter of the joint venture. See *Commentary Joint Venture Law*, *supra* note 1, at art. 8.

⁵⁷ There has arisen a problem with securing a joint loan through the joint venture itself. Since funds invested in the joint venture are always vested with the Yugoslav business organization, only the Yugoslav business organization has the legal status to make use of the joint loan. The credit user is always the Yugoslav business organization and thus is responsible for repaying the credit from the income generated by the joint venture before it is distributed between the parties. However, if the Yugoslav business organization is a newly formed entity, it does not have any legal status until the act of foundation and does not become effective until that date. Consequently, the Yugoslav banks will not approve any loans until such time of foundation. For further discussion on this matter, see *Industrial Cooperation and Investment in Yugoslavia*, (Office for Official Publications of the European Communities no. CB. 46-86-630-EN.C, Luxembourg, 1986) (hereinafter cited as »Investment in Yugoslavia«).

⁵⁸ A joint venture must be registered as an Organization of Associated Labor with a share of foreign capital. For an excellent discussion on this point see Vukmir, »Recent Development in Joint Venture Legislation in Yugoslavia«, *ICSID Review*, (Spring, 1986) at 73.

⁵⁹ See Kovačević and Bilušić, *Razmatranja o Potrebi Poblješnja Načini i Uvjeta Realizacije Zajedničkih Ulaganja*, discussion paper, International Investment Corporation for Yugoslavia (1987).

⁶⁰ See *Official Gazette of the SFRY*, No. 38/86, at art. 1.

⁶¹ *Joint Venture Law*, *supra* note 1, at art. 8.

DECISION-MAKING

Under the Joint Venture Law, decisions relating to the business activity of a joint venture can be decided either directly by the parties or through a joint business board within the framework of the joint venture contract.⁶² To date, nearly all of the joint venture contracts concluded have established such a board.⁶³ In 1976, a change in the law clearly eliminated the past »de facto« advisory function of the foreign partner and introduced the concept of »joint management«. Consequently, the board will decide on all matters relating to the joint venture which have been designated by the foreign partner.⁶⁴ Essentially, this provision pertains to all decisions relating directly to the joint venture, including the use of joint venture assets.

At first glance, the newly amended provision provides considerable latitude in the foreign partner's participation in the joint venture. There are, however, several important impediments to the foreign partner's role in decision-making.

First, there exists a substantial limitation on the foreign partner's ability to regulate the labor components of the joint venture. Although the joint venture law provides that the partners »may establish standards... for current labor«,⁶⁵ this does not necessarily imply that the partners may set forth an exact criterion for the number of workers and their income. It would be difficult for the foreign partner to precisely define these variables because they encompass part of the inalienable rights of the workers and thus must be determined in strict accordance with the Yugoslav Constitution⁶⁶ and the Associated Labor Act.⁶⁷ Nevertheless, there is precedence for stipulating the exact number of workers. Several joint ventures have predetermined the number of workers and have agreed that the Yugoslav partner will absorb all costs related to the hiring of additional workers. In addition, it is quite clear that the foreign partner does maintain the right to require that personal incomes do not exceed the stipulated standards of »current labor« (i. e., that only a certain amount of funds will be allocated to personal income). Accordingly, if the amount paid

⁶² *Id.*, at art. 15.

⁶³ The joint business board is set up within the work organization in which a foreign investor's resources are invested or in the work organization in which the joint venture is a member (i. e., if the joint venture is on the level of a BOAL. See *supra* note 4.

⁶⁴ *Joint Venture Law*, *supra* note 1, at art. 17.

⁶⁵ *Id.*, at art. 7.

⁶⁶ The Constitution of the Socialist Federal Republic of Yugoslavia, (*Official Gazette of the SFRY*, No. 9/74). The foreign partner must cede certain rights vested to the workers. Article 27 of the Constitution states, in part: »Workers in organizations of associated labor which make use of resources invested by foreign persons shall have the same socio-economic and other self-management rights as workers in the organizations of associated labor...« (emphasis added).

⁶⁷ The Associated Labor Act, (*Official Gazette of the SFRY*, No. 53/76 and No. 57/83).

for personal income does exceed the stipulated limit,⁶⁸ then the excess payments will not be deducted from the foreign partner's profit but will be covered entirely by the Yugoslav partner.⁶⁹

Second, the joint business board is required to »hear the views« of the managing bodies (i. e., workers' council⁷⁰) of the Yugoslav business organization concerning the operation of the joint venture.⁷¹ The main purpose of this provision is to ensure that the joint business board does not encroach upon the self-management rights of the workers. The Joint Venture Law, however, does not indicate how disputes between the two bodies are to be resolved nor does it state the consequences for the failure of the joint business board to either obtain or adhere to the views of the workers' council. Although problems of this nature would most probably be an internal matter for the Yugoslav partner to address,⁷² the practical consequences for the foreign partner would most likely be internal dissension within the joint venture⁷³ or even possible disruption in the business activity of the joint venture.⁷⁴ The potential serious nature of dissension emphasizes the importance of maintaining a stable and beneficial relationship between the joint business board and the management and working bodies of the Yugoslav business organization.

Several joint ventures have lessened the possibility of strife by consulting the workers' council of the Yugoslav business organization before the joint venture is signed. In this way, the issues to be decided with input by the workers' council will be settled prior to the time

⁶⁸ Because of Yugoslavia's high inflation rate, the »stipulated limit« is calculated in a »hard currency« which will reflect the devaluation of the dinar.

⁶⁹ For further discussion, see the section on Income Sharing, *supra*.

⁷⁰ For discussion on the workers' council, see the section on Management, *supra*.

⁷¹ *Joint Venture Law*, *supra* note 1, at art. 7.

⁷² See Vukmir, *supra*, note 58, at 71.

⁷³ An illustration of this problem is seen within a recently formed joint venture. The foreign partner wanted one of the Yugoslav members of the joint business board to attend a management workshop outside Yugoslavia. The workers' council, however, refused to fund the trip and after much confusion, the foreign partner was forced to pay for the trip.

⁷⁴ For one joint venture presently existing in Yugoslavia, the interference from the workers' council is to such a degree that all major decisions must have the council's approval prior to the subsequent approval of the joint business board. The result has been substantial delays in carrying out the joint business. This view, however, is in contrast to a study by Patrick Artisien, *supra* note 37, in which it was concluded that the overall majority of joint venture firms which were interviewed responded that in times of disagreement, the workers' council followed the recommendations of the manager. Only 3 firms (out of 42) indicated that the workers' council utilized its legal prerogative to »veto« the decisions of the joint board. Nevertheless, a majority of the firms interviewed did indicate that the decision-making process, with its lengthy debates and bureaucratic drawbacks, hindered the operation of the joint venture. If the foreign partner is not satisfied with the council's decision, he may request a reconsideration but cannot demand a reversal of the decision. If problems with the council persists, the foreign partner can terminate the contract so long as this was foreseen in the contract.

of signing. This approach, however, will not work if the Yugoslav business organization is a newly formed entity. Since the workers' council of the Yugoslav business organization does not become effective until the act of foundation, the council does not legally exist.

In order to alleviate this problem, the proposed new Joint Venture Law would allow the partners to regulate their rights, duties and liabilities during the formation of the joint venture within a newly formed Yugoslav business organization.⁷⁵

If the joint venture is established from an existing Yugoslav business organization then the partners may envisage changes under the joint venture contract which shall be carried out within the context of the Yugoslav business organization's statute and other self-management acts.⁷⁶ The changes may relate to (1) the joint venture's obligations towards other organizations with which it is associated (i. e., its relationship with BOALs) and (2) the powers of the management to introduce more efficient management and organization of work in order to improve the quality of products and services, and to structure the rights and duties between management and labor.

Finally, the Joint Venture Law stipulates that the decisions to be made by the joint business board are to be by »mutual agreement«.⁷⁷ This provision supports Yugoslavia's desire to have both parties on equal footing, thus avoiding exploitation by the foreign party. To assure this status, the Joint Venture Law mandates that the foreign partner's representation on the joint business board cannot exceed the number of representatives from the Yugoslav business organization, irrespective of the partners' proportional capital investment.⁷⁸ Thus, in this context, the term »mutual agreement« means equal representation on the joint business board and does not mean unanimity in decision-making. Considering the make-up of the board,⁷⁹ unanimity in all matters related to the joint venture would be highly burdensome.

There are, however, some issues which must be resolved by mutual agreement, regardless of the number of representatives on the joint venture board.⁸⁰ In this context, the term »mutual agreement« denotes unanimous decision-making. Thus, even in circumstances where the Yugoslav business organization has a majority of representatives on the joint venture board, certain designated issues require unanimity. Although the Joint Venture Law mandates that certain issues will be decided by a unanimous vote, the law neither states the number nor the subject matter of the pertinent issues. The issues which are

⁷⁵ Second Draft Law, *supra* note 2, at art. 21.

⁷⁶ This provision is consistent with a newly formed Yugoslav business organization which must maintain its statute and self-management acts in conformity with the newly formed joint venture agreement.

⁷⁷ Joint Venture Law, *supra* note 1, at arts. 15 and 16.

⁷⁸ *Id.*, at art. 16.

⁷⁹ It is common for the joint business board to consist of 4 or 5 members designated by the contracting parties: 2 by the foreign partner; 2 by the Yugoslav partner and, if 5 members, 1 by the BOAL of the joint venture.

⁸⁰ Joint Venture Law, *supra* note 1, at art. 16.

usually reserved for a unanimous vote include: the organization of production, purchase and sales, the rate of productivity, material and energy inputs, the reconstruction of facilities and modernization of production, joint credit borrowing, and the replacement of fixed assets.⁸¹ In order to assure that the joint venture will not be hampered because of problems with obtaining unanimous consent, joint ventures resort to the arbitration or opinions of outside specialists to resolve disputes on an issue requiring unanimity.⁸² More common, however, is the reliance on »boardroom tactics« to reach an agreement. Although this approach is time consuming and often leads to confrontations among the board members, it seems to be the preferred management technique among joint ventures in Yugoslavia.

In practice, there tends to be a natural inclination towards allocating decisions-making authority to the partner which has the comparative advantage. Thus, the foreign partner has a *de facto* right to decide on matters concerning the quality of products, whereas the Yugoslav partner has authority over the setting of prices (in the domestic economy), the number of workers, and the purchasing of raw materials.⁸³ Decisions concerning marketing, labor training and costs, and product selection tend to be truly »joint decisions«.

As a consequence of the practical decision-making process within the joint business board, current discussions on revising the Joint Venture Law include provisions which would greatly enhance the foreign partner's role on the joint business board. Presently, there is a proposal which would permit the parties to the joint venture to determine the composition, election and work method of the joint venture board which, as a rule, would be related to each partner's invested share and »the amount of labor invested« (i. e., number of employees).⁸⁴ Thus, a foreign partner who contributed 70% of the total investment could retain a majority voting position on the joint venture board.⁸⁵

The proposed Amendment 12 to the Constitution goes even further. It would permit all decisions relating to decision-making to be determined by the terms of the contract.⁸⁶ Nevertheless, since federal law would supplement these provisions, it is likely that the requirement of a joint business board would be retained in the Joint Venture Law.

In addition, the proposed changes would permit the partners to specify their responsibilities in planning and conducting business, and

⁸¹ See Commentary, *Id.*

⁸² See Milošević, *Investing in Yugoslavia*, (Exportpress, Belgrade, 1985).

⁸³ See Artisien, *supra* note 37, at 142.

⁸⁴ There may, however, exist a problem concerning the term »invested labor«. Since it is unlikely that the largest number of employees will be from the Yugoslav side, determining the quota of representatives on the joint business board by the variable »invested labor« will automatically favor the Yugoslav partner.

⁸⁵ See Second Draft Law, *supra* note 2, at art. 23.

⁸⁶ Amendment 12, *supra* note 3, at sec. 3.

in managing the operations of the joint venture. The duties of the joint business board with respect to these same issues could also be determined in the contract.⁸⁷

MANAGEMENT

By all accounts, one of the most important elements in a successful Yugoslav joint venture is the relationship between the joint business board and the workers' council⁸⁸ of the Yugoslav business organization. This relationship is considerably enhanced by an effective manager. Whereas the business board acts as a management council, with certain fundamental responsibilities, the day to day operation of the joint venture is carried out by either a management board or, as it is more common, by a senior individual manager.⁸⁹ The manager runs the commercial operations of the organization, proposes business policy, organizes the activities and working process within the organization, and executes the decisions of the joint business board.

In practice, the managing director of a joint venture is a Yugoslav national. The law, however, does not preclude the foreign partner's representative from being appointed as the managing director.⁹⁰ The foreign person would have to be employed in the Yugoslav business organization on a full-time basis and possess the appropriate work permit, which means that the foreign national would possess skills and experience not normally available in Yugoslavia.⁹¹ In addition, the management board or manager is elected through the same legal procedure as in Yugoslav business organizations,⁹² and thus the manager or management board must be approved by the workers' council. The manager cannot be »appointed« by the joint venture partners. The foreign partner participates in »suggesting« a manager through his position on the joint business board.

⁸⁷ See Second Draft Law, *supra* note 2, at art. 22 and Amendment 12, *supra* note 3, at sec. 3.

⁸⁸ The workers' council is an elected body consisting of representatives of workers from all departments in the Yugoslav organization.

⁸⁹ This was not always the case. In June 1976, The Decree on Foreign Investment (*Official Gazette of the SFRY*, No. 26/76) transferred the management responsibilities from the joint business board to the workers' council. This decree was subsequently repealed by the 1978 Joint Venture Law, *supra* note 14.

⁹⁰ The Joint Venture Law does not prohibit such an arrangement. The controlling law is the Law on the Conditions Necessary for the Employment of Foreign Nationals (*Official Gazette of SFRY*, No. 11/78). This arrangement is consistent with Yugoslav joint banks where foreign citizens are permitted to act as president of the bank.

⁹¹ See Milošević, *supra* note 82, at 31.

⁹² The manager or management board of all Yugoslav business organizations is elected by the workers' assembly through the workers' council. When the Yugoslav business organization consists of less than 30 workers, there is no elected workers' council and the whole working assembly acts as a council.

Although it is legally permissible to elect a foreign national as the manager of the joint venture, the political influence of the local community (i. e., the commune⁹³) could prevent such an occurrence.⁹⁴ Consequently, it is more common that the foreign partner occupies senior management positions within the structure of the joint venture (e. g., a management accountant).⁹⁵

In addition, it is possible for a foreign worker to be represented on the workers' council or any other body of management⁹⁶ of the Yugoslav business organization. In this case, the worker would be selected in the same way as any Yugoslav worker on the workers' council. The worker would have to be elected through the workers' assembly. It is important to note, however, that the foreign worker would be a representative of the workers and not the joint venture. The foreign partner cannot have a voting representative on the workers' council. The joint venture contract, however, may provide for a nonvoting foreign representative on the council.⁹⁷

The exact format for the management structure is left entirely to the discretion and imagination of the partners. Current management structures in Yugoslav joint ventures include: »project leaders« from both sides who share day-to-day management responsibilities, an »advisor« from the foreign partner who has »residency« at the plant but does not share in day-to-day operation responsibilities, and an arrangement where the foreign partner has no representative at the plant nor in Yugoslavia, but conducts business from its European office.⁹⁸ Direct discussions with several U.S. joint venture partners, however, reveal that it is imperative, as a practical matter, to have a permanent

⁹³ The commune is the basic socio-political community. There are 512 communes throughout Yugoslavia. Their sizes differ according to the number of inhabitants, from 10,000 to over 100,000, and in area, from 50 sq. km. to over 1,000 sq. km.

⁹⁴ Prior to 1984 and on the basis of the Social Compact on Personnel Policy, the workers' council would have to »consult« with the local commission for the Coordination of Personnel Policy, which was responsible for giving an opinion aimed at protecting »the common social interest«. Although this law is no longer in effect, most communes are still represented on selection committees for directors of Yugoslav business organizations and, depending on the size of the local community, can wield considerable influence over the selection process.

⁹⁵ Foreign persons who join the staff of the joint venture must also adhere to the same requirements necessary for employing a foreign manager, i. e., they must become full-time employees of the Yugoslav business organization and qualify for work permits. Practical experience shows that there is little problem in employing foreign persons on the joint venture staff.

⁹⁶ Organs of management are bodies elected on a self-managing basis, i. e., workers' council, and should be distinguished from business-managing organs, such as directors.

⁹⁷ For an excellent discussion, see Barbić, *supra* note 20.

⁹⁸ According to a recent study, this arrangement is not uncommon. Over 64% of the firms sampled said they had no managerial staff working in the joint venture. An even larger percentage of firms (83%) said they had no technicians employed with the joint venture. Apparently, once the initial operational stages were completed, the foreign partner relinquished the day-to-day operations. See Artisien, *supra* note 37, at 167.

»resident« at the plant to assure that the crucial issues of the joint venture operation are addressed on a daily basis.

As a result of the constraints on the management aspect of joint ventures, Yugoslav officials are presently discussing changes in the Joint Venture Law which would greatly liberalize the partners' ability to appoint a manager. Essentially, this would involve limiting the workers' council's right to participate in the selection of the manager.⁹⁹ The Second Draft Law on amending the Joint Venture Law, however, advocates only that the business board should »propose« to the workers' council the appointment and removal from office the manager and other executives of the joint venture.¹⁰⁰ The proposed Amendment 12, however, makes no such limitation.¹⁰¹

EVIDENCE ACCOUNT

For the purpose of monitoring the investment shares of the partners' invested capital, the partners may maintain a separate evidence account as a record of the foreign partner's liabilities and claims against the Yugoslav partner.¹⁰² The evidence account can be considered an »extended« nominal capital account. The only difference is that the evidence account shows all the claims of the foreign partner as well as the date when the claims mature or must be settled.¹⁰³ The evidence account can be kept either in dinars¹⁰⁴ or in a foreign currency.¹⁰⁵

Since the accounting aspect of a joint venture can be exceedingly difficult to comprehend, Yugoslavia provides assistance through the Social Accounting Service (SDK).¹⁰⁶ The SDK is an independent organ-

⁹⁹ These views were stated by Yugoslav officials during the OPIC mission, *supra* note 49, and the US-Yugoslav Economic Council meeting in Cavtat (June 1-3, 1987).

¹⁰⁰ Second Draft Law, *supra* note 2, at art. 24.

¹⁰¹ Amendment 12, *supra* note 3, at sec. 2.

¹⁰² *Joint Venture Law*, *supra* note 1, at art. 26.

¹⁰³ The account may include: (1) the original investment and additional investment paid to the Yugoslav partner, (2) any reinvested capital which the foreign partner has paid from his profits, (3) unpaid profits due to the foreign partner, (4) the repayment of any portion of the foreign partner's invested capital, and (5) any losses of the joint venture. For instance, changes in the status of the foreign partner's investment account could occur upon subsequent investments made by the partner or the coverage of losses from the joint venture operation.

¹⁰⁴ If the account is kept in dinars, then the conversions of the contributions made by the parties will be made at the official rate of exchange in effect on the date of the contribution. Any subsequent devaluation of the dinar would not affect the value of the contributions already recorded.

¹⁰⁵ By maintaining the account in a foreign currency, the foreign partner can more effectively protect himself from Yugoslavia's high rate of inflation. As was pointed out by Vukmir, *supra* note 54, at 75, the Joint Venture Law does not mention foreign currency as a mode for accounting, but in practice it is a widely accepted method.

¹⁰⁶ In Serbo-Croatian, the Social Accounting Service is called Služba Društvenog Knjigovodstva (SDK).

ization, acting on federal and republic levels, which reviews all internal payments among Yugoslav business organizations.¹⁰⁷ The SDK monitors the transactions of the joint venture.¹⁰⁸ In addition, the foreign partner may seek assistance from the Financial Revision Department of the SDK which will transpose accounts and balance sheets of the joint venture into the western accounting model.

INCOME SHARING

Because the notion of income in Yugoslavia is so different from that of the West, the provisions of the Joint Venture Law which regulate the partners' rights and obligations stemming from invested resources are the most difficult for foreign investors to understand.¹⁰⁹ The present Joint Venture Law attempts to clarify the notion of income within the Yugoslav system as it pertains to joint ventures.¹¹⁰

Prior to the new Law, there were serious problems as to whether the foreign partner had to cover the obligations of the Yugoslav business organization outside those stipulated in the joint venture contract. The major impediment was the definition of »joint venture income« and the right to expend that income for obligations which were outside the confines of the joint venture. Since, in most cases, the Yugoslav business organization in which resources from a foreign partner were invested was also engaged in its own business operation, the two incomes were merged. As a result, the new Joint Venture Law includes provisions which require the Yugoslav business organization to keep records which separate its own generated income from the

¹⁰⁷ In Yugoslavia, banks, government agencies and all Yugoslav business organizations do not make direct payments to each other. Every organization instructs SDK to make the payment against the amount transferred to the SDK. The SDK possesses the right to inspect the account of any Yugoslav enterprise.

¹⁰⁸ Under the Decision on Records for Organizations of Associated Labor in which Foreign Persons have Invested Resources are Bound to Provide in their Business Books (*Official Gazette of the SFRY*, No. 34/81), the Yugoslav business organization is required to submit annual reports about the operations of the joint venture to the SDK. Similar annual reports are also required under the Law on Rules on the Contents and Submission of Annual Reports on the Implementation of Contracts on the Investment of Foreign Persons' Resources in the Domestic Organization of Associated Labor (*Official Gazette of SFRY*, No. 11/80).

¹⁰⁹ Self-management in the socialist market economy of Yugoslavia means that workers employ socially-owned resources in order to generate income. The income earned by the workers is distributed along agreed upon criteria as stipulated in: (1) inter or intra self-management agreements, (2) social compacts (which are agreements which regulate relations of collective interest and the general concerns of the community, i.e., principles of income distribution, general price formation, etc.), and (3) the applicable law and taxes. Through these agreements, funds are channeled to »social« sectors of the society such as education, health, recreation, etc. These funds are referred to as »contributions« rather than taxes, although the effect is the same.

¹¹⁰ *Joint Venture Law*, *supra* note 1, at arts. 18-29.

income generated through the joint venture.¹¹¹ In this way, the part of the joint venture income belonging to the foreign partner may not be used to cover obligations and expenses which are not related to the joint venture. Consequently, the foreign partner is now exempt from certain taxes and obligations which are considered to be outside the parameters of the contract. Thus, as shown in chart 1, income (net) is determined by deducting material and depreciation costs¹¹² and does not include the statutory obligations and expenses of the Yugoslav business organization.¹¹³ After deducting expenditures for personal incomes¹¹⁴ and funds for common consumption,¹¹⁵ from the net income, the »residual net income« (i.e., profit) is obtained. It is from the residual net income that profits are distributed to the foreign partner in accordance with its respective share of investment capital into the joint venture.¹¹⁶

¹¹¹ *Id.*, at art. 19. The Yugoslav business organization is required to maintain separate accounts in order to distinguish the use of the foreign partner's resources. The records must be kept in accordance with the Law on the Determination and Distribution of Gross Income (*Official Gazette of SFRY*, No. 56/84), articles 53 to 56 and article 58. These articles primarily deal with the relationship between two or more basic organizations of associated labor and the income earned from the joint venture. Further regulations on business records is found in the Decision on Records that Organizations of Associated Labor in which Foreign Persons who have Invested Resources are Bound to Provide in their Business Books (*Official Gazette of the SFRY*, No. 34/81) which was enacted by the Federal Executive Council in conformity with Article 56 of the Law on Bookkeeping (*Official Gazette of the SFRY*, No. 25/81).

¹¹² The Joint Venture Law permits the partners to set standards for material costs and the criteria for determining depreciation rates. Minimum depreciation rates are fixed by the Law on Changes and Amendments of the Law of Depreciation of Assets of BOALs and Other Users of Social Needs (*Official Gazette of the SFRY*, No. 65/84). When the partners agree to apply an increased rate of depreciation on fixed assets in excess of the compulsory minimum, the difference in the depreciation rates above the minimum must be covered prior to arriving at net income.

¹¹³ These obligations are: (1) national and civil defense, (2) depreciation charge in excess of the minimum stipulated by law, (3) fines not incurred by the joint venture, and (4) insurance premiums for resources of the Yugoslav partner. See *Joint Venture Law*, *supra* note 1, at art. 21.

¹¹⁴ In practice, the partners may determine the personal incomes of the workers (i.e., current labor) through limiting the percentage of the net income allocated for salaries. In this way, if the salaries exceed the agreed upon standards, the Yugoslav partner will pay the difference from his share of the joint income. The excess costs fall exclusively on the Yugoslav partner and conversely the realized savings also go to Yugoslav partner. For further discussion, see Vukmir, *supra* note 58, at 77; Čičinšain and Ellis, ed. *Doing Business with Yugoslavia — Economic and Legal Aspects*, RCCDC (Ljubljana, 1986) at 156; Milošević, *supra* note 82, at 36.

¹¹⁵ Funds for common consumption denote welfare and social and fringe benefits, i.e., funds for the operation of workers' restaurants, housing, vacations and contributions to local self-managing communities for education, health, social security, culture, recreation, etc. This collective common fund is actually an indirect tax prior to the distribution of profit.

¹¹⁶ *Joint Venture Law*, *supra* note 1, at art. 22. Under article 19 of the 1978 Joint Venture Law, *supra* note 15, the joint venture contract had to state the maximum amount of profit the foreign partner could earn. Any

Under current consideration is an amendment to the Joint Venture Law which would permit the contracting parties to stipulate the amount of taxes and contributions (i.e., common consumption fund) which would be borne by the foreign partner.¹¹⁷ If adopted, this provision could significantly enhance the foreign partner's ability to limit his contributions to benefits (other than wages) accorded to Yugoslav workers.¹¹⁸

PROFITS OF THE FOREIGN PARTNER

Once the residual net income (i.e., profit) has been determined, a tax is levied on the foreign partner's profit.¹¹⁹ In the past, taxation has varied among the various republics and autonomous provinces, with the economically less developed regions enacting lower tax rates.¹²⁰ The tax differential, however, had very little, if any, influence on foreign investors¹²¹ and thus a new tax policy was recently adopted which replaced the varying tax rates with a flat tax rate of 10% for all republics and autonomous provinces.¹²²

excess profits had to be reinvested or subtracted from the foreign partner's investment share. The present Joint Venture Law has deleted this provision and thus there is no limitation on profit.

¹¹⁷ See Second Draft Law, *supra* note 2, at art. 37 and Amendment 12, *supra* note 3, at sec. 3.

¹¹⁸ For an excellent discussion on income sharing between Yugoslav joint venture partners, see Kovačević, Milan, *Finansiranje Domaćih Organizacija Stranim Ulaganjem*, Institute for Industrial Economics (Belgrade, 1987).

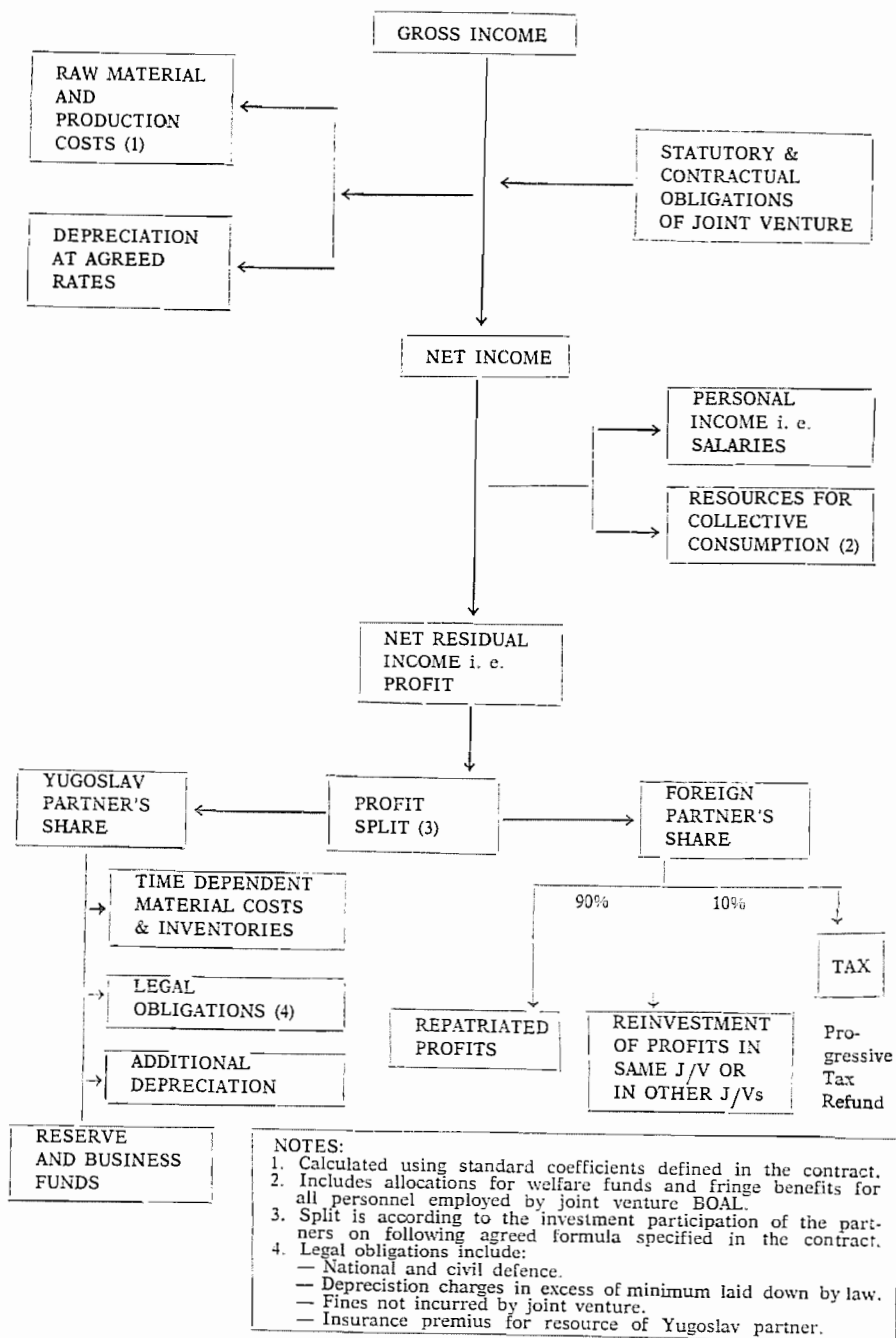
¹¹⁹ See The Law on the Taxation of Foreign Persons and The Law on Taxing Income of Yugoslav Business Organizations, which were enacted by the relevant republican and provincial governments. Yugoslavia has, to date, concluded numerous conventions on the avoidance of double taxation with respect to taxes on income and capital: Austria (1975), France (1976), Sweden (1981), Denmark (1982), The Netherlands (1984), Czechoslovakia (1984), Italy (1984), Norway (1985) and Sri Lanka (1986). Yugoslavia and the United States are presently negotiating a tax treaty. The first round of talks occurred in Washington during March 1987, and further talks are expected to be held in Belgrade later this year (1988). The conventions which have been concluded are in accordance with the OECD draft convention of 1963 and the revised draft convention of 1977. The conventions cover both taxes and contributions of Yugoslav business organizations and taxes and contributions on personal income derived from dependent personal services.

¹²⁰ Slovenia had a 35% rate; Croatia, 35%; Bosnia and Herzegovina, 20%; Montenegro, 15%; Serbia, 15%; Macedonia, 15% Vojvodina, 10%; and Kosovo, 10%.

¹²¹ Between 1968—1980 there was a negative correlation between lower rates and joint venture investments. The republics with the highest tax rates also attracted the largest number of investors: Slovenia, with a 35% rate, had 39 joint ventures; Croatia, with a 35% rate, had 31; Bosnia-Herzegovina, with a 20% rate, had 28%; and Serbia, with a 15% rate, had 42. Kosovo, which had the lowest rate of 10%, had only 2 joint ventures. See Artisien *supra* note 37, at 62.

¹²² See The Compact on the Foundation of Taxation Policy (*Official Gazette of the SFRY*, No. 61/81). All republics and autonomous provinces have signed the unified tax compact but since the compact is not obligatory, Croatia and Serbia have not yet implemented it but are expected to do so by the end of 1988.

PROFIT SHARING AND TAXATION OF FOREIGN PARTNER'S EARNINGS ACCORDING TO 1984 JOINT VENTURE LAW



There also exists a progressive tax »refund« to encourage reinvestment of the foreign partner's profit. Thus, if a foreign partner reinvests a portion of his profits in the joint venture¹²³ or deposits the proceeds in a Yugoslav bank, the tax is reduced according to the percentage of the reinvested or deposited profit.¹²⁴ This tax relief, however, is granted only if the reinvestment or deposit is made for a duration of at least five years. If the reinvestment or deposit is withdrawn prior to the five year period, then the profit will be taxed at the original rate.

The only indirect taxes paid in Yugoslavia are sales taxes and customs duties. Products sold on the domestic market are subject to a one-phase tax paid at the retail level. The tax includes a basic sales tax levied by the federal government and republican or provincial government, as well as a communal sales tax.

Custom duties are in accordance with Yugoslavia's adherence to the General Agreement on Tariffs and Trade (GATT) and are based on the principle of most-favored-nation treatment. Recently, Yugoslavia adopted new legislation on custom-free trade zones,¹²⁵ thus permitting joint ventures to freely import and export machinery, instruments, raw materials and intermediate products used in joint venture activities carried out in the zones.¹²⁶

TRANSFER OF PROFITS

The Joint Venture Law provides for the transfer of the foreign partner's profit in four different ways.¹²⁷ The profit can be transferred

¹²³ The profits can also be reinvested into another Yugoslav investment project. See *Joint Venture Law, supra* note 1, at art. 30.

¹²⁴ A minimum of 25% of the profits must be reinvested or deposited. A 25% reinvestment provides for a 15% reduction. The subsequent 25% receives a 30% reduction. The final 50% receives a 50% reduction. For example, for the first 25% reinvestment, the tax rate would be 8.5% ($10 \times .15 = 1.5$); between 25% and 50% reinvestment, the tax rate would be 7% ($10 \times .30 = 3.0$); above 50%, the tax rate would be 5% ($10 \times .50 = 5.0$).

¹²⁵ Free trade zones in Yugoslavia are governed by the Law on Free Trade Zones (*Official Gazette of the SFRY*, No. 58/85); The law on Special Conditions for the Performance of Foreign Trade Operations in Customs Free Zones (*Official Gazette of the SFRY*, No. 59/85); and The Decree on Additional Customs Control Measures and Records in Free Trade Zones (*Official Gazette of the SFRY*, No. 60/85).

¹²⁶ The Draft Law on amending the Joint Venture Law states that a joint venture in a duty-free zone which manufactures for export may, for the purpose of carrying out contractual business, and on the basis of appropriate papers, temporarily take specified capital assets and its products out of the duty-free zone and bring them back into the zone. Second Draft Law, *supra* note 2, at art. 50.

¹²⁷ The contract should provide for the transfer of profits to occur no less than 30 days from the date of approval of the annual balance sheet. During the U.S.—Yugoslav Economic Council Meeting in Cavtat (*supra*, note 99) a Yugoslav organization revealed that it gained permission from the Yugoslav Government to transfer profits to its foreign partner twice a year.

in the form of dinars,¹²⁸ through deliveries of products manufactured by the joint venture,¹²⁹ through rendering certain services which are the subject matter of the joint venture,¹³⁰ or in a foreign currency.¹³¹

The transfer of profits in dinars is more attractive for the foreign investor since the 1987 revision in the law.¹³² Prior to this change, profit transfers in the form of dinars were severely restricted.¹³³ As a result of the new provision, the foreign partner can now use the earned dinars to purchase and re-export any goods and to make payment for services which are not prohibited from being exported (e.g., military products).¹³⁴

The most common avenue of transferring profits to the foreign partner is by way of foreign exchange.¹³⁵ The transfer of profits in a foreign currency is regulated by the Law on Foreign Exchange Operations.¹³⁶ Earlier laws limited the transfer of profits to 50% of the

¹²⁸ *Joint Venture Law, supra* note 1, at art. 31.

¹²⁹ *Id.*, at art. 32. Profits can be transferred to the foreign partner through the delivery of goods manufactured by the joint venture, but only if the joint venture involves: (1) the exploration, exploitation and primary processing of crude oil, gas, ores and other minerals or (2) the production and processing of agricultural products, raising and fattening of livestock, fish farming, processing meat, fish and other livestock products, plantings of single species forests or laying out of other kinds of plantation or processing. The Yugoslav Executive Council may denote additional economic activities where the delivery of goods is permissible. The proposed changes to the Joint Venture Law include a provision which would repeal the present limitations on receiving goods produced by the joint venture. See Second Draft Law, *supra* note 2, at sec. 3.14.

¹³⁰ See *Joint Venture Law, supra* note 1, at art. 33. The Joint Venture Law does not define what services are included and thus there exist an array of possibilities, so long as the services are defined as the subject matter of the joint venture. For example, if the joint venture involves the manufacturing of equipment, the Yugoslav party could render its obligation to the foreign partner by constructing the equipment for the buyer.

¹³¹ *Id.*, at art. 30 and the Law on Foreign Exchange Operations, (*Official Gazette of the SFRY*, No. 66/85) (hereinafter cited as the »Foreign Exchange Law«).

¹³² See Resolution on Modifying Dinar Payments (*Official Gazette of the SFRY*, No. 37/87).

¹³³ Prior to the changes in the law, the transfer of profits, in the form of dinars, could occur only when the joint venture produced products which were prohibited from being exported or, by their nature, could not be exported (e.g., public utility service, bridge maintenance). The foreign partner could then use the dinars to purchase goods in Yugoslavia and re-export them, to transfer the dinars to another foreign person, or invest them in Yugoslavia. In addition, if the products of the joint venture were not subject to restrictions, the transferred dinars could only be used for non-merchandise payments and personal expenses in Yugoslavia or kept in a non-interest bearing account with a Yugoslav bank. See *Joint Venture Law, supra* note 1, at art. 31.

¹³⁴ The export of goods, however, still must be done through a Yugoslav business organization registered for export operation.

¹³⁵ The foreign exchange must be in the currency in which the foreign partner has invested resources in the joint venture. Other currencies may be transferred only upon approval of the National Bank of Yugoslavia.

foreign exchange earnings from the export of goods and services. The present Joint Venture Law allows the Yugoslav partner to utilize 100% of the foreign exchange receipts earned from the joint venture for transfer to the foreign partner. If the joint venture does not generate sufficient foreign exchange earnings to cover the foreign partner's profit, the Yugoslav partner is entitled to purchase the needed foreign exchange on the Yugoslav foreign exchange market. This remains one of the most controversial aspects of joint ventures in Yugoslavia.

Because of Yugoslavia's present balance-of-payments deficit, there remains an excess demand for foreign exchange in Yugoslavia. The 1986 Foreign Exchange Law abolished foreign exchange accounts of Yugoslav business organizations. They are bound to convert their foreign exchange earnings through commercial banks into dinars within 48 hours of receipt.¹³⁷ In times of foreign exchange shortage, which has existed since the enactment of the Law, external payments of foreign exchange were recently allocated according to priorities set forth in Article 110 of the Foreign Exchange Law. According to this article, the repayment of Yugoslavia's foreign debt had first priority while the import of consumer goods had last priority. Although the Foreign Exchange Law did not explicitly place the transfer of profits to the foreign partner as a first priority payment, the Yugoslav Government stated that such payments were to be treated in the same way as foreign debt and thus given first priority treatment.¹³⁸

In order to alleviate the many problems associated with foreign exchange allocation, the Yugoslav government, pursuant to the IMF Standby Agreement, has abolished Article 110 of the Foreign Exchange Law.¹³⁹ In its place, Yugoslavia has introduced a »quasi« free-floating exchange rate. Foreign exchange will be »freely« sold on the exchange market at a rate that will more accurately reflect supply

¹³⁶ The Foreign Exchange Law, *supra* note 130.

¹³⁷ Payment is made in such a manner that the Yugoslav business organization gives dinar payment orders to its bank. The commercial bank then debits either the firm's foreign exchange account or purchases foreign exchange on the foreign exchange market.

¹³⁸ This view has been expressed on numerous occasions, particularly at the U.S.—Yugoslav Economic Council meetings held in Cavtat in June 1986 and 1987. The basis for this position is founded in the Foreign Exchange Law, *supra* note 131, at art. 110 which reads in part: »... the Federal executive Council may lay down other purposes and different rankings for outward payments...« (emphasis added). To strengthen this position, the proposed changes in the Joint Venture Law include a provision which explicitly states that profit transfers and the repatriation of invested assets will be considered first priority payments. See Second Draft Law, *supra* note 2, at art. 34. If changes to the Joint Venture Law are adopted then the problem associated with the transfer of profits and the repatriation of invested resources will affect only those joint ventures which sell products and services on the domestic market or collect payments for exported goods and services according to the clearing system. The joint ventures which export and thus earn foreign exchange will not be affected by the priority system because they will be permitted to retain a proportion of their foreign exchange earnings (see section on Importation Rights, *supra*).

¹³⁹ This occurred at the end of May, 1988.

and demand. Nevertheless, since Yugoslavia is presently not willing to float its currency, the »market rate« will not be an auction rate. The rate will, however, be considerably closer to a true equilibrium exchange rate than was possible under the previous system.¹⁴⁰

Presently, the major concern of foreign investors is with the practical consequences of the transfer of profits. Legally the transfer of profits should occur no less than 30 days from the date of approval of the annual income statement.

Foreign investors, however, indicate that a three to five month delay in the transfer of profits is not unusual. There also exists a provision in the Foreign Exchange Law that permits the Federal Executive Council to implement temporary measures of restriction on international payments.¹⁴¹ Although this provision is not often noticed, during a recent period of balance of payments disequilibrium, foreign »assets,« including rights to profit transfers, were actually frozen.¹⁴² Although no legal foundation is given for the action, it is the author's opinion that the »temporary restriction« provision of the Foreign Exchange Law provides the necessary legal foundation.

An additional problem concerns the transfer of convertible currency to the joint venture account in a Yugoslav bank. In order to meet its obligations to internal payments (i.e., rent, salaries, etc.), the foreign partner often transfers funds (i.e., cash calls) into the joint venture account. During the 1—2 months needed to complete these internal payment transactions, no interest is paid on the account.¹⁴³

IMPORTATION RIGHTS

Another major problem caused by Yugoslavia's balance-of-payments crisis has been in the area of importation rights for the equipment, raw materials and intermediate goods needed for the joint venture. Under the Joint Venture Law, if the foreign partner invests equipment, intermediate goods or raw materials whose imports are regulated or, in the case of equipment, if it is purchased from the foreign partner's invested share, then the Yugoslav business organization may import such equipment on the basis of consent by the

¹⁴⁰ Discussions on this issue were held at the annual U.S.—Yugoslav Economic Council Meeting held in Split, June 4—8, 1988.

¹⁴¹ Article 144 of the Foreign Exchange Law, *supra* note 131, states, in part, that the Federal Executive Council may »...order a decrease in import rights for individual forms of imports and in payments rights concerning visible and invisible trade« (emphasis added).

¹⁴² In mid 1987, the Yugoslav Government froze the assets of all joint ventures in Yugoslavia. The action, which was not well publicized, was admittedly short. However, foreign partners reported that they were unable to gain access to their funds, including earned income, because then Yugoslav National Bank had designated joint venture payments as second priority payments.

¹⁴³ Provisions regulating the payment of interest on foreign exchange account are found in The Foreign Exchange Law, *supra* note 131, at arts. 73—75.

FSFER and the Foreign Trade Office, »in conformity with law.«¹⁴⁴ This consent, if given, lasts during the entire duration in which the foreign partner invests resources.¹⁴⁵

The weakness in this provision is two-fold. First, it pertains only to the foreign partner's invested share. It does not address the situation where the joint venture imports additional equipment, intermediate goods or raw materials throughout the duration of the contract. Only if the foreign partner invests equipment, intermediate goods or raw materials into the joint venture would they be allowed to be »freely« imported with the consent of the authorities.¹⁴⁶ Second, the importation of equipment, intermediate goods and raw materials must still be »in conformity with law«. Although not directly stated, it is most probable that this provision includes conformity with the foreign exchange laws and thus in addition to obtaining »rights to foreign exchange« through the priority allocation system of article 110 of the Foreign Exchange Law,¹⁴⁷ the joint venture operation must also obtain »import rights« pursuant to articles 113 to 135 of the Law on Exports and Imports of Goods and Services.¹⁴⁸ The import rights are established under certain import regimes which determine which imported products are restricted.¹⁴⁹ The crucial regime for joint ventures is the »conditionally free import« (LBO) regime which controls the importation of most raw materials, intermediary goods and equipment.

Raw materials and intermediate goods falling within the LBO regime are paid for according to the joint venture's (i.e., the Yugoslav business organization's¹⁵⁰) »right to import«. This right is calculated

¹⁴⁴ *Joint Venture Law*, *supra* note 1, at art. 53.

¹⁴⁵ *Id.*

¹⁴⁶ A crucial question is whether the funds invested by the foreign partner under article 100 of the Foreign Exchange Law are to be considered the foreign partner's funds or the Yugoslav business organization's funds. If considered the latter, then the funds would not be eligible for the »free« importation of equipment.

¹⁴⁷ Foreign Exchange Law, *supra* note 131.

¹⁴⁸ The Law on Exports and Imports, (*Official Gazette of the SFRY*, No. 00/00). (hereinafter cited as the »Law on Export and Imports«).

¹⁴⁹ Imports are structured within the framework of the following regimes: liberalized »free« imports (LB), conditionally liberalized imports (LBO), imports and exports subject to quotas (K), and imports (and exports) subject to permit (D). The »LB« regime covers goods which are not produced in Yugoslavia in sufficient quantities such as medical equipment, spare parts, energy products and some consumer goods such as foreign publications. The »LBO« regime is discussed in the above text. The »K« regime is designed to protect domestic production and limit the demand for foreign exchange. It primarily covers certain raw materials, crude oil and many capital goods. The Federal Executive Council fixes the volume of imports and exports subject to quotas. The quotas are then allocated to Yugoslav business organizations through the Yugoslav Chamber of Economy. The »D« regime is structured to ensure effective control over trade in goods subject to international treaties (i.e., coffee, cocoa, narcotics, etc.) as well as military equipment, historical and artistic work and precious metals.

¹⁵⁰ Since a joint venture must be registered as an Organization of Associated Labor (i.e., a BOAL, a work organization, or a composite organization), with a share of foreign capital, regulations aimed at controlling imports are directed at the Yugoslav business organization.

through an elaborate procedure which determines the firm's »socially-recognized production needs«.¹⁵¹ Essentially, the »right to import« is given priority to the firms which realize greater exports and foreign exchange inflow than imports and those which implement programs for »joint development«¹⁵² and »joint exports«¹⁵³

The right to import equipment is determined within the formula of the computed depreciation of equipment, export earnings, »the need to modernize the production which replaces imports of specific raw materials«, and the need to develop joint investments.¹⁵⁴

Although the Yugoslav government has stated that the importation of inputs for joint ventures would not be hindered, the practical experience of joint ventures has indicated problems with acquiring both »import rights« and the needed foreign exchange for the importation of equipment, raw materials and intermediate goods. This problem even occurs for those joint ventures which are foreign exchange earners. Since all foreign exchange must be converted into dinars through Yugoslav commercial banks, these joint ventures must also obtain import and foreign exchange rights from the bank in order to receive foreign exchange to import needed equipment, raw materials, and intermediate goods.

Considering that foreign investors tend to view joint ventures as an avenue for gaining access to the Yugoslav market rather than for export-oriented production,¹⁵⁵ less emphasis is being placed on the

¹⁵¹ See the Foreign Exchange Law, *supra* note 131, at art. 114 and the Law on Exports and Imports, *supra* note 148, at art. 116.

¹⁵² Joint development programs are a new approach to social planning in Yugoslavia and the basis for such programs are found in the Law on the Foundations of the System of Social Planning (Official Gazette of the SFRY, No. 00/00) and the Social Plan of Yugoslavia for the Period 1986—1990. Joint development programs are agreements by which Yugoslav business organizations mutually undertake obligations towards export-oriented programs, programs in the energy sector and programs aimed at import substitution. Joint development programs are assessed and approved by the Yugoslav Chamber of Economy. Recently, the Chamber designated export-oriented joint development programs (i.e., programs with net foreign exchange earnings of at least 50 million dollars a year) as having priority over all other joint development programs. The special measures for joint development programs include: (1) a reduction in or exemption from customs duties and other import dues levied on imports of equipment and spare parts not produced in Yugoslavia, (2) the granting of importation and payment rights for participating Yugoslav business organizations and (3) the use of funds from commercial banks at more favorable interest rates. Examples of export-oriented joint development programs include: Jugo-Zastava cars, metal and wood working machine tools, domestic appliances, and prefabricated houses.

¹⁵³ See the Foreign Exchange Law, *supra* note 131, at art. 125.

¹⁵⁴ The Law on Exports and Imports, *supra* note 148, at arts. 116 and 124.

¹⁵⁵ This view is supported by direct discussions with joint venture partners and Artisien's study which shows that joint venture production predominantly serves the Yugoslav market. See Artisien, *supra*, note 37, at 157. Study by M. Svetličič, *Skupna Vlaganja S Tujimi Partnerji*, (paper presented at the Slovenian Economic Association meeting, Portorož, March 9—11, 1988) confirmed this finding.

export capabilities of joint ventures. Since the Joint Venture Law no longer obligates the joint venture to earn foreign exchange through exports,¹⁵⁶ this trend will likely continue,¹⁵⁷ unless the current problems of obtaining import rights and foreign exchange persist in which case joint ventures will be forced to export. It is certain, however, that joint ventures can expect to face further difficulties in obtaining both »import rights« and foreign exchange.

Consequently, foreign investors are looking for ways to circumvent the current foreign exchange shortage. Recently, the trend has been away from joint venture contracts¹⁵⁸ and towards a greater reliance on long-term coproduction agreements,¹⁵⁹ which are not subject to limitations of the foreign exchange laws,¹⁶⁰ and towards straight compensation transactions.¹⁶¹

¹⁵⁶ Under earlier laws, the amount of foreign exchange that could be used for transferring profits or repatriating capital was 7% of total export earnings. In addition, the foreign partner was required to reinvest 20% of his profits or deposit the amount with a Yugoslav bank. See The 1967 Joint Venture Law, *supra* note 37. In 1971, the repatriation quota was increased to 33% of total export earnings. See The 1971 Amendments (*Official Gazette of the SFRY*, No. 34/71). In 1978, the quota for profit transfers was increased to 50%, except in Kosovo where all of the profits could be transferred through acquired foreign exchange. See The 1978 Joint Venture Law, *supra* note 15.

¹⁵⁷ Because of Yugoslavia's inflation rate (presently at 150%), the monopolistic and oligopolistic status of most Yugoslav firms, and the existing disincentive to export, the Yugoslav domestic market represents a highly attractive and lucrative alternative to exporting. For these reasons, foreign partners are pressing for exemptions on price controls over their products. In fact, in the proposed draft joint venture law there is a provision which states that »prices of joint venture products and services may not be regulated«. Second Draft Law, *supra* note 2, at art. 12.

¹⁵⁸ In the Republic of Croatia, the number of newly signed joint ventures declined from 30 in 1979 to 18 in 1985. Source: The Chamber of Commerce of Croatia.

¹⁵⁹ In the Republic of Croatia, the number of newly signed long-term coproduction agreements, increased from 42 in 1980 to 120 in June of 1986. Source: *Id.* For the complete text of the law see The Long-term Coproduction Law, *supra*, note 39.

¹⁶⁰ Long-term coproduction agreements are also exempt from the requirements of obtaining import rights. Thus, it is common to find a long-term coproduction agreement incorporated into the joint venture contract.

¹⁶¹ The term »compensation transaction« is used to denote the exchange of goods and services without foreign exchange transfer (i.e., countertrade transactions, barter transactions, counterdelivery transactions). Compensation transactions are regulated by the Law on the Exchange of Goods and Services with Foreign Countries (*Official Gazette of the SFRY*, No. 66/85, article 31); The Foreign Exchange Law, *supra* note 130, at articles 52, 39 and 135); The Decree on Compensation Transactions (*Official Gazette of the SFRY*, No. 73/85); and the Decree on Conditions under which the Export of Goods and Services can be Negotiated with Payments in Goods (*Official Gazette of the SFRY*, No. 73/85). An example of the use of countertrade operations is the U.S. company Combustion Engineering Co. (CE). CE has a countertrade obligation of 180 million dollars as a result of its participation in the Kolubara power station. The countertrade obligation is over a 10—15 year period and involves a four stage approach. First, CE is working to offset its obligation by finding buyers for Yugoslav commodities. Second, CE will be purchasing goods for its own use. Third, CE will

As a result of the detrimental effects of the foreign exchange regulations on joint ventures, Yugoslav officials are contemplating changes in both the Foreign Exchange Law and the Joint Venture Law which would permit joint ventures to use part of their foreign exchange inflow for their own needs. Foreign exchange earned from a joint venture in the field of »industry and mining« could be maintained in a Yugoslav bank account¹⁶² and up to 70% of the foreign exchange could be freely expended for the needs of the joint venture. For other sectors of the economy, 30% of the earned foreign exchange could be maintained in the account. In accordance with the proposed changes to the Foreign Exchange Law and the Joint Venture Law, the funds held in this type of an account would not be included in Yugoslavia's central bank's calculation of Yugoslavia's total foreign exchange holdings. Thus, the joint venture could freely use these funds and would not be required to obtain foreign exchange rights. If the firm needed additional foreign exchange, then it would be required to follow the existing system for the allocation of foreign exchange. The firm's remaining foreign exchange earnings would be sold on the Yugoslav foreign exchange market.¹⁶³ It has been proposed that the sale would take place within a »two-tier« exchange rate system whereby the present »official« exchange rate market would be accompanied by a parallel »free« market in which the price for the sold foreign exchange would be determined by supply and demand.¹⁶⁴

Even more significant is the proposed amendment which would permit the joint venture to maintain these funds in a foreign bank account and, therefore, outside the regulatory perimeters of the Yugoslav Central Bank.¹⁶⁵ In addition, the foreign partner's initial investment, if it exceeds one-fourth of the total joint venture investment, could be kept in a foreign bank.¹⁶⁶

Nevertheless, even with the liberalized provisions regulating the possession of foreign exchange, the joint venture would still be impeded by the necessity to obtain import rights. There were earlier discussions about revising the present law to allow the joint venture

locate foreign firms who will purchase and/or market the engineering products of its Yugoslav partner. Finally, CE has entered into a joint venture to produce engineering products which will be marketed to third countries. It should be noted, however, that »compensation transactions« must adhere to the prescribed regimes governing imports and exports.

¹⁶² Interest on this account would be paid in a foreign currency.

¹⁶³ See Second Draft Law, *supra* note 2, at 31.

¹⁶⁴ See *Politika*, 30 August 1987, p. 7., and G. Nikić, *Structural Adjustment and Exchange Rate Policies*, paper presented at the International Conference on the World Debt, Zagreb, Yugoslavia, September, 8–11, 1987. These changes are being proposed by the republics of Croatia and Slovenia, which stand to gain a great deal by a more liberalized foreign exchange system because of their prominence in earning foreign exchange. Notwithstanding, the political division between Yugoslavia's »North« and »South« is so embedded that any substantial change in the allocation of foreign exchange between the different republics of Yugoslavia will be very difficult to accomplish.

¹⁶⁵ See Second Draft Law, *supra* note 2, at sec. 3.

¹⁶⁶ *Id.*, at art. 33.

to freely utilize its own foreign exchange earnings to import the equipment, raw materials and intermediate goods needed for the operation of the joint venture.¹⁶⁷ This provision, however, does not seem to be acceptable because only joint ventures would be accorded this privilege. Yugoslav firms would still be obligated to obtain the necessary »import rights«.¹⁶⁸ Consequently, the proposed changes to the Foreign Exchange Law by the Yugoslav Government envision only an increase in import rights (i.e., »socially recognized production needs« as described in article 97 of the Foreign Exchange Law) and a greater access to foreign exchange, *when available*. The Government proposes to fix a percentage of the projected foreign exchange proceeds which would be reserved for priority payments in accordance with the »socially recognized production needs« of the firm. Although the reserve would be greater for net exporters than for net importers, the amounts of foreign exchange sought by the firm could not exceed the actual inflow of foreign exchange by the firm. In addition, both the right to import and the priority in foreign exchange payments would still be contingent on the amount of projected foreign exchange proceeds for Yugoslavia as a whole.

There is also a proposed provision which would permit the joint venture to import equipment without paying customs duty or other import taxes, so long as the joint venture is for a minimum of 7 years and the foreign partner's share of the total investment in the joint venture exceeds one-fourth.¹⁶⁹

REPATRIATION OF RESOURCES

The foreign partner is entitled to repatriate the remaining value of his invested resources.¹⁷⁰ The Joint Venture Law permits the contracting parties to decide on the mode and value of the returned resources. Repatriation may occur upon the expiration or termination of the contract,¹⁷¹ or successively during the validity of the contract.¹⁷²

¹⁶⁷ Under the current law, there is a provision which would allow the importation of needed material rights, equipment, raw materials and intermediate goods to be paid for with foreign exchange earned from the joint venture's current business. There exists confusion as to whether the joint venture would still be obligated to obtain import rights. The First Draft Law on Joint Ventures, (FCEL, working group, Belgrade, July, 1987), did not mention the requirement. The Second Draft Law, *supra* note 2, at art. 33, states that the importation of these goods would be »subject to a Yugoslav import regime«.

¹⁶⁸ This concern may be alleviated if the new Joint Venture Law requires joint ventures to obtain the necessary import rights. On the other hand, such a provision would seriously undermine Yugoslavia's desire to attract foreign partners into joint ventures.

¹⁶⁹ Second Draft Law, *supra* note 2, at art. 36. In case of the premature cancellation of the joint venture, the joint venture would be obligated to pay customs duty and other import taxes.

¹⁷⁰ *Joint Venture Law*, *supra* note 1, at arts. 25, 28 and 40.

¹⁷¹ *Id.*, at arts. 39 and 40. Usually upon termination of the contract, the total assets of the joint venture are converted into a loan. Repayment occurs over an agreed period with interest.

Of two ways in which the value of the foreign partner's investment can be determined, the first approach involves income generation. The evaluation of resources invested by the foreign partner in relation to the resources' nominal value is determined by the income generated through the joint venture. The generated income of the joint venture is partially result of contributions by the foreign partner in the form of increased productivity through technical advancement, increased production efficiency, greater involvement in international markets, etc., all of which add to the income of the joint venture.¹⁷³ Thus, the foreign partner's contribution towards the generated income of the joint venture becomes the basis for evaluating the foreign partner's invested resources in the joint venture.¹⁷⁴ The foreign partner's share would be calculated through the use of a multiplier, reflecting the foreign partner's contributions to the average profits for the joint venture over the relevant number of years. The foreign partner then has the right to withdraw the invested resources in the amount remaining, if the value has been refunded in part, or at a higher (lower) amount depending on the success of the joint venture.

The parties may also determine the value by maintaining a separate account statement (i. e., evidence account).¹⁷⁵ The account will show the final result of the full depreciation and the value of the assets not written off. This account also makes possible the revaluation of the foreign partner's nominal share. The nominal value of the foreign partner's assets must be agreed upon in advance. The value can be designated in dinars. To date, however, nearly all of the joint ventures which maintain an evidence account designate the value of the invested assets in either a foreign currency or a dinar/foreign currency valuation which is periodically (usually every 3 months) revalued to account for exchange rate fluctuations.¹⁷⁶ It is this calculation, however, that accounts for considerable difficulties for the foreign partner. Both Yugoslav and foreign officials have indicated that there is little problem in calculating the »book value« or »replacement value« of the foreign partner's invested resources. The major problem is with determining the proper method of obtaining the present »mar-

¹⁷² *Id.*, at art. 40. This approach takes place over stages with complete repatriation occurring on or after the effective date of termination. For instance, the contract may provide for full payment to occur within three years, payable in six equal and consecutive semi-annual installments at the interest rate of x%.

¹⁷³ See Milošević, *supra* note 82, at 42.

¹⁷⁴ Article 39 sec. 3 of the Joint Venture Law states that »the foreign person shall be entitled to the return of the resources invested... in an increased or decreased amount depending on the income generated by the joint venture and exports«.

¹⁷⁵ See Section on Evidence Accounts, *supra*.

¹⁷⁶ The GM joint venture signed in 1977 still maintains the value of the invested assets at 18 dinars to 1 dollar. The Yugoslav government, however, has assured the company that a realistic revaluation of the assets will be allowed under the current provisions of the Joint Venture Law. Source: OPIC meeting, *supra*, note 49.

ket value« of the assets.¹⁷⁷ Yugoslav officials, however, have recently stated that any reasonable formulation of the present value of the assets would be acceptable.¹⁷⁸

The foreign partner's share of resources is refunded in the amount equal to »the value of invested resources up to the level of claims in the evidence account«. ¹⁷⁹ This provision does not restrict the method of revaluation and seems to provide considerable latitude in negotiating the conditions for establishing the final value of the foreign partner's share. It is the opinion of the author that the partners are able to agree on any method of valuation which would account for the fluctuation in the market value of the foreign partner's share. Thus, if the business venture is successful, repatriation will include the »increased« value of the nominal investment. On the contrary, a poor performance will lead to a »reduced« value.

A clarification of this point is presented in the Draft proposal for amending the Joint Venture Law.¹⁸⁰ If adopted, the amendment would allow the joint venture partners to determine the »final result« of the joint venture operation through international accounting standards.¹⁸¹ The investors would gain the right to share in the »real net value of the joint venture's assets«. ¹⁸² Thus, relying on a »market value« criterion (including the concept of »goodwill«) for determining the value of the foreign partner's repatriated assets would most likely become the accepted accounting method.

The return of the value of resources invested by the foreign partner may be affected in four ways. First, the contract may provide for repatriation in the form of dinars.¹⁸³ These funds can be used for purchasing goods in Yugoslavia,¹⁸⁴ for investing in Yugoslavia, for payment of services rendered, for transfer to other foreigners, or for any internal payments in Yugoslavia.

¹⁷⁷ An example would be if the foreign partner's initial investment was 100 dollars with an annual depreciation rate of 10%. Thus, after 5 years the replacement value of the asset would be 50 dollars. If there was an additional investment in the asset of 10 dollars, then the replacement value would be 60 dollars. However, the fluctuation of the market value of the asset will result in a different »final« valuation of the asset.

¹⁷⁸ The Yugoslav officials, however, did not confirm that the western accounting method of »goodwill« in a tourist project would be acceptable. Source: OPIC meeting, *supra* note 49. There is another opinion which holds that pursuant to article 39 of the Joint Venture Law, the partners can formulate a method for including the concept of »goodwill«, so long as the term »goodwill« is not used. See Barbić, *supra* note 20.

¹⁷⁹ *Joint Venture Law*, *supra* note 1, at art.

¹⁸⁰ See Second Draft Law, *supra* note 2, at sec. 3.10.

¹⁸¹ If the parties to the agreement stipulate that profit and loss shall be calculated according to international accounting standards, they shall provide within the agreement sources for covering any loss arising as a result of applying those standards. See Second Draft Law, *supra* note 2, at art. 29.

¹⁸² *Id.*, at art. 47.

¹⁸³ *Id.*, at art. 41.

¹⁸⁴ Products may be exported by the foreign partner through a Yugoslav business organization registered for export operations and in conformity with regulations pertaining to exports from Yugoslavia.

Secondly, repatriation may be in the form of a delivery of products that have been the subject matter of the joint venture, if the joint venture is involved in specific areas of processing.¹⁸⁵

Thirdly, the joint venture contract may permit the foreign partner to repatriate his invested resources through the performance of services which are the subject matter of the joint venture.¹⁸⁶

The final and most frequently provided method for returning invested resources involves the transfer of the value of resources through a convertible currency. As with the transfer of profits, The Foreign Exchange Law governs the repatriation of invested resources.¹⁸⁷ The law explicitly allows for the »free« transfer of the respective dinar resources into a convertible currency.¹⁸⁸

Individual items of movable property »invested« by the foreign partner may be repatriated as well. The property may either be valued, as any other invested asset would be, and included in the total share of the joint venture or the right of ownership and the property itself may be returned. The former option may cause difficulties for the foreign partner if, at the expiration or termination of the joint venture, there are insufficient funds to cover the joint venture's commitments. In that case, the value of the foreign partner's invested property can be reduced by a proportional amount of the debt. Nevertheless, since the Joint Venture Law allows for the premature termination of the contract if losses occur over two consecutive years,¹⁸⁹ it is unlikely that the foreign partner's entire investment would be used to cover the losses. The latter option, however, would provide protection to the foreign partner since the property would not be considered part of the foreign partner's investment in the joint venture.

There is also a provision in the Law which allows the foreign partner's invested equipment, even when included as part of his invested share, to be repatriated in kind rather than in value. Article 38 of the Joint Venture Law states that the contract may provide for the right of the return of the »specific things« invested by the foreign partner. This would include tangible assets such as equipment.

CONCLUSION

In light of Yugoslavia's current debt crisis and its growing technological gap, joint ventures must play an increasingly important role in the acquisition of needed foreign exchange and modern technology.

¹⁸⁵ *Joint Venture Law, supra* note 1, at art. 42. The areas of processing are identical to those areas which pertain to the transfer of profits. See *supra* note 129.

¹⁸⁶ *Joint Venture Law, supra* note 1, at art. 42. This provision, which has been recently incorporated into the Joint Venture Law, has been made along the same lines as the provisions of the newly introduced article 33 of the same law. See *supra* note 130.

¹⁸⁷ The Foreign Exchange Law, *supra* note 131.

¹⁸⁸ *Id.*, at art. 139.

¹⁸⁹ *Joint Venture Law, supra* note 1, at art. 13.

Although the continuing liberalization of the Joint Venture Law has been a welcome development, the changes have been slow in execution and relatively inconsequential, particularly when compared with joint venture opportunities in other developing and socialist countries.

Foreign investment in Yugoslavia through joint ventures has always been modest. During the past 18 years, only \$1 billion has been invested in Yugoslav joint ventures by foreign investors, in approximately 340 joint ventures. In comparison, during the past four years, China has concluded over 3,200 joint ventures.

The somberness of both the foreign investor's reluctance to participate in Yugoslav joint ventures and Yugoslavia's present economic crisis should be persuasive reasoning for a significant liberalization of the present Joint Venture Law. In fact, from a preliminary view, the current proposed amendments to the Joint Venture Law, the Constitution and the Associated Labor Act envision some important changes in relation to foreign investment in Yugoslavia. The pivotal point, however, is to what degree will these proposed changes be incorporated into law.

Unfortunately, one cannot be too optimistic about the amendment process. Already, the Federal Committee on Legislation has rejected the proposed changes in the Joint Venture Draft as being unconstitutional. The Committee based its decision on article 27 of the Yugoslav Constitution which guarantees Yugoslav workers in a joint venture the same »socio-economic and other self-management rights« as Yugoslav workers in domestic firms. Thus, the Committee held that the proposed changes governing the workers of the joint venture would infringe upon the constitutional rights of the workers. The Committee's position is that the Constitution must first be amended, followed by changes in the Joint Venture Law.

Notwithstanding, even with the adoption of all the proposed changes, Yugoslavia's investment climate would still be sufficiently encumbered in relation to the relatively unrestricted foreign investment environment in other developing and socialist countries. Nevertheless, the ratification and full implementation of all the proposed amendments would represent a significant step in Yugoslavia's desire to attract foreign investment.

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STRANA ULAGANJA U JUGOSLAVIJI
— PRIKAZ ZAKONA O ZAJEDNIČKOM ULAGANJU
SA AMANDMANIMA I PREDLOŽENIM IZMENAMA

Mark S. ELLIS

Re z i m e

U kontekstu tekuće dužničke krize i rastućeg tehnološkog jaza, zajednička ulaganja mogu biti od izuzetnog značaja u obezbeđivanju neophodnih deviznih sredstava i moderne tehnologije. Mada se liberalizacija Zakona o zajedničkim ulaganjima povoljno razvijala, promene su bile spore i nekonzistentne, posebno u poređenju s praksom u ostalim socijalističkim zemljama u razvoju.

Strane investicije u Jugoslaviji putem zajedničkih ulaganja oduvek su bile skromne. Tokom proteklih 18 godina strani ulagači investirali su samo jednu milijardu dolara kroz oko 340 zajedničkih ulaganja. Poređenja radi, u proteklih pet godina Kina je zaključila preko 3.200 ugovora o zajedničkom ulaganju.

Odsustvo interesa stranih investitora za zajednička ulaganja, kao i tekuća ekonomska kriza, ubedljivi su razlozi za značajnu liberalizaciju Zakona o zajedničkim ulaganjima. U stvari, sa preliminarnog stanovišta predloženi amandmani na Zakon o zajedničkim ulaganjima, Ustav i Zakon o udruženom radu, predviđaju neke značajne promene na planu stranog investiranja u Jugoslaviju. Najznačajnije je, ipak, u kom stepenu će predložene promene biti inkorporirane u zakon.

Na žalost, ne može se suviše biti optimista oko čitavog procesa uvođenja amandmana. Savezni komitet za pravosuđe već je odbacio kao neustavne predložene promene u Nacrtu zakona o zajedničkim ulaganjima. Komitet je odluku doneo na osnovu člana 27. Ustava, koji jugoslovenskim radnicima u zajedničkom ulaganju garantuje jednaka »društveno-dužnička i ostala samoupravna prava« kao i korisnicima u domaćim preduzećima. Na taj način, Komitet je bio mišljenja da predložene promene zadiru u ustavna prava radnika angažovanih u zajedničkim ulaganjima. Stav Komiteta je da promene Zakona o zajedničkim ulaganjima mogu uslediti tek nakon ustavnih promena.

Čak i ako sve predložene promene budu usvojene, investiciona klima u Jugoslaviji još uvek će biti nepovoljna u poređenju sa slobodnim okruženjem za strana ulaganja u ostalim socijalističkim i zemljama u razvoju. Ipak, ratifikacija i puna implementacija svih predloženih amandmana predstavljaju značajan korak u privlačenju stranih investicija.

REGIONAL DIFFERENTIATION OF DEVELOPMENT LEVEL
AND EFFICIENCY OF GROWTH*

Marta BAZLER-MADŽAR**

INTRODUCTION

One of the major components of Yugoslav development policy is the development policy for the less developed republics and provinces. Stemming from profound regional disparities and affecting a large share of the population and territory, as well as substantial resources, it has undergone numerous changes in conformity with the changes in the socio-economic system.¹ The present system of incentives through the Federal Fund for Crediting Less Developed Republics and the Province of Kosovo operates since 1965. It is based on a division of republics and provinces into developed (Slovenia, Croatia, Vojvodina, Serbia Proper) and less developed (Montenegro, Bosnia-Herzegovina, Macedonia and Kosovo); on allocation of considerable resources (some 1.5—2 per cent of the social sector economy's GSP over various five-year periods) and on an increasing share of resources that are directly pooled between donors and recipients. The upward trend observed in the volume of these resources implicitly confirms what is now generally recognized — that more efficient investment is necessary in less developed areas.

The policy of stimulating the development of less developed areas has yielded major result in the development of these regions. However, the two decades and more over which the present system has functioned have failed to reverse the status of any of the underdeveloped areas. Together with the expressly one-sided official classification, this suggests that the above-mentioned division is inadequate for running regional policy. It fails to reflect the present socio-economic reality as it classifies all areas into one or the other extreme group.

* This paper is an excerpt from broader research which is under way and which constitutes part of the medium-term programme of the Republican Community of Interest for Science of Serbia for the period 1986—1990.

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¹ These issues are discussed by M. Bazler-Madžar (1974) and B. Horvat (1981); detailed information can be found in the study *Razvoj privredno nedovoljno razvijenih područja u Jugoslaviji* (Development of Economically Underdeveloped Regions in Yugoslavia, (1987).

With all this in view, the aim of this paper is to present the differences in development level and pattern between republics and provinces, through analysis of the present regional differentiation and by using a comprehensive empirical base. Secondly, within the established differences, the paper aims to point out the differences in development efficacy and justify the notion that they are caused by the development level and structure of republics and provinces. In studying these objectives, the analysis is restricted to areas that constitute a base for adequate policy at the level of the Yugoslav economy (republics and provinces) and on the system of assistance provided through the Federal Fund, so that efficiency of growth has been studied for the 1965—1985 period.

I DEVELOPMENT DISPARITY OF REPUBLICS AND PROVINCES

The study of regional disparities assumes that theoretical articulation of development is a multidimensional phenomenon and factor analysis is the main classification method.² In this case, multidimensionality of development translates into a study of three broadly defined criteria. They are: development of productive forces, economic effects of productive forces and development of personal and social standards. As the criteria are expressed as indicators, 20 indicators were used to show the development criteria (dimension), as well as to illustrate overall socio-economic development.³ Development level of productive forces is represented by the following indicators: (a) proportion of non-agricultural in total population, (b) proportion of employed in population able for work, (c) proportion of literate in the population aged 10 years and older, (d) fixed assets per active inhabitant, (e) development of transport network (Engel's formula), (f) number of people engaged in manufacturing per 1,000 active population, and (g) unemployment ratio (reverse form).

The following indicators were used in the analysis of economic effects: (a) overall productivity level (social product per economically active person), (b) social product in manufacturing per head employed in manufacturing, (c) social product per capita, and (d) social product in non-agricultural sectors per head of non-agricultural population.

The welfare development dimension encompasses the following indicators: (a) number of telephone subscribers per 1,000 inhabitants, (b) number of radio and TV subscribers per 1,000 inhabitants, (c) number of passenger vehicles per 10,000 inhabitants, (d) expenditures (without transfers) of non-economic activities per capita, (e) fish and

² Details of these aspects of the analysis and on the ensuing results can be found in M. Bazler-Madžar, M. Bogdanović (1987).

³ Selection of development indicators as representatives of particular criteria is presented in M. Bazler-Madžar, S. Bolčić, Č. Očić, J. Tomaš-Jurišić (1978), so that the same indicators, referring mainly to 1984 and 1985, are used for comparison.

meat consumption per household member, (f) proportion of dwellings with bathrooms, (g) retail trade turnover per capita and (h) average lifespan.

All the above-mentioned indicators (20) are used for studying overall socio-economic development.

Certain data on the indicators used suggest the existence of substantial regional disparities. For example, between the extremes of Slovenia and Kosovo the span is over 7 for social product per capita and for the unemployment ratio, which is a specific indicator, it is the largest individual span. Individual distances and trends prompt several relevant conclusions. First of all, disregarding for the time being the significance of particular indicators, development level depicted by these indicators suggests that disparities are least for the productive forces. It also shows that a certain narrowing of span has been recorded for five out of eight indicators used. Furthermore, in view of the smaller number of indicators for the effect of productive forces, it cannot be explicitly asserted that differences are significantly different than within other dimensions. However, since the comparison of elements of productive forces effects shows significant disparities, with relative differences increasing over time for all indicators, this dimension requires an analysis of its own. As for the welfare dimension, the spans differ, including various disparities, large as e. g. in social product per capita as well as small ones such as in the literacy ratio. Considering the asymmetric feature of this criterion and the fact that differences are being reduced for most of the indicators, it is obvious that a separate analysis of this dimension is necessary as well.

Differences in Development Level

Application of factor analysis to development dimension and to overall development (major component method, i. e. score of the dominant factor F_1) suggests the following inter-regional distances. First, Slovenia clearly stands out at one end and Kosovo somewhat less conspicuously at the other end of the overall development scale, which is confirmed through the relations by dimensions. Second, three areas (Slovenia, Croatia and Vojvodina) stand above the average, rating on all three dimensions above the Yugoslav average. The above average position of Montenegro (productive forces) or the territory of Serbia Proper (welfare) does not translate into overall development, because it seems that indicators of economic effects are those which influence the factor values of the whole.

Due to small differences in factor scores the fourth place of Montenegro and the fifth place of Serbia Proper, with previously established differences by dimensions, suggest a similarity of the overall development level. As Bosnia-Herzegovina and Macedonia rank sixth and seventh on the overall development list, this indicates that they cannot be observed separately either. Their mutual position arises from the place they occupy within all three observed dimensions.

Differences in economic effects are obviously not of such a magnitude that can ensure a separate place for each of these regions. The established relations should be explained in more detail, both through the dominant factor score and through the analysis of regional similarity (cluster analysis).

Beginning, first, with the distances resulting from the dominant factor, one gets an insight into the levels on a specific development scale. As already pointed out, an above-average position both in terms of their overall development, and by individual development dimensions, is occupied by Slovenia, Croatia and Vojvodina. The values for Slovenia for overall development, productive forces, economic effects of productive forces and welfare are 1.934, 2.054, 1.876 and 1.773 respectively. The other two developed regions have a much smaller values, i. e. 0.566, 0.557, 0.489 and 0.470 (Croatia) and 0.348, 0.147, 0.492 and 0.470 (Vojvodina).

Slovenia has a quite unique position. Deviations in this area are greater than in any other observed region. It has very little similarity with other areas. In terms of productive forces it joins other areas in the last (seventh) iteration, in terms of economic effects and welfare in the sixth and fifth, while its link with other areas in terms of the overall development is established in the next-to-last (sixth) circle.

Croatia and Vojvodina exhibit similar scores for the dominant factor. As already pointed out, they occupy practically the same place in terms of economic effects, while in all other aspects Croatia surpasses Vojvodina. The differences between these areas are most conspicuous in the level of productive forces. In spite of this, their development pattern contains certain clear similarities. Pronounced similarity (level 1) is evident not only in productive forces and overall development, but also in welfare (level 2). Only in terms of effects they appear jointly after joining other areas at level 5.

In contrast with the previously discussed group, which demonstrates clearly determined relations and similarities, the group encompassing Serbia Proper, Montenegro, Bosnia-Herzegovina and Macedonia does not feature clear distinctions. Falling mainly below the Yugoslav average, with the exception of Montenegro in terms of productive forces and Serbia Proper in terms of welfare, and often showing similar distances on the basis of the dominant factor, as well as mutually less pronounced deviations, their similarities and differences deserve a more elaborate explanation. Serbia Proper shares its position in terms of productive forces (-0.517) with Bosnia-Herzegovina and Macedonia, and in terms of economic effects (0.400) and welfare (0.089) it stands before other areas. The second place of Serbia Proper in this group by the overall development level (-0.155) actually means that it shares the same ranking with Montenegro, due to close factor scores. As for Montenegro, in addition to sharing the same position in overall development (-0.128) it occupies the first place in this group in terms of productive forces (0.070), second in economic effects (-0.186) and welfare (-0.279). Bosnia-Herzegovina and Macedonia rank equal by all development elements as well as by the overall development level. Their characteristic values are -0.504 , -0.521 ,

-0.571 and -0.650 (Bosnia-Herzegovina) and -0.532 , -0.501 , -0.541 and -0.546 (Macedonia).

These relations are largely corroborated by the cluster analysis. Productive forces join Bosnia-Herzegovina and Macedonia in step 4, Serbia Proper in step 5, and Montenegro in step 6. Similarities in economic effects between Bosnia-Herzegovina and Macedonia appear at level 1, joined by Serbia Proper at level 2, while Montenegro levels with them only in step 5, after joining other regions. While great similarities are apparent in terms of welfare (Bosnia-Herzegovina and Macedonia — level 1, Serbia Proper — level 3), by the composition of this dimension Montenegro is explicitly the least similar area (level 7). Relations in terms of the overall development are in line with these findings and confirm the joining of Montenegro in the last iteration. Serbia Proper joins Vojvodina and then Croatia, Macedonia and Bosnia-Herzegovina join this group as well.

It is common knowledge that Kosovo is the other extreme area on the development scale. This is confirmed by the respective factor values: -1.286 , -1.489 , -1.627 and -1.479 . Method of major components also leads to the conclusion that it will join other areas at a later stage. While it exhibits a lot of similarities with Bosnia-Herzegovina in the development of productive forces (level 3), it differs the most from any other area in economic effects (level 7), somewhat less as far as welfare is concerned (level 6), and in the complex analysis of the development degree and pattern joins other areas at level 5.

Classificatory Scheme of Republics and Provinces

Following the results of development level study, including the analysis by dimensions, the areas can be classified into three broad groups. The group of developed regions encompasses Slovenia on the one side, and Croatia and Vojvodina on the other. The group of regions at medium development level comprises Serbia Proper, on the one side, and Bosnia-Herzegovina, Macedonia and Montenegro, on the other. Kosovo, alone, is in the group of underdeveloped regions.

It is obvious that all the essential features of a developed region do not equally apply to Slovenia, Croatia and Vojvodina. These major characteristics which are reflected in the completion of the intensive phase of industrialization, a diversified industrial structure, a relatively minor important place for agriculture, a large share of the secondary and tertiary sectors, in short, in an elaborate production structure with all its implications for employment and social development, are most conspicuous in Slovenia. Here we have a region which has attained a high level of industrial maturity. That Slovenia has the least development features in common with the other regions is warranted by all the findings associated with the categorization according to similarity. As confirmed by the analysis referred to earlier, Slovenia as a rule joins the entire host of other regions only in the final iterations.

The distinctly separate place of this area is corroborated not only by all the results of investigation, but also by the fact that almost all indicators for Slovenia greatly exceed those for Croatia or Vojvodina. It has an economy which employs 66.6 per cent of the population able for work, with no apparent unemployment problem. Slovenia even engages work forces from other republics. The number of people employed in the social sector per 1,000 active (824) is impressive indeed, illustrating the very favourable structure of this important contingent. On the other hand, the proportion of agricultural workers in the total population (9 per cent) is exceptionally low. If we add to this the outstanding results achieved in both agriculture and the social-sector economy, despite a lower capital/labour ratio, it follows that the effects of the economic structure combined with the broader effects of productive forces contribute to the characteristic, distinct place of this region.⁴

Among the developed areas, Croatia and Vojvodina make up a separate group, with similar although fluctuating ranking by specific indicators.⁵ These regions do not exhibit the pronounced features of a developed area as much as Slovenia does. As has been pointed out, they demonstrate similar deviations from the Yugoslav average in terms of the effect of activated productive forces. Whether above-average effects result from a more favourable structure of the economy (Croatia) or from a high productivity in private-sector agriculture (Vojvodina), both indicators give the two regions an advantage over the less developed regions. Employment rates (49.5 and 43.6 per cent) are likewise high and actually above the average. Although the structure of active population is more favourable in Croatia compared with Vojvodina, with also higher capital/labour ratio, the effects of Vojvodina's highly productive agriculture and the region's more even development make up for this, so that the two regions are on a par in terms of overall development.

The fact that they often appear together has already been mentioned, in spite of the intensity of their similarities which is only moderate. It has been observed that Croatia and Vojvodina are the areas which join others at the average levels. This arises from the order of association: Croatia joins other areas in the first, third, second and again the first iteration, respectively by dimensions and by the overall development. It joins Vojvodina by productive forces in the first, by welfare and overall development in the second, and in economic effects in the fifth level of similarity.

⁴ Data are presented in M. Bazler-Madžar, M. Bogdanović (1987).

⁵ In comparison with the earlier analysis, the differences in most indicators have been reduced, which is reflected in shorter distances between them and affects their classification. For earlier findings refer to M. Bazler-Madžar (1981).

Unlike developed regions, the medium developed regions,⁶ although having the essential characteristics of an industrial economy and society, still feature an insufficiently developed economic structure. This is determined by an inadequately diversified industrial structure and a substantive share of agriculture. Together with an unfavourable population make-up, these factors do not make for an above-average growth of such an intensity as would enable a substantial improvement of the relative position of these regions in comparison with the developed regions.

Association of Serbia Proper with Bosnia-Herzegovina and Macedonia does not mean that its development level is on a par with other areas in this group, which comprises Montenegro in addition to Bosnia-Herzegovina and Macedonia. Except for the development level of productive forces, Serbia Proper differs from these areas. However, it shares the same rank with Montenegro in terms of the overall development. In connection with such a position of Serbia Proper and corresponding distances, the following should be pointed out. First, all indicators used, except most of indicators of productive forces, demonstrate much higher values compared with other regions in this group. Second, the leading position of Serbia Proper in economic effects and welfare provides an argument in favour of its separation within the given group. This is even not disputed by the fact that it is associated with Montenegro on the basis of aggregate analysis. Indeed, the position resulting from higher effects in spite of less favourable development conditions suggests that certain qualitative differences set this area apart from all the other in the same group.

As to whether Serbia Proper should be included in the group of developed regions or not, a number of results support a thesis that it does not belong there and also confirm that the official classification is inadequate. The much lower values of key indicators, well-known intraregional disparities and a rather different overall development pattern do not warrant the inclusion of this area in the group of developed regions. An employment rate below average (40.4 per cent), extremely unfavourable composition of active population, both in terms of the number employed in the social sector and in terms of the proportion of agricultural population (with 28 per cent it is higher than in any other region) indicate that this region cannot fit in the group which includes Vojvodina and Croatia. The separate place of Serbia Proper within the group of medium developed regions and away from developed areas is likewise corroborated by the results of

⁶ Unlike the earlier analysis [M. Bazler-Madžar, (1981)], in which this group of regions was referred to as the regions lagging behind, the data available at this point of research do not substantiate that they clearly lag behind. Indeed, except in Serbia Proper, growth rates are above the average during the 1980–1985 period, and often in the 1965–1980 period as well. Also, an improved position by per capita product is observed in some regions compared with the period encompassed by the earlier analysis. In addition, some important aspects of structural analysis of the social product are lacking, which could help in clearer definition of the regions lagging behind.

an analysis of regional grouping according to similarities. Similarities with other areas are of a moderate intensity. It joins a larger group of regions by productive forces in step 5, by economic effects it becomes associated with Bosnia-Herzegovina and Macedonia in step 2, and joins the same regions by welfare level in step 3. In the aggregate analysis it is associated with Vojvodina at the first level, where the same group also encompasses Croatia, Macedonia and Bosnia-Herzegovina.

Among the medium developed regions the least differences are apparent between Bosnia-Herzegovina and Macedonia. Ranking by dimensions and in the aggregate analysis suggests that they share the same place. These two regions have the most pronounced similarities among all the areas observed. Compared by economic effects and welfare, they already join one another at the first level and by productive forces at the fourth level of similarity. They are also associated at the fourth level in terms of the overall development and subsequently join the group of developed areas.

The same relations are confirmed by individual indicators. Although they have achieved major development results reflected through an increasing proportion of secondary and tertiary sectors and particularly in the industrial development, the effects of industrialization on employment increase and consequently on changes in the population pattern are still below a satisfactory level. The share of non-agricultural population (83 and 78 per cent respectively) does not essentially differ from Vojvodina or Serbia Proper, but, on the contrary, indicates somewhat better relations. However, the employment rate compared with population able for work is still below the comparable figure for Serbia Proper (38 per cent). In addition, the composition of active population points out that these areas still fall behind by this criterion. Regardless of the better capital/labour ratio, the considerably lower production coefficients point out that in addition to unfavourable effects of economic structure, these regions are affected by the complex workings of production factors.

As far as Montenegro is concerned, the following facts deserve particular attention. In terms of productive forces it ranks first among the medium developed regions. It was also pointed out earlier that it shares the same rank with Serbia Proper in terms of the overall development. By all the development components it is ahead of the two formerly discussed regions. In terms of association with other regions it exhibits a highly diversified structure, standing side-by-side with Slovenia and Kosovo as the regions which join the others only in final instances. It only becomes associated with other regions in the sixth iteration by production forces and in the seventh by welfare and by the overall development. Having mainly higher values of indicators for productive forces than Bosnia-Herzegovina and Macedonia, and often Serbia Proper, it nevertheless cannot be distinctly separated, because of poorer economic effects in relation to development assumptions, but also because of numerous structural problems observed in its economy which are also manifest in levels of association.

The only undeveloped region is Kosovo. A rather simple production structure, a large share of low-productive agriculture, generally low labour productivity levels, an unfavourable social structure and a very low per capita income are the main features of this region. Factor values confirm that Kosovo needs to be separated from the previously discussed group. Its classification into a separate group is furthermore warranted by the fact that this region lags behind all the others by all the examined indicators. The proportion of the non-agricultural population in the total (75 per cent) and that of the employed persons in the contingent able for work (22 per cent) reveal about the difficulties confronting this particular region. The structure of the active population is likewise unfavourable; this particularly refers to its component employed in the social sector. Although capital/labour ratio is considerably high, the effects of unfavourable economic structure and various other factors are responsible for this region's lower labour productivity levels in all sectors and for a very low value of the production coefficient.

Specific features of this region which set it apart from the formerly discussed group are also confirmed by the results of regional grouping. A certain explicitness in this association with other regions is observed, as was the case with Slovenia. As it becomes related to other regions only at higher iterations, it definitely needs to be classified as a distinct type of region.

II REGIONAL DIFFERENCES IN ECONOMIC GROWTH EFFICACY

The increasingly pronounced slowdown in the growth of the Yugoslav economy, a tendency that has been observed over a longer period and which inevitably brought the economy to a standstill during the 1980s, requires a more detailed breakdown of the elements comprising overall growth efficiency. This is even more justified in view of the fact that in spite of high investment rates the economy shows a deteriorating performance. The chronic economic stagnation which has in recent years acquired all the essential features of an economic crisis, must in no way be associated with the overall internationally observed economic slowdown in the expansion of labour productivity.⁷ Its roots are institutional. They have prevented the Yugoslav economy from following the policy of structural adjustment which is gaining increasing recognition worldwide. At the same time, the terms of economic functioning changed sharply as the inflow of additional foreign resources stopped while the exceptionally high outflow necessary in order to service the accumulated debt continued. Therefore, a distinction must be made within the time horizon of the study, so that the 1965—1985 period is studied within two separate sub-periods — 1965—1980 and 1980—1985.

⁷ See J. W. Kendrick, ed. (1984), M. Bazler-Madžar (1987).

The profound differences in development dynamics by sub-periods suggest that efficiency of growth has substantially deteriorated. However, in order to establish the effects of an otherwise highly expansive economy in terms of total investments, the analysis of its functioning must not be restricted to the study of production growth rates or to the use of capital coefficients only, but must include labour productivity as well. At the same time, it is necessary to evaluate the overall efficiency of economic growth, in addition to the effects of individual factors, measured through total factor productivity. The inclusion of this global measure of efficiency is further reinforced by the following fact. The Yugoslav economy has witnessed a process of intensive introduction of modern production methods and upgraded organization, so that the technological level of the economy has improved greatly, but failed to produce the appropriate effects on labour productivity and output. With a view to highlighting regional differences, in this section the differences in efficiency are examined within the framework of regional differentiation between republics and provinces in terms of the development level and pattern, as elaborated in the preceding section.

Regional Differences in Labour Productivity and Efficiency of Resource Use

Although the fundamental characteristics and principal socio-economic assumptions underlying the Yugoslav economic system suggest that it could be highly efficient, the development performance of the economy points to a very low and decreasing efficiency. While the Yugoslav economy recorded a rather high growth rate over the entire 1965—1985 period amounting to 4.85 per cent on the average, factor growth was 6.68 per cent for capital assets and 2.86 per cent for employment. Value of the social product increased 2.6 times, value of fixed assets 3.6 times and the number of employed 1.8 times. As the data indicate, capital/labour ratio improved considerably, doubling its value during the period under examination. Highly different pace of factor growth produced different development of factor productivity over time. Labour productivity, growing at the rate of 2.86 per cent, increased about 1.5 times. On the other hand, the capital coefficient increased from 2.11 to 2.97, suggesting a decline in the efficiency of fixed assets at an average rate of 1.75 per cent. It follows that a modest rise in labour productivity was achieved with substantial investment and at the cost of declining efficiency of fixed assets.⁸

The two development sub-periods feature exceptionally divergent development of the observed aggregate values, which makes their

⁸ The analysis includes the social-sector economy, and the data on social product, employment and fixed assets (purchase price), as well on proportion of gross payroll and rentals in the social product at factor costs have been taken from statistical publications or obtained from the Federal Bureau of Statistics.

joint study unsuitable, as will be demonstrated by total factor productivity. First of all, the growth in production factors is different, which is particularly pronounced in the case of fixed assets. Growth rate in capital assets declined from 7.72 per cent to 3.64 per cent, making it less than half of its original value. On the other hand, the employment growth rate did not decline as much (from 3.03 to 2.37 per cent). With the economic growth almost at standstill (growth rate fell from 6.24 to 0.77 per cent) this resulted in declining labour productivity. In addition to deteriorating efficiency of capital utilization (capital coefficient grew by 0.78 per cent from 2.59 to 2.97), labour productivity declined by 1.57 per cent. In contrast with the previous period, which shows a clearly visible improvement of labour productivity (3.03 per cent) regardless of the fact that it was achieved under the falling efficiency of capital (—1.36 per cent) in the latter period of crisis the decline in capital efficiency not only doubled (—2.70 per cent) but a downward slope of labour productivity was recorded as well. It is evident that the increase in capital/labour ratio at the rate of 1.25 per cent cannot provide for a growth in labour productivity in an economy accustomed to a nearly three times faster increase in capital/labour ratio. Even when some productivity growth occurred, it was achieved at a high price of the overall efficiency decline.

It is particularly interesting to observe development performance from the regional point of view. Even a glance at the data presented in Table 1 shows that the growth in social product was quite even over the 1965—1985 period. Indeed, it cannot be asserted that production growth rate is in correlation with the development level. The difference between the maximum and minimum growth rate is 20 per cent, which speaks in favour of a uniform development across regions. Regional similarity is, furthermore, substantiated by the data on capital growth development, where the highest growth rate is by only 18 per cent above the lowest. In contrast with this, differences in the employment growth are pronounced (2.4 times) and inversely related to the development level, resulting in slower labour productivity growth in less developed regions. With lower initial productivity levels this translates into increasing differences in the labour productivity of the social-sector economy. Similarly, higher initial capital coefficients and faster decrease in efficiency of resource use in some of the less developed regions resulted in growing differences in efficiency of social resources. At the same time, one must not neglect the fact that capital coefficient is determined by the economic structure which is, as a rule, more capital intensive in less developed areas.

The above-mentioned relations in development growth pattern deserve to be further examined depending on the development level. According to these indicators, Slovenia, as the most efficient region, stands out in the developed group. Its growth rate of 5.45 per cent, by 20 per cent higher than the comparable indicator for Croatia, is achieved with only a 5 per cent higher capital increase and with somewhat slower employment growth (2.26 per cent). Labour productivity growth of 2.71 per cent is far ahead of the value of the same indicator in any other region, except in Vojvodina, where its growth

Table 1
GROWTH RATES OF MACROECONOMIC AGGREGATES

	— in % —						
	Social product	Employment	Productivity	Fixed assets	Capital/labour ratio	Efficiency of resource factor	Total productivity
<i>1965—1985</i>							
Slovenia	5.45	2.26	2.71	6.82	4.46	-1.64	0.42
Croatia	4.54	2.33	2.16	6.49	4.07	-1.78	0.11
Vojvodina	4.63	1.66	2.91	6.52	4.78	-1.75	0.65
Serbia Proper	5.00	3.36	1.60	6.50	3.04	-1.38	0.08
Montenegro	5.10	4.00	1.11	6.88	2.80	-1.66	-0.27
Bosnia-Herzeg.	4.78	3.56	1.17	6.32	3.16	-1.90	-0.34
Macedonia	5.45	3.84	1.55	7.24	3.26	-1.62	0.01
Kosovo	5.41	4.35	1.03	7.66	3.18	-2.09	-0.36
YUGOSLAVIA	4.84	2.86	1.93	6.68	3.71	-1.69	0.10
<i>1965—1980</i>							
Slovenia	6.55	2.72	3.75	7.74	4.88	-1.68	1.46
Croatia	6.01	2.53	3.41	7.48	4.83	-1.33	1.18
Vojvodina	6.79	1.97	4.15	7.54	5.88	-1.67	1.60
Serbia Proper	6.50	3.74	2.65	7.77	3.89	-1.21	0.91
Montenegro	6.69	3.89	2.76	7.56	3.53	-0.81	1.20
Bosnia-Herzeg.	5.77	3.36	2.33	7.60	4.10	-1.69	0.56
Macedonia	7.04	4.04	2.88	8.66	4.44	-1.48	1.01
Kosovo	6.56	4.41	2.08	9.09	4.48	-2.33	0.32
YUGOSLAVIA	6.24	3.03	3.12	7.72	4.55	-1.36	1.08
<i>1980—1985</i>							
Slovenia	0.58	0.90	-0.34	4.12	3.20	-3.31	-2.24
Croatia	0.20	1.70	-1.47	3.56	1.80	-3.10	-2.61
Vojvodina	1.22	1.94	-0.70	3.54	1.56	-2.14	-1.62
Serbia Proper	0.68	2.22	-1.51	2.77	0.53	-1.89	-1.86
Montenegro	0.48	4.36	-3.68	5.04	0.66	-4.18	-4.26
Bosnia-Herzeg.	1.86	4.16	-2.21	4.56	0.37	-2.52	-2.53
Macedonia	0.82	3.23	-2.34	3.04	-0.21	-2.05	-2.30
Kosovo	2.01	4.17	-2.07	3.50	-0.64	-1.36	-1.82
YUGOSLAVIA	0.77	2.37	-1.57	3.64	1.25	-2.70	-2.33

rate of 2.91 per cent can be attributed to a much slower employment growth. This is the region with not only the highest labour productivity, but also with resource efficiency among the highest. The average values of capital coefficient (2.04 and 2.84) indicate the slowest deterioration in the efficiency of social resources (with the exception of Serbia Proper). The next mutually similar areas in terms of devel-

opment level — Croatia and Vojvodina — exhibit a similar pace of expansion of production and capital assets, resulting in a similar pace of deterioration in the efficiency of fixed assets (-1.78 and -1.75 per cent). Otherwise, the values of the capital coefficient (2.11 and 3.02, as well as 1.98 and 2.82) point to a better position for Vojvodina. However, in spite of a faster growth in labour productivity in Vojvodina, its level is similar in both regions. It follows that faster growth in labour productivity in all three regions compared with the Yugoslav average is attained with deteriorating efficiency of fixed assets, which does not essentially differ from the average.

The separate place of Serbia Proper among the medium developed regions is corroborated by the growth rates of macroeconomic aggregates. Indeed, with a somewhat slower growth of employment (3.36 per cent) and fixed assets (6.50 per cent) compared with other regions in the same group, it manages to achieve a much faster growth in labour productivity (1.60 per cent), with the exception of Macedonia. In addition, this area displays the lowest capital coefficient and its slowest deterioration (-1.38 per cent). As the other medium-developed regions are concerned, a faster growth of Macedonia (5.45 per cent) was attained through a more dynamic increase in both the employment and fixed assets. Its labour productivity growth is similar to that of Serbia Proper, but its efficiency of fixed assets falls faster (-1.62 per cent). Bosnia-Herzegovina and Montenegro demonstrate by 40 per cent slower increase in labour productivity compared with Serbia Proper (1.17 and 1.11 per cent). However, unlike Macedonia, these two regions have much higher capital coefficients (2.44 and 3.58, as well as 3.16 and 4.42) and show a more pronounced deterioration of fixed assets efficiency, particularly in Bosnia-Herzegovina (-1.90 per cent). Needless to say that the gap between the increase in productivity and fall in social resource efficiency in these regions is greater than in the more developed regions.

However, the most conspicuous gap in the development of partial factor productivities is recorded in Kosovo, the only underdeveloped region. As shown by the data, a high growth rate of 5.41 per cent was achieved with the fastest rise in employment (4.35 per cent) and fixed assets (7.66 per cent). Along with this, the nearly twice-slower increase in labour productivity (1.03 per cent) compared with the average, and the sharpest fall in capital efficiency (-2.09 per cent), with capital coefficient well above the average (2.67 and 4.07) all point out that this region possesses essentially different characteristics compared with all the other areas. The development efficiency indicators suggest that Kosovo deserves a separate place.

Regional Differentiation in Total Factor Productivity

The total factor productivity index was used to assess the overall effects of production factors and its development would approximate the growth of the overall efficiency. Unlike the labour productivity index or index of resources efficiency, which are also used as efficiency

indicators, although their changes are determined not only by the changes in the overall production efficiency but also by factor substitution the total factor productivity index implicitly encompasses substitution effects, since it is derived from both production factors. In line with this, it represents changes in weighted usage of production factors, where either relative factor prices or their shares in the functional income distribution are used as weights.⁹

Empirical analysis applies the geometric total factor productivity index which is based on factor shares in the functional income distribution, assumption on constant returns and neutrality of the technical progress in Hicks' sense.¹⁰

In order to quantify the effects of total factor productivity, the period 1965—1985 was studied first. Total factor productivity index during this period grew at an average rate of 0.10 per cent. Its unusually low growth rate makes its influence in determining the production growth almost negligible. Regional differentiation of the overall productivity growth largely follows the scheme of development demonstrated by other indicators, and hence the differences in development between republics and provinces. Above average increase in this index was recorded in two developed regions — Vojvodina (0.65 per cent) and Slovenia (0.42 per cent), while Croatia, with 0.11 per cent, is at the average level. Serbia Proper (0.08 per cent) is somewhat below the average pace of growth; Macedonia shows a very slight increase (0.01 per cent), while declining factor productivity is observed in Bosnia-Herzegovina and Montenegro (—0.34 and —0.27 per cent). An even sharper decrease of this indicator is characteristic of Kosovo (—0.36 per cent).

During the 1965—1980 sub-period the contribution of the total factor productivity to production growth amounted to 17.3 per cent in the Yugoslav economy, since the overall productivity expands at 1.08 per cent on the average. Republics and provinces exhibit very diverse development of this indicator, as is the case with other aggregates too. While the differentiation of growth rates of production and fixed assets is not pronounced, since the largest difference amounts to some 20 per cent, there are conspicuous differences in the movement of employment, as well as in labour productivity growth. In this case also Vojvodina leads by the labour productivity growth (4.15 per cent). Slovenia with 3.75 per cent and Croatia with 3.41 per

⁹ More about the methodology applied can be found in J. W. Kendrick (1973).

¹⁰ The share of factors in functional income distribution, (gross payroll and rentals) is determined in the following way. Gross payroll represents net wages/salaries and all payroll taxes and contributions. The price of capital includes depreciation and gross profit. As the sum of these two items makes the social product at factor prices, the returns on production factors exhaust the social product. While the share of the gross payroll in the Yugoslav economy amounted to 50.5 per cent, and 54.5 and 42.3 per cent in the observed sub-periods, different percentages have been recorded in republics and provinces. It is interesting that these shares are inversely correlated with the development level, which does not apply only to Vojvodina.

cent follow suit. According to this indicator Serbia Proper (2.65 per cent) is similar to other areas in the medium developed group. Kosovo again is characterized by the lowest labour productivity growth (2.08 per cent), which is twice slower than in Vojvodina. The fact that efficiency of capital falls both in the economy as the whole (—1.36 per cent) and in the regions as well, confirms the opinion noted earlier that labour productivity expanded at a very high cost. While the efficiency of resource utilization deteriorated least in Montenegro (—0.81 per cent), followed by Serbia Proper (—1.21 per cent) and Croatia (—1.33 per cent), in other regions it assumed a trend above the average. This happened either in the regions with characteristics of medium development or in those where capital/labour ratio grew at a faster than average pace (Vojvodina, Slovenia). The most prominent deterioration is observed in Kosovo (—2.33 per cent).

Such trends of partial factor productivities influence their total productivity development. As the measure of the overall development efficiency, this indicator is, as a rule, higher in developed areas. Total factor productivity growth in Vojvodina (1.60 per cent) is almost 50 per cent above the average; in Slovenia it grows at the rate of 1.46 per cent, and in Croatia by 1.18 per cent. These values are probably the result of faster labour productivity growth in the first two areas, but also of a slower decrease in efficiency in Croatia. It is worth pointing out that higher total productivity in Montenegro (1.20 per cent) compared with Serbia Proper (0.91 per cent) within the same medium developed group follows from slower deterioration of capital efficiency, since labour productivities are similar. Compared with Macedonia (1.01 per cent) the difference in labour productivity growth is quite significant. Lower ranking of Bosnia-Herzegovina (0.56 per cent) results from slower productivity growth of both factors, which is even more conspicuous in the case of Kosovo (0.32 per cent).

As far as the importance of the total factor productivity is concerned, over the observed 1965—1980 period only 17.3 per cent of output increase in the social sector of the Yugoslav economy can be explained by an increase in the effects of broadly defined technical progress. This proportion is higher in developed areas: in Vojvodina it is 27.6 per cent, in Slovenia 22.3 per cent and in Croatia 19.6 per cent. In Serbia Proper the same indicator is 14.0 per cent, in Macedonia 14.3 per cent, and thus lower than in Montenegro (17.9 per cent). It is lower in Bosnia-Herzegovina (9.7 per cent), and Kosovo in this respect stands alone with 4.9 per cent share.

The crisis period in the development of the Yugoslav economy is characterized, as shown by data in Table 1, with declining labour productivity in all regions, a much faster deterioration of efficiency in the use of social resources and, consequently, a falling total factor productivity. The regularity referred to before in faster improvement or slower deterioration in efficiency in developed areas, is hardly detectable. While a decline in labour productivity is slower at higher development levels, the same has not been observed either in worsening efficiency of fixed assets or in deteriorating overall efficacy. There is certain connection between these changes and the level

and structure of development, but it is not very conspicuous. Negative values of total productivity rates, as the result of the pronounced overall inefficiency of economic performance, make the study of the entire period unsuitable from both the analytical and practical point of view. It will be enough to mention that only 2.1 per cent of the rise in social product between 1965 and 1980 can be attributed to total factor productivity and also that in less developed regions this extremely significant source of growth appears to have negative values.

Concluding Remarks

The results of the analysis of regional differentiation of development level and efficiency of growth presented here suggest several conclusions on the development level and development process in republics and provinces. The first point which deserves to be mentioned is a much wider variety in development levels and patterns than is recognized by the official dichotomous classification, which fails to make a distinction on the basis of these truly relevant features of regional differentiation. The detailed classificatory scheme explained in this work proves the untenableness of the one-sided official classification and is very important from an economic and political standpoint. It offers the elements for the selection of various methods and instruments of incentive policy, as well as for defining the different roles that certain developed regions have to play within the general regional development policy.

The second point refers to various levels and the growth pattern of partial productivities of individual factors and their connection with measurement of the development degree of republics and provinces. As a rule, the faster growth in labour productivity in more developed regions and the slower decline in efficiency of social resources show that the gap between growing labour productivity and falling efficiency is greater in less developed areas, which suggests that poorer development efficiency is involved. Consequently, regional policy deserves to be reconsidered, in particular towards the selection of more efficient investment projects in less developed areas with greater effects on employment, income and labour productivity growth. In the generally inefficient resource allocation in the Yugoslav economy, it is necessary to insist on efficiency improvement, particularly in less developed regions.

Higher efficiency is also suggested as being necessary by the third point, which refers to the trend of total factor productivity as the global indicator of development efficiency. In addition to the connection established between the pace of expansion of this aggregate and development level, the different trend of this indicator in the two sub-periods should be stressed, as well as the less pronounced connection in the recent, crisis period in the development of the Yugoslav economy.

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MAKROEKONOMETRIJSKI MODELI U JUGOSLAVIJI

*Zlatko KOVAČIĆ**

1. UVOD

U ovom radu postavljen je zadatak da se pruži pregled bitnih karakteristika makroekonometrijskih modela koji su u fazi izgradnje ili se trenutno koriste u Jugoslaviji, a takođe da se ukaže na sličnosti i razlike među njima. U zemljama sa dužom tradicijom od Jugoslavije u pogledu makroekonometrijskog modeliranja pregledi ove vrste obuhvataju ne samo prikaz strukturne forme modela, nego se pre svega daje komparacija njihovih ekonomskih i statističkih performansi (videti npr. Wallis i dr. (1986)).

Pre nego što odgovorimo postavljenom zadatku u ovom uvodnom delu, učinićemo nekoliko napomena o pojmovima koje koristimo u prikazu. Istovremeno, ukazaćemo na to koji će se tip modela prikazati a koji neće biti prikazan.

Sa stanovišta ne samo teorijske analize povezanosti ekonomskih pojava nego, pre svega, sa aspekta praktičnog vođenja ekonomske politike, najrelevantnija je algebarska prezentacija ekonomskih fenomena. U okviru te široke klase egzistiraju brojni tipovi modela.

U radu smo se ograničili na podklasu algebarskih modela, stohastičkih po svojoj prirodi, odnosno na tzv. makroekonometrijske modele koji se prema njihovim utemeljivačima (u teorijskom i praktičnom smislu) mogu nazvati: Keynes-Kleinovi modeli.

Dok se po Kleinu naziva jedan od prvih makroekonometrijskih modela američke privrede, što delimično objašnjava pojavu njegovog imena u nazivu ove grupe modela, dotle se na prvi pogled mogu javiti nedoumice o mestu i ulozi Keynesa, odn. njegovih radova u makroekonometrijskom modeliranju. Rekli bismo da takvim nedoumicama nema mesta ako prihvatimo Lucasove i Sargentove (1981, s. 296) tvrdnje. Po njima je keynesijanska revolucija pre svega revolucija u metodi. Njene glavne odlike su: evolucija makroekonomije u kvantitativnu, naučnu disciplinu, razvoj eksplicitnih statističkih opisa ekonomskog ponašanja, tendencija ka oslanjanju zvaničnika na formalne ekonom-

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ske ekspertize i uvođenje korišćenja matematičke teorije kontrole u upravljanju privredom. Može se bez posebnih teškoća dokazati tvrdnja da su upravo poslednjih decenija modeli ovog tipa dominantni u odnosu na ostale makroekonometrijske modele.

Osamdesete godine su obeležene relativno snažnom ekspanzijom makroekonometrijskih modela zasnovanih na novom klasičnom ili monetarističkom pristupu i u koje su ugrađena racionalna očekivanja. Kako nema ograničenja u mogućnosti ugradnje hipoteze o racionalnim očekivanjima privrednih subjekata u modele keynesijanskog tipa, može se pretpostaviti da će ovi modeli i dalje opstati uz adekvatno apsorbovanje novina koje donosi teorija racionalnih očekivanja. Time bi ovi modeli izašli u susret Lucasovoj (1976) kritici dosadašnje prakse vrednovanja alternativnih mera ekonomske politike. O pokušajima ugradnje hipoteze o racionalnim očekivanjima u model jugoslovenske privrede više reči biće u pregledu koji sledi.

Među makroekonometrijske modele jugoslovenske privrede ili privrede pojedinih republika koje prikazujemo, uključili smo samo one modele koji se periodično koriste u svrhe analize. Zbog toga su izostali modeli kao što je Šojićev (1981), Sapirova (1981) i drugi koji su doživeli svoju javnu prezentaciju da bi zatim rad na njima prestao.

Napominjemo, takođe, da su iz ovog pregleda izostavljeni tzv. proizvodno-kapitalni makroekonometrijski modeli čija konstrukcija ima dugu tradiciju u nas (za pregled tih modela videti radove Madžara (1986) i Mencingera i Pfajfara (1986)). Oni su prevashodno orijentisani na srednji i dugi rok. Njihova osnovna karakteristika je da glavne tokove privrednog razvoja izvode iz procesa povećanja osnovnih sredstava. Ovi modeli su dali izvesne rezultate kao dugoročni planski modeli što je dominantno, ako ne i jedino polje njihove primene. Ako prihvatimo da je jedan od osnovnih zadataka makroekonomske politike da na kratak rok vrši usmeravanje finalne potražnje, onda možemo reći da proizvodno-kapitalni modeli ne mogu biti od velike pomoći ekonomskoj politici da uspešno izvrši taj zadatak.

2. PREGLED MAKROEKONOMETRIJSKIH MODELA U JUGOSLAVIJI

Početak rada na makroekonometrijskim modelima kod nas se vremenski može locirati u 1974. godinu, kada je Mate Babić konstruisao godišnji ekonometrijski model jugoslovenske privrede. Prva polovina sedamdesetih godina obeležena je sistematskim radom na makroekonometrijskim modelima, pre svega u Ljubljani, u Inštitutu za ekonomska raziskovanja (IER) i Ekonomskom inštitutu Pravne fakultete (EIPF) (spomenimo samo neke od autora: Bole Veljko, Pfajfar Lovrenc, Mencinger Jože i dr.). Nakon nekoliko godina prezentirani su prvi modeli: godišnji na IER i kvartalni na EIPF. Ovi modeli su zatim doživeli nekoliko modifikacija tako da ćemo izložiti samo poslednju (tekuću) verziju ovih modela.

U drugoj polovini osamdesetih godina i u drugim centrima otpočeo je rad na konstrukciji globalnih makroekonometrijskih modela. Tako su u Ekonomskom inštitutu u Zagrebu Gapinski, Škegro i Zuehlke

(1987) konstruisali godišnji makroekonometrijski model jugoslovenske privrede, a u Beogradu u Institutu za ekonomiku industrije (IEI) i Institutu ekonomskih nauka (IEN) u toku je rad na globalnom ekonometrijskom modelu za Jugoslaviju i Srbiju. Navedeni modeli su konstruisani u različite svrhe. Uzimajući to u obzir, kao i prirodu ekonomije kao naučne discipline, s jedne, i statističke evidencije ekonomskih fenomena, s druge strane, koegzistencija različitih modela istog ekonomskog sistema je legitimna pojava. Štaviše, takva situacija je poželjna, jer se kroz specifičnosti različitih modela bolje sagledavaju pojedine dimenzije jugoslovenske privrede ili privrede pojedinih republika.

Klasifikaciji modela koje prikazujemo možemo prići sa stanovišta različitih kriterijuma: vremenskog roka, stepena agregiranosti, namene, načina ocenjivanja, itd. Svaka od ovih dimenzija biće posebno istaknuta u okviru izlaganja pojedinačnih modela da ne bismo, prezentirajući različite klasifikacije, višekratno ponavljali iste modele.

2.1. Inštitut za ekonomska raziskovanja u Ljubljani

2.1.1. YULINK

Ovaj model predstavlja modifikovanu verziju modela koji je konstruisan na godišnjim jugoslovenskim podacima za potrebe Saveznog zavoda za društveno planiranje. Izmene su izvršene u cilju njegovog prilagođavanja modelima koji su uključeni u međunarodni projekat LINK. Takvim povezivanjem sa ekonometrijskim modelima sedamdesetak država omogućeno je sagledavanje uticaja svetskih kretanja (preko jednačina u spoljnotrgovinskom bloku) na kretanja u jugoslovenskoj privredi.

Model sadrži 46 jednačina (isto toliko i endogenih varijabli) od kojih je 19 jednačina ponašanja, a preostalih 27 su definicione jednačine. Podaci korišćeni u ocenjivanju koeficijenata modela pripadaju vremenskom periodu od 1967. do 1985. godine.

Model je baziran na društvenim računima i u njemu se modeliraju komponente finalne upotrebe društvenog proizvoda. Osnovna jednačina modela je bilansna jednačina društvenog proizvoda. Prema njoj, komponente društvenog proizvoda su: lična potrošnja, materijalni izdaci za opštu i zajedničku potrošnju, privredne i neprivredne investicije, investicije u obrtna sredstva, izvoz roba i usluga umanjen za uvoz roba i usluga, te naposljetku, statističke greške u društvenim računima.

Globalne determinante lične potrošnje su: raspoloživi dohodak stanovništva, deflator lične potrošnje i lična potrošnja iz prethodnog perioda. Pokazalo se da je upravo sedamdesetih godina sa porastom inflacije došlo do pada udela lične potrošnje u raspoloživom dohotku što dotadašnje specifikacije jednačine lične potrošnje nisu registrovale. Otuda u specifikaciji koja uključuje deflator lične potrošnje (proxy za inflaciju) visoka značajnost koeficijenta sa negativnim predznakom uz tu varijablu.

Sektor investicione potrošnje je raščlanjen na tri jednačine. Izvršena je podela ukupnih investicija na privredne i neprivredne, pri

čemu su ove poslednje tretirane kao date, odn. egzogene. Kretanje privrednih investicija opredeljuju, prema teoriji fleksibilnog akceleratora, kretanje društvenog proizvoda i nabavna vrednost osnovnih sredstava. Specifikacija ove investicione funkcije je bazirana na pretpostavci da uticaj nezavisne varijable opada tokom vremena po geometrijskoj progresiji. Poslednja komponenta u investicionom bloku su investicije u obrtna sredstva. Specifikacija jednačine investicija u obrtna sredstva (zalihe) bazira se na transakcionom i špekulativnom motivu držanja zaliha. Zato su glavne determinante u ovoj jednačini: porast društvenog proizvoda i indeks cena proizvođača. Pokazalo se da je sa statističkog stanovišta špekulativni motiv izražen, što se ne bi moglo reći i za transakcioni.

Spoljnotrgovinski blok modela je zbog povezivanja sa projektom LINK najviše dezagregiran u odnosu na ostale komponente društvenog proizvoda. Spoljnotrgovinski tokovi su raščlanjeni na četiri sektora po standardnoj međunarodnoj trgovinskoj klasifikaciji. Ti sektori su: 1) hrana, piće i duvan; 2) sirovine (sem goriva); 3) mineralna goriva i maziva; i 4) hemijski proizvodi, mašine i transportna sredstva, razni finalni proizvodi. Determinante realnog uvoza po sektorima su: privredna aktivnost, cene uvoznih roba u domaćoj valuti i domaće cene. Pokazalo se da faktori kao što su: pokrivenost uvoza izvozom ili stanje trgovinskog bilansa ne doprinose objašnjenju spoljnotrgovinskih kretanja. Konkretna specifikacija svakog od četiri sektora bar što se tiče uvozne strane je sledeća. Uvoz prvog sektora je opredeljen društvenim proizvodom poljoprivrede iz prethodnog perioda i relativnim cenama (odnosom uvoznih i domaćih cena). Što se ostalih sektora tiče, zbog velike uvozne zavisnosti jugoslovenske privrede, uvoz je determinisan kretanjem društvenog proizvoda i relativnim cenama odnosnog sektora.

Na izvoznoj strani ovog bloka modela glavne determinante su bile: realni obim uvoza razvijenih evropskih zemalja i relativne cene izvoza. Za razliku od uvoznog dela ovog bloka navedena specifikacija izvozne jednačine po sektorima ni izdaleka nije zadovoljila. To je posebno slučaj sa prvim, odnosno drugim sektorom, gde je uočena izrazita cikličnost izvoza. Zato su konstruktori modela odlučili da varijablu izvoza trećeg sektora tretiraju kao egzogenu varijablu, jer je i inače njegovo učešće u ukupnom izvozu malo (kreće se od 1% do 3% u posmatranom periodu). Uočena je niska cenovna elastičnost izvoza. Među objašnjavajućim varijablama dominira, po svojoj značajnosti, uvozna tražnja u razvijenim evropskim zemljama.

Sledeći blok jednačina posvećen je modeliranju ličnih dohodaka i nezaposlenosti. Osnovna jednačina ovog bloka je jednačina ličnih dohodaka po zaposlenom u privredi. Na spisku objašnjavajućih varijabli ove jednačine su: kretanje cena, produktivnost i stopa nezaposlenosti. Zbog načina finansiranja i dohodne politike u kojoj se porast ličnih dohodaka u vanprivredi vezuje uz porast ličnih dohodaka u privredi, jednačina ličnih dohodaka u vanprivredi je upravo tako specifikirana. Što se zapošljavanja tiče, različit je tretman ove pojave u vanprivredi u odnosu na privredu. Naime, broj zaposlenih u vanprivredi u modelu je tretiran kao egzogena promenljiva. Kretanje za-

poslenih u privredi modelira se Cobb-Douglasovom proizvodnom funkcijom uz pretpostavku o konstantnom prinosu. Kako su u proizvodnu funkciju uključena i osnovna sredstva, a kretanje proizvodnih investicija je endogeno objašnjeno u modelu, to se u ovom bloku vrši njihovo povezivanje u smeru endogenizacije osnovnih sredstava u privredi. Poslednja endogena varijabla u ovom bloku je nezaposlenost. Specifikacija koja objašnjava kretanje nezaposlenosti kretanjem stanovništva, zaposlenima u inostranstvu, kretanjem realnih ličnih dohodaka, te stepenom iskorišćenosti kapaciteta u privredi, pokazala je najbolje rezultate.

Poslednji blok YULINK modela je cenovni blok. Pored toga što cene u većini pomenutih jednačina imaju ulogu objašnjavajućih promenljivih, značajne su i kod preračunavanja nominalnih u realne veličine i obrnuto. Zato se u ovom bloku objašnjava kretanje svih deflatora pojedinačnih komponenti konačne upotrebe društvenog proizvoda. Osnovna jednačina ovog bloka je jednačina cene proizvođača. Teorijska osnova iz koje proizilazi njena specifikacija je tzv. mark-up princip, pri čemu se uzima u obzir da on nije konstantan nego je pod pritiskom domaće i delimično inostrane konkurencije. Prosečni troškovi po jedinici proizvoda definišu se kao troškovi po jedinici realnog društvenog proizvoda. Neto lični dohoci u privredi i doprinosi i porezi za opštu i zajedničku potrošnju ulaze kao troškovi u mark-up princip. Među faktore fleksibilnosti svrstavaju se: iskorišćenost kapaciteta i uvozne cene. U ovakvoj specifikaciji vođeno je računa i o dosadašnjim iskustvima nekolicine zemalja koje su uključene preko svojih modela u INTERLINK.

Rečeno je da jednačina cena proizvođača predstavlja osnovu ovog bloka. To je očigledno iz specifikacija ostalih jednačina, jer je njihova glavna determinanta upravo porast cena proizvođača. Specifikacijom jednačina koje objašnjavaju kretanje troškova života, implicitnog deflatora materijalnih troškova opšte i zajedničke potrošnje, te deflatora za ukupne, privredne i neprivredne investicije pored cena proizvođača obuhvaćen je i proces postepenog prilagođavanja navedenih cena cenama proizvođača.

Na kraju se u model uvodi i niz definicijskih jednačina u cilju kompletiranja modela (izjednačavanja broja jednačina sa brojem endogenih varijabli) i postizanja njegove konzistentnosti.

Model je ocenjen metodom običnih najmanjih kvadrata, a po potrebi je kod pojedinih jednačina primenjena Cochrane-Orcuttova korekcija za autokorelaciju prvoga reda.

2.1.2. GMS

Godišnji model slovenačke privrede jedan je od modela razvijenih u IER kojim se modeliraju privredna kretanja u ovoj republici. Kao i prethodni, i ovaj model spada u klasu Keynes-Kleinovih modela. Autori su se držali jednog od principa gradnje regionalnih modela, a to je da se model gradi odozgo na dole. To znači, polazi se od pretpostavke da su sve privredne veličine na nivou Jugoslavije date izvan

regionalnog modela, a da je zanemarljiv uticaj kretanja u regionu na privredna kretanja cele privrede. Izbor ovog pristupa gradnji modela, po autorima, bio je opravdan uglavnom zbog toga što se njegovom primenom ne zahteva poznavanje modela za sve ostale republike. GMS sadrži ukupno 56 varijabli od kojih je 31 endogena varijabla (objašnjene modelom), a ostalih 25 su egzogene.

Temeljna jednačina modela je jednačina društvenog proizvoda. Konačna upotreba raspoloživog društvenog proizvoda data je po uobičajenim elementima: ličnoj potrošnji, materijalnim izdacima za opštu i zajedničku potrošnju, privrednim i neprivrednim investicijama, povećanju zaliha, izvozom roba i usluga i prodajom roba i usluga drugim republikama. Model je zatvoren tako što je uvedena varijabla statističke greške čime je postignuta bilansna ex-post jednakost između raspoloživih i upotrebljenih sredstava.

Prva komponenta finalne upotrebe društvenog proizvoda je lična potrošnja. Zbog različite marginalne sklonosti ka potrošnji stanovništva u zavisnosti od izvora sredstava, specifikacija potrošne funkcije je uključila pored ličnog dohotka stanovništva i varijable: transfere stanovništvu (po svim osnovama) i potrošačke kredite.

Mada su autori modela vodili računa o teorijskoj zasnovanosti ponašanja privrednih subjekata u uslovima samoupravno organizovane privrede, odsustvo izgrađene teorije u pojedinim blokovima prinudilo ih je da posegnu za standardnim modelima koji su inače uobičajeni u tržišno orijentisanim privredama. Posebno to važi za investicioni blok zbog neutemeljene teorije investicione politike u našoj privredi. Standardni modeli investicione funkcije baziraju se na teoriji akceleratora, a u modelu je eksperimentisano sa dve varijante. Prva je vezivala nivo tekućih investicija za prethodna kretanja društvenog proizvoda (geometrijska šema pondera uz ovu varijablu), a druga varijanta je uključivala raspoloživa sredstva za investicije u vidu akumulacije i amortizacije, s jedne, i kredita za osnovna i obrtna sredstva, s druge strane. U investicionom bloku modelirana je i veličina investicija u obrtna sredstva (zalihe). Slično YULINK modelu i u GMS specifikacija ove jednačine bazira se na transakcijskom i špekulativnom motivu držanja zaliha. Autori konstatuju da je funkcija zaliha najproblematičnija u modelu i da zahteva detaljnije raščlanjenje.

Spoljnotrgovinski blok u modelu sadrži četiri funkcije. Prvom se objašnjava kretanje ukupnog izvoza roba i to sledećim faktorima: društveni proizvod, relativne cene (odnos izvoznih i domaćih cena) i prethodni nivo izvoza. Teorijsko obrazloženje ovakve specifikacije je sledeće. Uzimajući u obzir relativno mali obim jugoslovenskog tržišta prema svetskom, svetske cene se mogu tretirati kao egzogene; takva pretpostavka se može tim pre usvojiti i za Sloveniju. Izvoz je moguće tretirati kao veličinu zavisnu od domaćih proizvođača koji kvalitetom svojih proizvoda i odnosom pune izvozne i domaće cene roba mogu biti konkurentni na svetskom tržištu. Puna izvozna cena je rezultat svetske cene, kursa dinara i svih posrednih i neposrednih podsticaja. Proizvođači bi bili indiferentni u pogledu tržišta (domaćeg ili stranog) na kome će plasirati svoje proizvode, pod uslovom da su pune izvozne cene jednake domaćim cenama.

Slično teorijsko obrazloženje leži i u osnovi jednačine koja objašnjava kretanje uvoza reproduktionog materijala. Tako se među faktorima koji opredeljuju ovaj uvoz nalaze društveni proizvod i relativne cene (odnos domaćih i pune uvozne cene). Alternativna specifikacija je uzela u obzir često izražen zahtev da uvoz mora biti pokriven odgovarajućim izvozom, tako što je uključila prethodnu vrednost izvoza među objašnjavajuće varijable.

Specifikacija funkcije uvoza investicionih roba sadrži ukupne investicije, te ukupni robni izvoz. Kretanje uvoza roba za široku potrošnju je, po autorima, bilo veoma teško modelirati pošto je on stalno pod neposrednom administrativnom kontrolom. Zbog malog udela ovog uvoza u ličnoj potrošnji (6%) i zbog toga što angažuje samo oko 4% raspoloživog dohotka stanovništva, autori smatraju da ga mogu uključiti među egzogene promenljive. Specifikacija koju ipak koriste u modelu uključuje raspoloživi dohodak stanovništva i relativne cene (odnos pune uvozne cene i indeksa troškova života).

U regionalnim modelima kao što je ovaj, za razliku od modela privrede kao celine, uvode se i funkcije koje opisuju kretanje prodaje i nabavke ovog regiona u drugim regionima unutar zemlje. Tako se prodaja u drugim republikama predstavlja kao zavisna od obima i strukture proizvodnje u ostalom delu jugoslovenske privrede. Kao mera potencijalne tražnje za robama iz Slovenije uzima se društveni proizvod Jugoslavije. Fenomen autarkičnosti republičke privrede uočen je u dužem sledu godina. Stoga je varijabla vremena uključena u specifikaciju da bi se mogla uočiti težnja ka smanjenju marginalnog učešća prodaje roba iz Slovenije u jugoslovenskom društvenom proizvodu. Slična je specifikacija i funkcije nabavke iz drugih republika, s tom razlikom što je jugoslovenski društveni proizvod zamenjen slovenačkim.

Blok ličnih dohodaka i zaposlenosti je koncipiran na sličan način kao i u YULINK modelu. U specifikaciji funkcije ličnih dohodaka po zaposlenom u privredi među opredeljujuće faktore dodata je još i akumulacija po zaposlenom. Kretanje ličnih dohodaka po zaposlenom u vanprivredi vezuje se uz kretanje iste veličine u privrednim delatnostima. Kretanje zaposlenosti modelirano je na sledeći način. Prvo se proizvodna funkcija Cobb-Douglasovog tipa koristi za ocenu odgovarajućeg obima zaposlenosti koji sugerise data tehnologija. Zatim se funkcijom zaposlenosti opisuje prilagođavanje stvarnog nivoa zaposlenosti tom obimu. Rezultati ocenjivanja govore da je u proteklom periodu stvarni nivo zaposlenosti prevazilazio optimalni nivo određen na osnovu tehnoloških mogućnosti proizvodnje.

Kretanje osnovnih sredstava objašnjeno je bruto investicijama, odn. na vrednost osnovnih sredstava dodajemo bruto investicije umanjene za zamenu dotrajalih osnovnih sredstava (ocene kazuju da to iznosi približno 3,7% njihove vrednosti.).

Mada su stope amortizacije apriori tako određene da sama amortizacija predstavlja knjigovodstvenu a ne realnu stavku, autori modela je modeliraju tako što među njene determinante uključuju vrednost osnovnih sredstava i realni društveni proizvod (kao meru stepena njihove iskorišćenosti).

Napokon, blok cena u GMS ima istu ulogu kao i u YULINK modelu. U ovom bloku najvažnija je funkcija cene proizvođača, gde se njihovo kretanje objašnjava ličnim dohocima po jedinici društvenog proizvoda i kretanjem uvoznih cena. Ostale dve funkcije: indeks troškova života i indeks cena investicionih dobara imaju indeks cena proizvođača kao svoju glavnu determinantu.

Model je ocenjen na osnovu vremenskih serija od 1960. do 1978. godine metodom običnih najmanjih kvadrata uz primenu Cochrane-Orcuttovog metoda u slučaju da je u rezidualima modela uočena tendencija ka autokorelaciji. Model je proveren sa stanovišta uspešnosti da reprodukuje stvarna kretanja u privredi Slovenije uz pomoć statične i dinamične simulacije. Osim u slučaju zaliha, uvoza roba za široku potrošnju i akumulacije, gde su uočeni veliki otkloni od stvarnih kretanja, u svim ostalim slučajevima model je verno reprodukovao putanju endogenih varijabli. Model generiše vrednosti endogenih varijabli u stalnim i tekućim cenama. U drugom slučaju uočeno je sistematsko precenjivanje vrednosti nekih promenljivih što je u daljem radu korišćeno u skladu sa Theilovom procedurom optimalne linearne korekcije predviđenih vrednosti.

2.1.3. KMS

Kvartalni model slovenačke privrede razvijen je u IER i predstavlja jedan od prvih, ako ne i prvi regionalni kvartalni model u nas.

Namenjen je, pre svega, objašnjenju kretanja ličnih dohodaka i cena, pa su ova dva bloka unutar modela i najviše razučena. Sastoji se od 29 jednačina (endogenih varijabli) sa ukupno 42 varijable od kojih je 13 egzogenih. Tih 29 jednačina svrstano je u četiri bloka: lični dohoci, cene, zaposlenost i proizvodnja i finalna upotreba. U biti radi se o tipu Keynes-Kleinovog modela kao što su i ostali modeli koji su konstruisani u IER.

Blok ličnih dohodaka sastoji se od tri jednačine ponašanja i pet identiteta. Teorijski osnov za specifikaciju jednačina ponašanja dobro je poznat (pomenut je u prikazu modela YULINK i GMS). Zato su za glavne faktore koji objašnjavaju kretanje ličnih dohodaka uzeti: porast troškova života, porast produktivnosti rada i stopa nezaposlenosti. Teorijsko objašnjenje povezanosti ličnih dohodaka i navedenih faktora je uobičajeno, osim u slučaju stope nezaposlenosti. To je posledica institucionalnih karakteristika našeg privrednog sistema, gde radna snaga nema tretman robe, pa su zaposleni u povlašćenom, monopolističkom položaju u odnosu na nezaposlene. U takvom sistemu povećanje stope nezaposlenosti ne znači da će doći do smanjenja ličnih dohodaka po zaposlenom. Specifikacija koja je ugrađena u model govori da je porast ličnih dohodaka po zaposlenom u privrednim delatnostima visoko zavisen od porasta indeksa troškova života i porasta produktivnosti rada. Kao i u ranijim modelima i kod ovoga je porast ličnih dohodaka po zaposlenom u neprivrednim delatnostima objašnjen kretanjem iste veličine u privredi, ali i dodatnim faktorom — odnosom između ličnih dohodaka u privredi i vanprivredi. Prosečni lični dohoci

po zaposlenom (ukupno) dobijeni su kao ponderisana sredina ličnih dohodaka u privredi i vanprivredi.

Blok cena se sastoji od deset jednačina, od kojih su sedam jednačine ponašanja a preostale tri su identiteti. Cene proizvođača industrijskih proizvoda ponovo imaju ključno mesto unutar cenovnog bloka jer su ostale cene u modelu uglavnom determinisane njima. Među faktore u jednačini cena proizvođača industrijskih proizvoda autori modela su uključili: troškove rada po jedinici proizvoda, uvozne cene i kurs dolara. Ovim varijablama je objašnjeno preko 70% varijacija rasta cena proizvođača. Jednačina indeksa cena na malo pored navedenog indeksa cena proizvođača kao varijablu ima i prosečni lični dohodak po zaposlenom u privredi. Indeks cena proizvođača poljoprivrednih proizvoda je pored indeksa cena proizvođača industrijskih proizvoda opredeljen i odnosom cena na malo industrijskih i poljoprivrednih proizvoda.

Treći blok u modelu obuhvata jednačine zaposlenosti i proizvodnje. Trima jednačinama ponašanja modelirana je zaposlenost u privrednim delatnostima i ukupna zaposlenost u udruženom radu, te proizvodnja (indeks fizičkog obima proizvodnje). Produktivnost rada se definiše identitetom. Osnov za funkciju zaposlenosti u privrednim delatnostima čini Cobb-Douglasova proizvodna funkcija. No, za razliku od funkcije u kojoj pored proizvodnje i vremena (zbog neopredmećenog tehničkog progresa) figuriše i drugi faktor proizvodnje, tj. kapital, u model je ugrađena modifikovana jednačina kod koje je kapital isključen. Takav postupak specifikacije po mišljenju autora modela je opravdan ne samo zbog nepostojanja adekvatne kvartalne serije podataka nego i zbog činjenice da se efekti investicija u tako kratkom intervalu kao što je kvartal, ne mogu iskazati u punoj meri. Rezultati su potvrdili očekivanja, jer se pokazalo da povećanje proizvodnje u prethodnim kvartalima vodi ka povećanju zaposlenosti u privredi u tekućem kvartalu. S druge strane, tehnički progres utiče negativno na zaposlenost, tj. smanjuje je za 0.048% godišnje. Ukupna zaposlenost je definisana kao ponderisani prosek zaposlenih u privrednim i vanprivrednim delatnostima, pri čemu su koeficijenti ponderacije ocenjeni metodom najmanjih kvadrata. Proizvodnja, tj. indeks fizičkog obima proizvodnje objašnjen je faktorima na strani tražnje. Od brojnih faktora koje je moguće uključiti u jednačinu, autori su se opredelili za ukupne izdatke (obuhvataju investicije, izdatke stanovništva i materijalne izdatke za opštu i zajedničku potrošnju). Pored ovog faktora, kao mera dodatnog impulsa proizvodnji od strane domaće tražnje, uključen je odnos između izvoza i uvoza.

Poslednji blok u modelu odnosi se na finalnu upotrebu društvenog proizvoda. Svaki od elemenata finalne upotrebe posebno je modeliran. Specifikaciju jednačina u ovom i ostalim blokovima modela u dobroj meri diktira i limitirana informaciona osnova, odn. raspoloživost statističkih podataka. Tako se potrošnja stanovništva modelira funkcijom koja uključuje masu ličnih dohodaka u udruženom radu (stoji za varijablu raspoloživog dohotka) i svoju sopstvenu vrednost iz prethodnog perioda. Pokazalo se da marginalna sklonost ka potrošnji u usvojenoj potrošnoj funkciji iznosi 1.34. Verovatan razlog

leži u činjenici da lični dohoci (kao varijabla u jednačini) ni izdaleka nisu jedini izvor prihoda stanovništva.

Specifikacija investicione funkcije je izazvala, rekli bismo, uobičajene teškoće. Relativno dobre performanse imala je funkcija koja je uključila privrednu aktivnost (indeks fizičkog obima proizvodnje).

Jednačina ukupnih izdataka je definisana kao ponderisani prosek izdataka za investicije, izdataka stanovništva i materijalnih izdataka za opštu i zajedničku potrošnju. Ponderi su eksperimentalno određeni metodom najmanjih kvadrata.

Za razliku od GMS i YULINK modela u KMS hipoteza o transakcionom i špekulativnom motivu držanja zaliha, nije se potvrdila. Zato su u funkciji zaliha krediti za obrtna sredstva jedini opredeljujući faktor.

Poslednja jednačina u bloku je jednačina izvoza. Među njenim determinantama nalazimo rast proizvodnje, inostranu tražnju (obim proizvodnje u zemljama OECD) i relativne cene izvoza. Specifikacija je proistekla iz razmatranja u okviru teorije međunarodne razmene prema kojem su upravo raspoloživost roba, inostrana potražnja i rentabilnost izvoza opredeljujući faktori izvoza. Rezultati sugerišu da je rast proizvodnje najvažnija determinanta izvoza (elastičnost je 2,64), sledi inostrana potražnja (elastičnost je 2,6), dok je uticaj relativnih cena jako mali (elastičnost je 0,144).

KMS je ocenjen metodom običnih najmanjih kvadrata u periodu od 1975 (I kvartal) do 1986. godine (III kvartal). Međutim, pet jednačina je ocenjeno na osnovu podataka iz perioda 1982/III do 1986/III. To se odnosi na endogene varijable, odn. njihove jednačine: privredna aktivnost (indeks fizičkog obima proizvodnje), izdaci stanovništva, investicije, zalihe i ukupni izdaci. Ovim se želelo da dobijene ocene nepoznatih koeficijenata vernije odslikaju ekonomsku strukturu i njene parametre iz novijeg perioda. Zvuči realistički pretpostavka da u bitno izmenjenim uslovima poslovanja i ponašanje, odn. performanse sistema nisu više iste kao što su bile sedamdesetih godina. Zato je za uspešno modeliranje relevantnije koristiti »novije« podatke po cenu smanjivanja veličine uzorka (broja stepeni slobode). Jednačine za endogene varijable sa izrazitim sezonskim karakterom su pored navedenih objašnjavajućih promenljivih sadržavale još i po tri sezonske veštačke varijable (to je slučaj indeksa cena na malo poljoprivrednih proizvoda i prosečnih ličnih dohodaka u privrednim delatnostima).

Pošto je KMS ocenjen, izvršeno je njegovo vrednovanje u cilju provere sposobnosti verne reprodukcije prošlih kretanja. Za to je poslužila dinamička ex-post simulacija. Poređenjem ostvarenih sa veličinama generisanim modelom, dobijamo informaciju o valjanosti konstruisanog modela. Rezultati kazuju da se prosečna apsolutna odstupanja ove dve veličine kreću oko 5% za sve endogene varijable osim za izvoz i investicije (koje su u daljem korišćenju modela uključene među egzogene varijable).

2.1.4. GSMS

Godišnji strukturni model slovenačke privrede spada u klasu modela koji spajaju dobre strane strukturnih modela, kao što su input-output modeli, i dobre strane ekonometrijskih modela. Kada kažemo, dobre strane ova dva modela, u slučaju prvog imamo na umu dezagregirano posmatranje privredne aktivnosti po sektorima te sučeljavanje ponude i finalne tražnje preko II kvadranta input-output tabele. Druga grupa modela, ekonometrijski modeli, modelira različite komponente finalne tražnje omogućavajući nosiocima ekonomske politike komparaciju alternativnih načina njihovog vođenja preko diferencirane kompozicije instrumenata makroekonomske politike. Takođe, integrisanjem ova dva modela u dobroj meri se eliminišu njihove slabe strane: egzogeni tretman finalne potražnje (input-output modeli) i visok nivo agregacije (ekonometrijski modeli).

GSMS je građen s namerom da omogući utvrđivanje efekata alternativnih ekonomskih politika na sektorsku ponudu, na jednoj strani, i uticaj generisanih dohodaka na potražnju u privredi, na drugoj strani. U tom cilju privreda je dezagregirana na 17 privrednih sektora, a finalna tražnja na 8 komponenti.

U GSMS je uključeno ukupno 186 varijabli od kojih su 154 endogene, a 32 su egzogene promenljive. Model sadrži i preko 700 koeficijenata koji su ili ekonometrijski ocenjeni ili izračunati na osnovu relacija koje postoje u input-output modelu.

Ekonometrijski deo ovog modela predstavlja GMS koji smo ranije prikazali. Zato ćemo na ovom mestu izložiti razlike u specifikaciji jednačina, odn. tretmanu egzogenih varijabli između GMS i GSMS.

Društveni proizvod i lična potrošnja su opredeljeni istim faktorima kao u GMS, s tom razlikom što se egzogena varijabla (kod potrošne funkcije) vrednost ličnih dohodaka, generiše rešavanjem sektorskog dela modela.

Modeliranje investicionog bloka modela sprovedeno je na drugačiji način. Ukupne bruto investicije sastavljene su od tri komponente: privredne i neprivredne investicije društvenog sektora i investicije privatnog sektora. Sektorski deo modela generiše bruto privredne investicije dok su druge dve komponente ukupnih investicija tretirane kao instrumenti ekonomske politike. Teorijska osnova specifikacije promene zaliha ista je kao u GMS.

Spoljnotrgovinski blok u modelu kao egzogene varijable uzima nerobni izvoz i uvoz, dok je tretman izvoza i uvoza roba identičan onome u GMS. Uvoz je raščlanjen na tri komponente: uvoz reproduktionog materijala, uvoz investicionih roba i uvoz roba za široku potrošnju (egzogena varijabla).

Prodaje i nabavke u drugim republikama objašnjavaju se samo dohodovnom elastičnošću jer se pretpostavlja da su cene jedinstvene na nivou privrede kao celine.

Napokon, u cenovnom bloku modeliranje je vršeno na osnovu sektorskih cena i strukture lične i ukupne, te opšte potrošnje. Tako su opredeljeni: indeks troškova života i indeks cena na malo.

Prikazivanje sektorskog dela GSMS započinjemo od sektorskih društvenih proizvoda. Ovo je diktirano suštinom integrisanja ekonometrijskog modela sa input-output tabelama koja leži u transformaciji agregatnih komponenti finalne tražnje u sektorske društvene proizvode. Prema Prestonovom algoritmu, jednačine sektorskih društvenih proizvoda imaju kao objašnjavajuće varijable: svoju sopstvenu vrednost s dočnom od jednog perioda, vreme kao varijablu i pojedine komponente finalne tražnje. Pri tome, kod ocenjivanja ovog sektorskog bloka kao i kod ostalih sektorskih jednačina, zahteva se raspolaganje input-output tabelama za svaku godinu posmatranog perioda. Primenjeni algoritam polazi od konstantnosti korišćenih matrica izvedenih iz input-output tabela, a odstupanja stvarnih vrednosti društvenog proizvoda od onih generisanih modelom na određeni način se modeliraju. Moguće je koristiti neki od metoda za ažuriranje input-output tabela (npr. Stoneov RAS metod) da bi se dobile potrebne matrice u svakoj godini.

U okviru agregatnog ekonometrijskog dela modela za neke varijable pomenuto je da se generišu u okviru sektorskog dela modela. To se odnosi na lične dohotke, koji su jedna od glavnih determinanti lične potrošnje (dakle, komponente finalne tražnje), a istovremeno ulaze kao najznačajniji deo u proizvodne troškove te preko troškova rada na jedinicu proizvodnje i u cenovni blok modela. Sektorska masa neto ličnih dohodaka je opredeljena nizom faktora, pri čemu se javljaju razlike u konkretnoj specifikaciji od sektora do sektora. Ti faktori su: masa neto ličnih dohodaka i indeks troškova života iz prethodne godine, obim nominalnog društvenog proizvoda, produktivnost rada i tehnički progres (korišćeno je vreme kao varijabla).

Teorijska podloga specifikacije jednačine bruto privrednih investicija leži u modifikovanom modelu akceleratora. Objašnjavajuće promenljive su u opštem slučaju društveni proizvod i osnovna sredstva iz prethodnog perioda, pri čemu je pretpostavljeno da ponderi uz varijablu dohotka opadaju po geometrijskoj progresiji. Ukoliko je ovakva specifikacija bila neodgovarajuća u konkretnom sektoru, tada su ove investicije uključene među egzogene varijable ili je korišćen jednostavniji model za njihovo modeliranje. Nabavna vrednost osnovnih sredstava i zaposlenost po sektorima modelirana je na istim principima kao i kod GMS.

Pokazalo se da su najosetljiviji deo modela sektorski deflatori društvenih proizvoda. Njihova specifikacija je bazirana na troškovnom principu formiranja cena, pa je glavna determinanta — povećanje troškova rada po jedinici proizvodnje. Pored ove, ulaze i druge determinante i to međufazne nabavke, te proizvod uvoznih cena i kursa dinara. Zbog rezultata koji sistematski potcenjuju kretanje ovih deflatora posle 1979. godine, autori smatraju da treba uključiti i faktore sa strane tražnje (npr. odstupanje stvarne od potencijalne proizvodnje, sam obim proizvodnje i sl.).

Poslednju grupu deflatora čine deflatori komponenata finalne tražnje među koje su svrstani: indeks troškova života i indeks cena na malo. Ovi deflatori su ponderisane vrednosti deflatora sektorskih društvenih proizvoda. Navedena relacija između deflatora važi u go-

dini u kojoj raspoložemo sa input-output tabelom. Uz pretpostavku konstantnosti matrica izvedenih iz input-output tabela (koje figurišu u izrazu za deflatore komponenti finalne tražnje) moguće je, prema istom postupku kao kod sektorskih društvenih proizvoda, izvesti specifikaciju jednačina za ova dva indeksa. Varijable koje ih opredeljuju su: ponderisana vrednost deflatora društvenih proizvoda, odstupanja stvarnih vrednosti od tih ponderisanih proseka u prethodnom periodu i, na kraju, vreme kao varijabla.

Ukratko, funkcionisanje modela odvija se na sledeći način. Egzogene varijable determinišu pojedine komponente finalne tražnje. Na toj osnovi generišu se sektorske promenljive koje u narednoj fazi preko dohodaka i cena povratnom vezom utiču na vrednost komponenata finalne tražnje.

Model je ocenjen za period od 1971. do 1982. godine na osnovu input-output tabele za 1983. godinu. Dosadašnji rezultati vrednovanja modela i njegovog korišćenja sugerišu da GSMS ima dobre performanse, čak i bolje od GMS u posmatranom periodu.

2.2. Ekonomski inštitut Pravne fakultete u Ljubljani — EIPF 4

Na osnovu dosadašnjih iskustava i rezultata može se govoriti o tradiciji ovog Instituta u gradnji kvartalnih ekonometrijskih modela. Savremene metodološke novine u specifikaciji ekonometrijskih modela (ugradnja hipoteze o racionalnim očekivanjima), njihovom povezivanju sa dostignućima analize vremenskih serija (desezoniranje, integracija ova dva pristupa i dr.), ocenjivanju (komparacija različitih metoda linearnog i nelinearnog ocenjivanja), primeni algoritama optimizacije (Chow i Holbrookov pristup) samo su delimičan spisak inovacija koje su proveravane, sa stanovišta njihove korisnosti, na kvartalnom modelu ovog Instituta.

Model EIPF 4 predstavlja četvrtu verziju kvartalnog modela na kome je u ovom Institutu rađeno od 1971. godine. Pored ovog »velikog« modela u Institutu je postavljen i »mali« model EIPF 4, odn. agregirana varijanta originalnog modela EIPF 4. Osnovna namena mu je da se na njemu vrše analize osobina modela sa stanovišta alternativnih metoda ocenjivanja, provere različitih algoritama optimizacije ekonometrijskih modela i sl.

U modelu figuriše 71 endogena i 24 egzogenih varijabli. Broj jednačina je, međutim, veći od broja endogenih varijabli jer se posebno modelira stopa rasta ili priraštaj, a posebno nivo većine endogenih varijabli. Ovo je pravdano potrebom gradnje dve koncentrisane verzije modela (kvartalnog i tromesečnog modela, koji se razlikuju prema tome kako se računaju kvartalne stope rasta) i kasnijeg korišćenja modela u svrhe konjunkturalnih analiza Instituta. Pri tome se ni u jednom od ovih modela ne insistira na zatvaranju modela, tj. postizanju konzistentnosti u smislu društvenih računa, već je naglasak na modeliranju ponašanja privrednih subjekata. U tom cilju model EIPF 4 možemo podeliti na devet blokova: cene i lični dohoci, zaposlenost, primanja i izdaci stanovništva, investicije u osnovna sredstva, zalihe,

spoljnotrgovinska razmena, privredna aktivnost, monetarni i fiskalni blok.

Bazična cenovna jednačina u bloku cena i ličnih dohodaka je ona kojom se modelira rast i nivo indeksa cena proizvođača. Teorijski osnov ove funkcije je troškovni pristup fenomenu inflacije prema kome su glavne determinante rasta cena, troškovi radne snage, troškovi nadgradnje, uvozne cene, kurs dinara prema dolaru i promene u relativnim zalihama. Indeks cena proizvođača poljoprivrednih proizvoda opredeljen je pre svega poljoprivrednom proizvodnjom (rastom i nivoom), a zatim indeksom cena proizvođača industrijskih proizvoda i rastom zaliha industrijskih proizvoda. Specifikacija jednačina uvoznih i izvoznih cena sugerise da su svetske cene u ovom bloku njihov opredeljujući faktor. Ostale cene u ovom bloku definisane su preko modela koji treba da zameni definicijske jednačine iz pređašnjih makroekonometrijskih modela. To se odnosi na rast cena na malo (roba) i rast cena na malo (ukupno). Pored njih, objašnjen je rast i nivo cena na malo industrijskih i poljoprivrednih proizvoda. Napokon, deflatori za posebne komponente finalne tražnje (potrošnja stanovništva i investicije) eksplicitno su izvedeni.

Trima jednačinama je opisano kretanje ličnih dohodaka. Prva objašnjava rast ličnih dohodaka u privredi, preko porasta dohotka po zaposlenom, indeksa cena na malo, produktivnosti rada, stopom nezaposlenosti i likvidnošću. Kao u modelima IER rast ličnih dohodaka u neprivredi se vezuje uz rast ličnih dohodaka u privredi. Trećom jednačinom modeliran je rast ličnih dohodaka u društvenom sektoru i to preko gornje dve stope rasta ličnih dohodaka (u privredi i neprivredi). Ova stohastička jednačina zamenjuje definicijski identitet.

Drugi blok u modelu EIPF 4 odnosi se na zaposlenost i proizvodne mogućnosti. Ponuda radne snage (potencijalni broj zaposlenih — kako to autori nazivaju) opredeljen je brojem stanovništva, a višak ponude brojem osoba koje traže zaposlenje i prikrivenom nezaposlenošću (kao razlika između ponude radne snage i ukupne zaposlenosti privrednog i neprivrednog dela društvenog sektora, te domaćeg i inostranog privatnog sektora). Rast zaposlenosti u privrednom delu društvenog sektora uslovljen je indeksom iskorišćenosti kapaciteta, stopom rasta investicija u osnovna sredstva, rastom industrijske proizvodnje te rastom zaliha gotovih proizvoda u industriji. Teorijsko objašnjenje ove specifikacije je jednostavno. U uslovima tržišnih privreda porast zaliha gotovih industrijskih proizvoda trebalo bi da negativno utiče na zavisnu promenljivu, tj. da uspori zapošljavanje novih radnika, jer se postojeći proizvodi (u vidu zaliha) još nisu realizovali. Obrnuto važi za rast industrijske proizvodnje za koju očekujemo da uzrokuje istosmernu promenu stope rasta zaposlenosti. Porast ukupnih investicija stvara mogućnost za povećanje broja zaposlenih, otvaranjem novih radnih mesta, a i uz postojeća osnovna sredstva, njihovim boljim korišćenjem, moguće je povećanje zaposlenosti. Porast zaposlenosti u neprivredi vezuje se uz porast zaposlenosti u privredi, s jedne, i učešće potencijalnog broja zaposlenih u ukupnom broju stanovništva, s druge strane.

Do potencijalnog proizvoda društvenog sektora privrede dolazimo preko proizvodne funkcije u kojoj je glavni faktor veličina osnovnih sredstava i vreme kao varijabla (pretpostavka o neutralnom tehničkom progresu). Ovako određen potencijalni proizvod društvenog sektora (aproksimiran potencijalnim proizvodom industrije) u odnosu na stvarnu industrijsku proizvodnju definiše stepen iskorišćenosti kapaciteta.

Naredni blok objašnjava način formiranja prihoda i izdataka stanovništva. U modelu se vrši razlikovanje četiri izvora dohotka stanovništva: 1) dohoci iz radnog odnosa (u privredi i neprivredi i ukupno), 2) dohoci od prodaje poljoprivrednih proizvoda i dohoci od zanatskih i transportnih usluga, 3) dohoci od socijalnog osiguranja, i 4) ostali dohoci stanovništva u gotovini. Dalje se ovi dohoci na adekvatan način kumuliraju da bi se dobili ukupni lični dohoci, ukupni dohoci i raspoloživi lični dohoci. Upravo ova poslednja veličina predstavlja glavnu determinantu potrošnje, odn. izdataka stanovništva na robe i usluge. Pored ovog faktora u obe funkcije javlja se i stopa rasta cena na malo (stopa inflacije). U slučaju izdataka na robe među opredeljujuće faktore ulaze i odobreni potrošački krediti, a kod izdataka na usluge — stopa nezaposlenosti (odnos nezaposlenih i zaposlenih u društvenom sektoru).

Blok investicija je dezagregiran prema načinu njihovog formiranja i prema tome da li su u pitanju privredne ili neprivredne investicije. Investicije u osnovna sredstva privrede finansirane iz sredstva OUR-a, uslovljene su faktorom vrednosti osnovnih sredstava. Preostale nezavisne promenljive su likvidnost privrede i ukupni krediti za investicije u osnovna sredstva. Po autorima, teorijski je nejasna uloga ove poslednje varijable, mada je sa praktične strane jasno da su OUR-i bar u periodu gradnje modela bili u velikoj meri orijentisani ka uzimanju investicionih kredita umesto da se oslanjaju na vlastita sredstva. Investicije u osnovna sredstva privrede finansirane iz spoljnih izvora (banke i društveni fondovi) opredeljene su nivoom i rastom kredita za investicije u osnovna sredstva i obimom investicija u osnovna sredstva iz vlastitih izvora. Neprivredne investicije u osnovna sredstva tretiraju se egzogeno, dok se kretanje vrednosti osnovnih sredstava objašnjava sopstvenom veličinom iz prethodnog perioda i novim realnim investicijama (na osnovu realnih bruto proizvodnih investicija uz stalnu primenu odgovarajuće stope depresijacije). Investicioni deflator je dobijen kao ponderisani prosek indeksa ličnih dohodaka i cena proizvođača industrijskih proizvoda.

Naredni, šesti blok čine jednačine kojima se modeliraju zalihe. One su dezagregirane na: zalihe gotovih proizvoda u industriji, zalihe sirovina i zalihe roba u trgovini. Kratkoročno posmatrano, prva komponenta ovog bloka (zalihe gotovih proizvoda) ima izraziti anticiklični karakter. Zato se među faktorima koji je objašnjavaju nalaze faktori i sa strane ponude i sa strane tražnje (izdaci stanovništva za robe i uvoz roba). S druge strane, kratkoročni krediti za obrtna sredstva omogućavaju proizvodnju za zalihe, a na prirast zaliha utiču i cene proizvođača. Teorijski osnov naredne dve funkcije u ovom bloku je princip fleksibilnog akceleratora. Tako se prirast zaliha sirovina i

repromaterijala objašnjava obimom industrijske i poljoprivredne proizvodnje, uvozom roba i svojom sopstvenom vrednošću iz prethodnog perioda. Rekli smo da je isti teorijski osnov koji opredeljuje i zalihe roba u trgovini što znači da je njihov prirast objašnjen obimom trgovinskog prometa, zalihama gotovih proizvoda u industriji i svojom sopstvenom vrednošću iz prethodnog perioda. Elementi sa strane tražnje takođe su uključeni među objašnjavajuće promenljive i to preko izdataka stanovništva za robe. Napokon, kao odraz stanja likvidnosti u privredi uključena je i varijabla promena novčane mase.

U bloku spoljnotrgovinske razmene pored definicijske jednačine promene realnog kursa objašnjeno je i kretanje realnog uvoza i izvoza, deviznih doznaka radnika iz inostranstva i deviznog priliva od turizma. Specifikacija jednačine realnog uvoza zasniva se na standardnoj funkciji tražnje, pa je među njegovim determinantama: obim industrijske proizvodnje, obim poljoprivredne proizvodnje iz prethodnog perioda, zalihe sirovina i repromaterijala i relativne uvozne cene. Kako se u zavisnosti od stanja trgovinskog bilansa uvoz reguliše odgovarajućim ekonomsko-političkim merama, u ovu jednačinu je uključen i relativni trgovinski bilans. Isti princip je poštovan i u specifikaciji jednačine realnog izvoza pri čemu se sada uzima u obzir svetska tražnja. Ona je ocenjena privrednom aktivnošću u zemljama OECD i relativnim izvoznim cenama. Pored tih faktora uključeni su i rast domaćih cena proizvođača, iskorišćenost kapaciteta i poljoprivredna proizvodnja. Postojeća praksa uslovljavanja uvoza izvozom, te stimulisanje domaćih proizvođača da se orijentišu i ka inostranim tržištima, pokušana je da se modelira uvođenjem uvoza iz prethodnog perioda i izvoznih kredita u specifikaciju jednačine realnog izvoza. Kao determinante veličine deviznih doznaka radnika iz inostranstva autori modela su uključili broj zaposlenih u inostranstvu, privrednu aktivnost u zemljama zapadne Evrope, te realnost kursa dinara (kurs dinara prema dolaru u odnosu prema domaćim cenama na malo). Devizni priliv od turizma je objašnjen brojem noćenja inostranih turista, kursom dinara prema dolaru i indeksom cena na malo.

Prema autorima modela, blok privredne aktivnosti predstavlja početak gradnje tzv. »satelitskih« modela (posebno se modeliraju aktivnosti za svaku privrednu delatnost). Kako je industrija relativno najdominantniji sektor u nas, prva jednačina u ovom bloku objašnjava upravo njen rast i to preko rasta cena proizvođača, izdataka stanovništva na robe, zaliha gotovih proizvoda, kratkoročnih kredita i ukupnih investicija u osnovna sredstva. Takođe je uključeno vreme kao varijabla čime je iskazan autonomni trend, odn. porast industrijske proizvodnje tokom vremena. Budući da industrija dominira među delatnostima, razumljivo je zašto se za njen rast vezuju aktivnosti u ostalim sektorima. Tako je rast građevinarstva opredeljen rastom industrijske proizvodnje (komponenta stope rasta nepoljoprivredne proizvodnje) ali i porastom ukupnih investicija (kako iz sredstava privrednih i neprivrednih organizacija tako i banaka i fondova). Rast aktivnosti saobraćajnog sektora objašnjen je rastom nepoljoprivredne proizvodnje i iskorišćenošću kapaciteta. Naposletku, u ovaj blok su uključene i dve jednačine koje specifičiraju kretanje realizacije i ma-

terijalnih troškova proizvodnje. Prva od njih je objašnjena rastom investicija u osnovna sredstva, ukupnim izdacima stanovništva, rastom zaliha gotovih proizvoda, te rastom nepoljoprivredne proizvodnje. Druga je objašnjena rastom zaliha gotovih proizvoda i rastom realizacije.

Za razliku od modela IER koji modeliraju realni sektor privrede, tretirajući aktivnost u monetarnoj sferi kao egzogenu, model EIPF 4 pokušava u pojednostavljenoj formi da obuhvati kretanja relevantnih agregata objašnjavajući ih unutar monetarnog bloka. Novčana masa je objašnjena likvidnim sredstvima privrede, gotovim novcem u optičaju i kratkoročnim kreditima poslovnim bankama. Gotov novac u optičaju objašnjava se rastom ukupnih izdataka i prihoda stanovništva, rastom obaveznih rezervi banaka te rastom cena na malo. Poslednja jednačina ponašanja ovog bloka specifičira kretanje likvidnih sredstava privrede, gde su nezavisne promenljive kratkoročni krediti za obrtna sredstva, izdaci za uvoz, finalna tražnja u nominalnom izrazu (sa svojim komponentama), te cene proizvođača.

Poslednji, deveti blok modela EIPF 4 je fiskalni blok. Dobar broj ključnih varijabli ovog bloka morao je biti egzogeniziran usled nedostataka podataka i institucionalnih rešenja koja su onemogućavala ocenjivanje odgovarajućih jednačina ponašanja. To se odnosi na izdatke neproizvodnih delatnosti i transfere koji nisu objašnjeni u drugim blokovima. U ovom bloku objašnjeno je kretanje sledećih varijabli: poreza i doprinosa iz ličnog dohotka (ukupno i u privredi), poreza na promet, carina, te ostalih poreza i doprinosa privrede. Neto lični dohoci (ukupno i u privredi) glavna su determinanta poreza i doprinosa iz ličnog dohotka. Porez na promet je uslovljen troškovima društvene zajednice i neprivrede i ukupnim izdacima stanovništva, a carine uvozom roba i uvoznim cenama.

Zasnivajući istraživanje na kondenzovanoj verziji modela EIPF 4 u Institutu je vršena komparacija alternativnih metoda ocenjivanja u cilju sagledavanja njihovog uticaja na finalni produkt makroekonometrijskog modela (predviđanje i simulaciju). Eksperimentisano je sa metodom običnih najmanjih kvadrata (OLS) i metodama instrumentalnih varijabli sa delimičnom (LIVE) i potpunom (FIVE) informacijom. Sa stanovišta malog modela EIPF 4 optimalan je metod LIVE jer za oko 20% smanjuje srednju kvadratnu grešku predviđanja u odnosu na metod OLS. Ovo smanjenje je, međutim, postignuto po cenu pet puta većeg angažovanja rada računara.

Urađen je, doduše parcijalan, pokušaj modeliranja očekivanja privrednih subjekata i njihovo uključivanje u mali model EIPF 4. Koristi se dobro poznati pristup iz literature, prema kome se u »klasici« (standardnom Keynes-Kleinovom) modelu vrši zamena varijabli sa rasprošćenim doznama, varijablama racionalnog očekivanja sa ograničenom informacijom da bi se zatim metodom OLS ocenio ceo model. Uz specifičnu proceduru simulacije modela sa racionalnim očekivanjima (vidi: Bole (1984, ss. 19—21)), izvršeno je poređenje ovog modela sa standardnom verzijom EIPF 4 i verzijom u koju su ugrađena adaptivna očekivanja. Rezultati su pokazali da je u dinamičkoj simulaciji prethodnog perioda standardni model imao bolje perfor-

manse i od »adaptivnog« i od »racionalnog« modela. Osnovni smisao korišćenja modela sa racionalnim očekivanjima jeste u korektnijem vrednovanju alternativnih mera ekonomske politike (u skladu sa Lucasovom (1976) kritikom standardnih ekonometrijskih modela). Ograničen broj eksperimenata je pokazao da su kretanja analiziranih endogenih varijabli zavisna od prirode očekivanja privrednih subjekata. Usvojivši polazno stanovište, odn. suštinu hipoteze o racionalnim očekivanjima privrednih subjekata, sa većom pouzdanošću možemo prihvatiti preporuke (zaključke) koje proizlaze iz evaluacije alternativnih mera ekonomske politike, na osnovu modela u koji su ugrađena racionalna očekivanja, u odnosu na preporuke standardnog ekonometrijskog modela.

Na kraju prikaza modela EIPF 4 potrebno je istaći još jedan njegov kvalitet. Modeli ma kog sistema moraju evoluirati u skladu sa promenama koje nastaju u modeliranom sistemu. Isto važi i za ekonometrijske modele. Znači da se model mora respecifirati u skladu sa uočenim promenama u ponašanju privrednih subjekata da bi svojom izmenjenom strukturom bio »bliži« realnom sistemu. Pored toga, protokom vremena dolazi do priliva novih opservacija koje se mogu uključiti u bazu podataka da bi se izvršilo ponovno ocenjivanje koeficijenata modela. Upravo ova dva zahteva su ispoštovana u modelu EIPF 4: promena specifikacije i precenjivanje modela, čime je povećana verodostojnost analiza koje se njime vrše.

2.3. Ekonomski institut — Zagreb i Florida State University — EIZFSU

U Ekonomskom institutu u Zagrebu posle modela Babića (1974) počelo se raditi na godišnjem makroekonometrijskom modelu jugoslovenske privrede u saradnji sa Florida State University. Plod te saradnje je ekonometrijski model koji pripada klasi Keynes-Kleinovih modela i sledi tradiciju modela koji se baziraju na modeliranju potrošne strane društvenog proizvoda.

Obuhvaćeno je 67 jednačina od kojih su 39 jednačine ponašanja, a 28 su identiteti. Prema uobičajenim kriterijumima ovih 67 jednačina možemo podeliti u sledećih šest blokova, odn. sektora: domaća tražnja i ponuda, spoljnotrgovinski sektor, lični dohoci i cene, radna snaga, izvori finansiranja opšte i zajedničke potrošnje i blok u koji su svrstani ranije neraspoređeni identiteti.

U okviru sektora domaće tražnje i ponude imamo sedam podsektora u kojima se modeliraju sve komponente tražnje i ponude. Tako je u podsektoru potrošnje potrošna funkcija, pored raspoloživog dohotka stanovništva kao objašnjavajuće promenljive, uključila i potrošnju iz prethodnog perioda i potrošačke kredite. Za razliku od modela kod kojih se raspoloživi dohodak definiše putem identiteta, ovde se pokušalo sa njegovim stohastičkim modeliranjem. Pri tome su kao determinante uzete: društveni proizvod i priraštaj inostranih kredita. Treća jednačina u podsektoru potrošnje jeste jednačina potrošačkih kredita koja odslikava opštu raspoloživost kredita i troškove njegovog

uzimanja, preko varijabli ukupnih kredita datih firmama i eskontne stope Narodne banke Jugoslavije.

Investicioni podsektor uključuje četiri jednačine ponašanja i jedan identitet. Kao prva javlja se investiciona funkcija za industriju, prema kojoj su bruto investicije u ovoj delatnosti opredeljene njenim društvenim proizvodom i osnovnim sredstvima, te troškovima korišćenja sredstava za investicije i ukupnim kreditima datim privrednim organizacijama. Pokazalo se da je samo ova poslednja varijabla imala statistički značajan uticaj na investicije u industriji. Za razliku od industrije, u poljoprivrednoj delatnosti (društveni i privatni deo) nije uočen značajan uticaj ovih finansijskih sredstava na investicije. Zato su u investicionim funkcijama društvenog i privatnog sektora poljoprivrede značajni (po svom uticaju na zavisnu promenljivu): priraštaj društvenog proizvoda poljoprivrede (i u društvenom i u privatnom sektoru), priraštaj obradivog zemljišta (u privatnom ali ne i u društvenom sektoru), a kod društvenog sektora i vrednost investicija iz prethodnog perioda. Za nepoljoprivredne delatnosti (uključeno je građevinarstvo, šumarstvo, zanatstvo, turizam, trgovina, saobraćaj i vladine usluge) specifikacija investicione funkcije je slična kao i u slučaju industrije. Identitetom se u ovom podsektoru definišu ukupne bruto investicije.

Teorijska pretpostavka da preduzeća teže da održe konstantan odnos zaliha i prodaje našla je svoga odraza u funkciji zaliha. Specifikacija ove jednačine među opredeljujuće faktore nivoa zaliha uključuje: društveni proizvod, promene prodaje, kredit, stopu inflacije, uvoz repromaterijala.

U podsektoru proizvodnje preko proizvodnih funkcija Cobb-Douglasovog tipa modelirani su društveni proizvodi industrije, poljoprivrede (društveni i privatni sektor) i ostalih nepoljoprivrednih delatnosti. Veličina osnovnih sredstava je korigovana za stepen korišćenja kapaciteta (učinjen je interesantan pokušaj da se on meri uvozom repromaterijala). Pokazalo se da, osim u privatnom sektoru poljoprivrede (izuzetak koji je sasvim razumljiv), osnovna sredstva igraju značajnu ulogu, a da su koeficijenti uz radnu snagu, tj. odgovarajuće elastičnosti, preko dva puta veće od onih za kapital. U poljoprivrednim proizvodnim funkcijama dodat je i treći faktor — zemljište, sa sledećim rezultatom: kod privatnog sektora zemljište je jača determinanta proizvodnje no što je to slučaj u društvenom sektoru poljoprivrede.

Osnovna sredstva po sektorima su određena na isti način kao npr. u GMS.

Drugi blok u modelu EIZFSU je spoljnotrgovinski blok a unutar njega imamo specifikacije izvoznih i uvoznih jednačina. Izvoz roba u nesocijalističke zemlje (konvertibilno područje) pod velikim je uticajem tražnje šest izabраниh zemalja OECD (merena ponderisanim indeksom industrijske proizvodnje), kvaliteta jugoslovenskog izvoza (predstavljen promenama zaliha i izvozom u socijalističke zemlje — sve u relativnom iznosu prema društvenom proizvodu), relativnim izvoznim cenama i kapitalnom opremljenošću rada.

Izvoz roba u socijalističke zemlje (klirinško područje) determinisan je društvenim proizvodom industrije, promenama zaliha, izvo-

zom usluga (izvoz roba u istočne zemlje često je vezan za angažman domaćih preduzeća na građevinskim poslovima, montaži i sl.) i nominalnom vrednošću uvezena nafte iz SSSR. Kretanje izvoza usluga objašnjeno je relativnim izvoznim cenama (realnim deviznim kursom), brojem noćenja stranih turista i realni neto dohotkom kapitala (mera finansijske podrške građevinskih usluga u inostranstvu i ostalih usluga u bilansu plaćanja — smatra se drugim vidom povećanja spoljnog duga). (U ovom prikazu strukture modela ne pominjemo brojne veštačke varijable kojima se obuhvataju izvesni administrativni zahvati u privrednom sistemu kao što je npr. privredna reforma iz 1965. godine, ili spoljni »šokovi« kao što je naftni embargo zemalja članica OPEC-a i sl.)

Na uvoznoj strani je, pored usluga, modeliran uvoz tri kategorije roba. Prvu grupu čini uvoz reprod materijala i sirovina koji je ograničen finansijskim varijablama: izvoz roba u nesocijalističke zemlje, inostrani kredit i izvoz proizvodnih usluga. Pored njih, ovaj uvoz je determinisan i uvoznim cenama industrijskih roba (relativno, u odnosu na domaće cene), te rastom društvenog proizvoda industrije. Drugu grupu čini uvoz kapitalnih dobara koji je opredeljen ukupnim investicijama, realnim deviznim kursom, izvozom u nesocijalističke zemlje i povećanjem inostranih kredita. U slučaju treće grupe, uvoza roba za potrošnju, pokazalo se da izvoz u nesocijalističke zemlje pored povećanja spoljnog duga, predstavlja jedino ograničenje ovog uvoza, ali da su u igri još i društveni proizvod i kapitalna opremljenost rada (mera nivoa razvijenosti privrede).

Modeliranje uvoza usluga pokazalo je da pored društvenog proizvoda i uvoznih cena industrijskih roba značajan uticaj imaju i ukupan uvoz roba i izvoz usluga. Spoljnotrgovinski blok se zatvara identitetom koji uravnotežuje spoljnotrgovinske tokove.

Modeliranje jednačine ličnih dohodaka bazira na teorijskim razmatranjima uobičajenim na Zapadu, prema kojima rast nadnica zavisi od uslova na tržištu radne snage i od očekivane inflacije. Kao varijabla koja bi obuhvatila prvi faktor, uzeta su efektivno korišćena osnovna sredstva, a drugi faktor je uključen preko stope rasta cena (implicitnog deflatora društvenog proizvoda). Jedna od odlika samoupravnog preduzeća bila bi da se rast ličnih dohodaka vezuje uz porast produktivnosti rada. Stoga je kao jedan od faktora povećanja ličnih dohodaka uvršten i porast produktivnosti rada. Cene su pored ličnih dohodaka druga komponenta inflacione spirale. Po nekim istraživanjima cenovni mark-up princip (pri porastu troškova po jedinici, preduzeća unapred povećavaju cene svojih proizvoda) karakteriše i inflaciju u Jugoslaviji. Međutim, tokom osamdesetih godina inflacija prima sve više karakteristike hiperinflacije što je našlo odraza i u specifikaciji jednačine porasta cena. Determinante porasta cena nalazimo u stopi promene jediničnih troškova rada, rastu uvoznih cena i rastu kredita (naročito posle 1980. godine). U okviru ovog bloka definišu se, kao što je to uobičajeno, svi potrebni implicitni deflatori pojedinih komponenti finalne tražnje.

Blok radne snage obuhvata jednačine zaposlenosti u tri sektora: industrija, poljoprivreda (društveni i privatni sektor) i nepoljoprivred-

ne delatnosti. Među glavnim determinantama nalazimo, pre svega, realne lične dohotke po zaposlenom i tražnju. Pokazalo se da razlika između maksimalne i stvarne tražnje nije faktor koji doprinosi objašnjenju varijacija u broju zaposlenih. Da bi se poboljšale statističke karakteristike ocenjenih jednačina dodata je kao objašnjavajuća promenljiva i nivo zaposlenosti u odnosnom sektoru iz prethodne godine.

Pri modeliranju ponude radne snage vodilo se računa o radnicima na privremenom radu u inostranstvu. Tako je preko stope nezaposlenosti u Zapadnoj Nemačkoj obuhvaćen uticaj tih radnika na ponudu radne snage u zemlji. Kao što se moglo i očekivati, lični dohoci nisu značajan faktor koji objašnjava promene u ponudi radne snage zbog specifičnog institucionalnog tretmana radne snage kod nas. Inertnost u ponudi radne snage sagledava se preko koeficijenata uz zavisnu varijablu s docnjom (taj koeficijent je blizak jedinici). Poslednjom jednačinom u ovom bloku definiše se stopa nezaposlenosti.

Pretposlednji blok obuhvata jednačine izvora finansiranja opšte i zajedničke potrošnje. Osnovna veličina za koju se vezuju svi porezi i doprinosi je društveni proizvod (sa i bez učešća društvenih delatnosti). Među porezima i doprinosima dominiraju: doprinosi iz ličnih dohodaka, porez na promet, doprinosi iz dohotka i carine. Upravo su oni objašnjeni u ovom bloku. Pored navedenog faktora, na veličinu poreza na promet utiče i promena zaliha, a na doprinose iz dohotka — zaduživanje u inostranstvu. Jedina determinanta carina je sasvim očigledno — uvoz roba.

U šestom bloku navedeni su svi identiteti, tj. definicione jednačine koje nisu pomenute u okviru ostalih sektora.

Model EIZFSU je ocenjen metodom običnih najmanjih kvadrata ili metodom maksimalne verodostojnosti kojom se uzima u obzir autokorelacija reziduala. Period koji pokrivaju podaci i istovremeno period ocenjivanja je interval od 1952. do 1984. godine.

Rezultati dinamičke simulacije modela EIZFSU su pokazali visok stepen slaganja simuliranih i stvarnih vrednosti endogenih varijabli (koeficijent korelacije između te dve serije je kod svih endogenih varijabli prelazio vrednost 0.90).

2.4. Institut za ekonomiku industrije u Beogradu — IEI

Model koji je konstruisan u Institutu za ekonomiku industrije u Beogradu spada, po rečima jednog od njegovih autora (Dragutinović (1987)), u klasu proizvodno-kapitalnih modela. Kao što je poznato, njihovu srž čini modeliranje privrednog rasta, tj. ponude u privredi. Prvobitne verzije ovih modela potpuno su zanemarile potražnju u privredi, pa je očigledno da se njima ne mogu otkriti uska grla ili višak kapaciteta po pojedinim sektorima u odnosu na kretanje tražnje. Upravo su ovo bili razlozi koji su nas rukovodili da ne prikazujemo proizvodno-kapitalne modele. U praktičnoj primeni modeli ovog tipa još nalaze mesta u dugoročnom planiranju (vidi: Borak i dr. (1985, ss. 53—82)), dok su za usmeravanje finalne tražnje na kratak rok (osnov-

na preokupacija ekonomske politike) svoj primat izborili makroekonomometrijski modeli Keynes-Kleinovog tipa.

Imajući ovo u vidu, autori modela IEI su prišli dopuni proizvodno-kapitalnog dela, tako što su i komponente finalne tražnje eksplicitno modelirali, dobivši time kombinaciju modela ponude i tražnje.

Teorijski osnov proizvodno-kapitalnog dela modela nalazimo u objašnjenju funkcionisanja modela sa dva jaza. U slučaju modeliranja jugoslovenske privrede možemo identifikovati: jaz u resursima (razlika raspoložive akumulacije i potrebnih investicija) i devizni jaz (razlika između neophodnog uvoza i mogućeg izvoza). Što se tiče specifikacije potražnog dela modela, autori su se orijentisali na tzv. eksperimentalni pristup koji je rezultirao u jednačinama komponenata finalne tražnje i gde je društveni proizvod glavna, ako ne i jedina determinanta.

Model se sastoji od 20 jednačina od kojih su 15 jednačine ponašanja, a 5 su identiteti. Izlaganje modela, zbog njegovog malog obima, vršićemo prema tome da li jednačina pripada bloku ponude ili bloku tražnje.

Bloku ponude pripadaju privredne investicije u osnovne fondove koje su determinisane društvenim proizvodom; osnovna sredstva sa njihovim opredeljujućim faktorima: privrednim investicijama i sopstvenom vrednošću iz prethodnog perioda, te jedna jednačina koja bi trebalo da odsluka tehnološku zavisnost proizvodnje u uslovima punog korišćenja kapaciteta (mera potencijalnog društvenog proizvoda).

Blok tražnje sadrži jednačine sledećih komponenata finalne tražnje: lične potrošnje, opšte i zajedničke potrošnje, bruto investicija u osnovne fondove, ukupan uvoz i ostalo. Bilansnom jednačinom definisan je društveni proizvod, a uz egzogeni tretman ukupnog izvoza, zatvaranje ovog modela izvršeno je pomoću funkcije akumulacije. Već je rečeno da društveni proizvod determiniše sve komponente tražnje, ali je zbog boljih statističkih osobina jednačina, kod potrošnje (lične, opšte i zajedničke) i neprivrednih investicija, dodata i sopstvena vrednost iz prethodnog perioda. Ovom bloku pripada još i jednačina ličnih dohodaka u kojoj takođe figuriše društveni proizvod kao objašnjavajuća promenljiva.

U blok tražnje uneta su i dva identiteta: uslov platnobilansne ravnoteže (razlika između većeg uvoza i manjeg izvoza eliminiše se neto prilivom kapitala) i uslov ravnoteže na tržištu kapitala (neto priliv kapitala izjednačava akumulaciju i investicije).

Napokon, u funkciji zaposlenosti vezuje se kretanje zaposlenosti uz promenu društvenog proizvoda i sopstvenu vrednost s docnjom.

Autori modela su eksperimentisali sa alternativnim metodama ocenjivanja i dobili rezultat da su ocene navedenih specifikacija prilično neosetljive na primenjeni metod ocenjivanja. Dinamičkom simulacijom ispitan je kvalitet modela u celini i pokazalo se da je zadovoljavajući.

Mada su autori modela diversifikovali potražnu stranu modela, on je u biti ostao proizvodno-kapitalni model rekurzivnog tipa. Znači da je modelom ostalo neobuhvaćeno bogatstvo simultanih međuzavis-

nosti ekonomskih fenomena, s jedne strane, i, što je važnije, izostali su instrumenti kojima bi nosioci ekonomske politike mogli uticati na tokove finalne tražnje, s druge strane.

2.5. Institut ekonomskih nauka u Beogradu — IEN

Nakon duge tradicije u izgradnji proizvodno-kapitalnih modela i njihovom korišćenju u planiranju, u Institutu ekonomskih nauka u Beogradu pristupilo se gradnji godišnjeg makroekonometrijskog modela Keynes-Kleinovog tipa. Model uključuje 50 endogenih i 40 egzogenih varijabli svrstanih u sledeće blokove: potrošnja, investicije i zalihe, tekući platni bilans, inflacija i nezaposlenost, opšta i zajednička potrošnja, te kreditno-monetarni blok.

Osnovna funkcija kojom se modelira ponašanje potrošača u prvom bloku modela jeste funkcija prosečne sklonosti ka potrošnji. Teorijski osnov ove potrošne funkcije je kombinacija teorije o permanentnom dohotku i hipoteze životnog ciklusa. Zbog nesumnjivog značaja uticaja inflacije na ponašanje potrošača čini se opravdanim da se učešće potrošnje u raspoloživom dohotku predstavi kao funkcija realne kamatne stope, stope inflacije i stope raspoloživog dohotka (učešće raspoloživog dohotka u društvenom proizvodu). U cilju obuhvata uticaja ciklične komponente privredne aktivnosti na potrošnju, uključena je i varijabla koja je definisana kao odnos pokretnog proseka raspoloživog dohotka i raspoloživog dohotka.

Pored navedene potrošne funkcije ocenjuje se i implicitni deflator potrošnje preko deflatora društvenog proizvoda. Ostale jednačine u ovom bloku su definicione: potrošnja (nominalna i realna), raspoloživi dohodak (po tekućim i stalnim cenama), te realna kratkoročna kamatna stopa.

U bloku investicija i zaliha izvršeno je dezagregiranje investicija na privredne i neprivredne. Ove poslednje su tretirane kao egzogena varijabla. Ključna jednačina ovog bloka jeste jednačina bruto privrednih investicija, čije modeliranje je zasnovano na teorijskoj pretpostavci delimičnog prilagođavanja željenom nivou osnovnih sredstava. Glavne determinante nivoa ovih investicija su: promene realnog društvenog proizvoda, nivo korišćenja kapaciteta, interni fondovi, eksterni fondovi, realna kamatna stopa i sopstvena vrednost iz prethodnog perioda. U skladu sa transakcionim i proizvodnim motivom držanja robe na zalihama, u jednačini zaliha su uključene kao objašnjavajuće promenljive: promena industrijske proizvodnje, stope promene prodaje i realne kamatne stope.

Još tri endogene varijable su modelirane u investicionom bloku. To su: indeks industrijske proizvodnje, nivo korišćenja kapaciteta i interna realna akumulacija. Indeks fizičkog obima industrijske proizvodnje predstavljen je kao funkcija promene realnog društvenog proizvoda, uvoza i sopstvene vrednosti s docnjom. Korišćenje kapaciteta se objašnjava faktorima sa strane ponude i sa strane tražnje. Zato su među faktore svrstani: stopa rasta industrijske proizvodnje, uvoz reprodukcionog materijala, bruto investicije u osnovna sredstva i stopa

promene prodaje. Interna realna akumulacija predstavljena je kao funkcija visine dohotka, realne kamatne stope i nivoa instrumenata (stope poreza i doprinosa i stope propisane amortizacije).

Treći blok modela obuhvata jednačine spoljnotrgovinske razmene Jugoslavije sa svetom. Slično ranijoj verziji godišnjeg ekonometrijskog modela jugoslovenske privrede IER-a (rađen za potrebe Saveznog zavoda za društveno planiranje) i u ovom modelu je izvršeno dezagregiranje uvoza na uvoz investicionih, reprodukcioni i potrošnih dobara.

Izvoz je razdvojen na konvertibilno i klirinško područje, pri čemu su izvozne subvencije glavni ekonomski instrument. Preostale komponente platnobilansnog salda, koje se takođe objašnjavaju modelom (otplata kamata i doznake radnika iz inostranstva), formiraju se pod spoljnim uticajem i svesnim akcijama na promeni kamatnih stopa.

Teorijski posmatrano izvoz zavisi od faktora na strani tražnje i ponude. Faktori na strani tražnje su: svetska tražnja i relativne izvozne cene, a na strani izvozne ponude izvoz zavisi od profitabilnosti, najčešće predstavljene preko proizvodnih troškova, korišćenja kapaciteta i relativnih izvoznih cena. Zato su među objašnjavajuće promenljive uključeni: indeks aktivnosti zemalja OECD i odnosa efektivnog nominalnog kursa dinara i indeksa cena na malo. Kod nas se izvoz u dobroj meri formira pod pritiskom potrebe otplate inostranog duga, a takođe se mora povremeno dodatno povećavati zbog potrebe pokrivanja povećanog uvoza, pa su i ove veličine (subvencije i promena uvoza) uključene među objašnjavajuće promenljive realnog izvoza. Kako se izvoz na klirinško područje formira uglavnom na bazi reciprociteta sa uvozom sa tog područja to je upravo taj uvoz uključen kao relevantan faktor pored odnosa klirinškog prema efektivnom dolaru.

Uvoz reprodukcionog materijala se vezuje uz odnos konvertibilnog izvoza i ukupnog uvoza (pokrivenost uvoza konvertibilnim izvozom) zbog uočene pravilnosti da uvoz fluktuiraju ciklično, a izvoz obrnuto, tako da njihov odnos prati privredne cikluse. Pored ovog odnosa uvoz repromaterijala je determinisan odnosom devalvacije dinara i domaće inflacije, indeksom industrijske proizvodnje i svoje sopstvene vrednosti iz prethodnog perioda. Uvoz investicione opreme posmatran je kao funkcija indeksa proizvodne aktivnosti i bruto investicija u osnovna sredstva.

Naredni blok modela obuhvata dve najneuralgičnije tačke sadašnjeg trenutka jugoslovenske privrede. To su inflacija i nezaposlenost. Rast cena proizvođača je uslovljen viškom tražnje za novcem, devalvacijom dinara i politike cena. Rast indeksa cena na malo se vezuje uz rast cena proizvođača i stope poreza i doprinosa.

Do visine ličnih dohodaka dolazimo preko jednačine stope promene prosečnog ličnog dohotka i u koju su ugrađeni mehanizmi očekivanja inflatornih tendencija i uticaja politike raspodele dohotka. Zato se među objašnjavajuće promenljive svrstavaju: stopa inflacije, rast društvenog proizvoda, sopstvena vrednost s docnjom i veštačke varijable koje treba da obuhvate promene u politici raspodele dohotka i povremene administrativne interventne mere u ovoj sferi (režim kontrolisanja rasta ličnih dohodaka).

Što se nezaposlenosti i njegove stope tiče, ona je u modelu određena nivoom agregatne tražnje, odn. privredne aktivnosti, i demografskim uticajem (prirast učešća radno sposobnog stanovništva u ukupnom), kao i intervencijama ekonomske politike na planu zapošljavanja.

U bloku opšte i zajedničke potrošnje ukupan priliv sredstava namenjenih opštoj i zajedničkoj potrošnji dezagregiran je na sledeće komponente: direktni porezi (na dohodak i lične dohotke), indirektni porez na promet, ostali porezi, carine, obavezni zajmovi i obavezno udruživanje, doprinosi iz dohotka, doprinosi iz ličnih dohodaka i doprinosi za SIZ materijalne proizvodnje.

Naredna specifičnost modela je vezana upravo za ovaj blok. Pretpostavljeno je da se ne mora ispuniti ograničenje budžeta, tj. jednakost prihoda i rashoda, i pored uobičajene prakse rebalansiranja budžeta. To je učinjeno sa ciljem ispitivanja efekata deficita budžeta na inflaciju (preko monetarne sfere).

Po rečima autora budžetski blok je u modelu više »endogenizovan« nego što je to uobičajeno, da bi se raščlanile komponente u formiranju opšte i zajedničke potrošnje i pratili njihovi odvojeni uticaji. Tako se koristi dezagregiranje celog iznosa poreza i doprinosa, preko definisanih osnova za njihovo formiranje i eksterno datih (kao instrumenata ekonomske politike) stopa poreza i doprinosa.

U cilju obračuna i praćenja dinamike ukupne stope poreza i doprinosa i njenih efekata, ukupni iznos svih ovih nominalnih veličina stavljen je u odnos sa ostvarenim društvenim proizvodom. Efekti fiskalne politike ogledaju se u modelu u bloku cena i spoljnotrgovinske razmene.

Poslednji blok u modelu je kreditno-monetarni. U njemu je pokušano da se endogeno tretira ponuda novca. Tako se ponuda novca i kredita predstavlja funkcijom monetarne osnove namenjene bankarskim i proizvodnim transakcijama i saldonom tekućeg platnog bilansa. Kreditni zahtevi, viši od kreditne ponude za iznos »sive emisije« (menica izdatih od privrednih organizacija), zavise od kamatne stope, nivoa investiranja, privredne aktivnosti i cena proizvođača.

Model IEN je ocenjen metodom običnih najmanjih kvadrata uz korekciju autokorelacije Cochrane-Orcuttovom metodom ukoliko se javila potreba za njom. Period ocenjivanja je bio od 1966. do 1986. godine.

2.6. Sličnosti i razlike prikazanih modela

Makroekonometrijski modeli koje ovde razmatramo uključuju različite pristupe ne samo metodološkim problemima nego, pre svega, makroekonomskom modeliranju pojedinih blokova unutar modela. Mada se svi modeli, osim IEI, mogu svrstati u Keynes-Kleinove modele, to ne znači da svi imaju keynesianske implikacije u pogledu vođenja ekonomske politike.

U ovom poglavlju ukazaćemo ukratko samo na neke sličnosti i razlike među modelima, dok se iz samog prikaza modela može više o tome zaključiti.

Komparacija modela sa stanovišta metodološkog pristupa specifikaciji jednačina modela ukazuje na izvesne razlike. Pri svakoj specifikaciji jednačina modela u situaciji smo da po pojedinim blokovima dajemo veći, odn. manji naglasak ili na korišćene podatke ili na ekonomsku teoriju. Većina modela daje veći ponder ekonomskoj teoriji zadržavajući pojedine varijable u nekoj specifikaciji uprkos njenoj statističkoj nesignifikantnosti. Ovo je pravdano ulogom koju te varijable mogu igrati u specifikovanom modelu (kao instrumenti ekonomske politike). Model IEI je primer modela gde je veći naglasak dat podacima, odnosno na osnovu podataka se zaključivalo o specifikaciji pojedinačnih jednačina. Iskustva istraživača iz IER govore u prilog suprotnog pristupa, jer se pokazalo da dobre karakteristike izolovano posmatrane jednačine ne moraju da znače i njeno dobro uklapanje u model kao celinu.

Pri poređenju modela sa stanovišta njihove agregiranosti, možemo posmatrati vremensku, teritorijalnu i sektorsku dimenziju agregacije.

Modeli EIPF 4 i KMS su kvartalni modeli i stoga služe prevashodno za sagledavanje različitih efekata ekonomske politike na kratak rok (obično do godinu ili dve), a ostali modeli su zasnovani na godišnjim podacima i koriste se za srednjoročno planiranje (petogodišnji planski period).

Jedini je IER gradió makroekonometrijske modele za republičke privrede, i to za Sloveniju. Takvi su upravo modeli: KMS, GMS i GSMS. Ostali modeliraju jugoslovensku privredu kao celinu.

Što se tiče sektorske dezagregacije, među prikazanim modelima vlada velika raznolikost. Ona je uslovljena pre svega osnovnom namenom modela. Tako se pojedini sektori u većoj meri posmatraju diverzifikovano u odnosu na ostale sektore, da bi se po pojedinim komponentama preciznije sagledao uticaj instrumenata ekonomske politike. Tako npr., u slučaju KMS sektor ličnih dohodaka i cena je razduženiji u odnosu na ostale sektore upravo zato što se želi imati uvid u međusobnu interakciju ličnih dohodaka i inflacije.

Model EIZFSU vrši dezagregaciju na tri delatnosti: industriju, poljoprivredu (društveni i privatni sektor) i nepoljoprivrednu delatnost u koju kumulira sve ostale, ranije nepomenute delatnosti. Ostali modeli su visoko agregatni, osim GSMS koji je kombinacija strukturnog i ekonometrijskog modela. Znači da je dezagregacija u ovom modelu ugrađena u metodološki pristup njegovoj konstrukciji.

Pokušaj modeliranja monetarnog sektora je učinjen u modelu EIPF 4 i IEN. Ostali modeli obuhvataju samo realni sektor privrede. U ova dva modela eksplicitno je modelirana novčana masa koja se kao veoma važna determinanta javlja u više jednačina. To je slučaj i kod modela EIZFSU gde novac, npr., igra ulogu jednog od faktora koji opredeljuju stopu inflacije. S tim u vezi može se reći da od stepena monetarizacije modela zavisi koju će ulogu novac igrati u njemu. Uključivanje monetarnog bloka u model dozvoljava mogućnost da se fenomenu inflacije priđe sa većom širinom. Naime, u takvom slučaju mogu se proveriti alternativne teorije inflacije (neokeynesianska, monetaristička i dr.).

Slična situacija je i sa fiskalnim sektorom. On se odvojeno modelira kod modela EIPF 4, EIZFSU i IEN, dok kod ostalih modela nije obuhvaćen.

Spoljnotrgovinski blok je najviše razdužen u YULINK modelu, a sličan stepen dezagregacije je obezbeđen kod EIZFSU i IEN modela. Kod YULINK modela takav način i stepen dezagregacije je diktiran potrebom povezivanja tog modela u projekt LINK, a u slučaju modela EIZFSU i IEN učinjen je pokušaj da se različite karakteristike uvoza i izvoza sa konvertibilnog i klirinškog područja (iz nesocijalističkih i socijalističkih zemalja kako se to naziva u modelu EIZFSU) na različit način modeliraju. Pored ove podele spoljnotrgovinske razmene prema valutnom području u ova dva modela je obuhvaćena podela i prema vrsti roba (roba za potrošnju, investiciona roba i sirovine i repromaterijal). Time je omogućeno sagledavanje šireg spektra instrumenata ekonomske politike kojima se može uticati na pojedine komponente finalne tražnje.

Zaposlenost je obuhvaćena u svim modelima preko Cobb-Douglassove proizvodne funkcije, sem kod modela IEN. Postupak se sastoji u tome da se iz klasične proizvodne funkcije, zbog prilagođavanja proizvodnje tražnji na kratak rok, izrazi veličina radne snage preko drugog faktora proizvodnje i same proizvodnje, odn. outputa. Za razliku od ovog pristupa, model IEN zaposlenost izvodi ne iz proizvodne funkcije ili faktorskih cena nego iz opšteg stanja ekonomije.

Prikazani makroekonometrijski modeli korišćeni su za strukturnu analizu jugoslovenske, odn. slovenačke privrede. Ova analiza je pokazala, pri interpretaciji koeficijenata ocenjenog modela, relativan uticaj pojedinih faktora na endogene varijable (preko elastičnosti i multiplikatora), a takođe su, uz njenu pomoć, proverene brojne hipoteze ekonomske teorije o ponašanju privrednih subjekata u samoupravnoj privredi. Pri tome se došlo do rezultata u nekim blokovima modela da pojedini od faktora ne opredeljuju kretanje endogene varijable (npr. u KMS relativne cene izvoza nisu od značajnog uticaja na kretanje realnog izvoza; u YULINK modelu ocenjena jednačina ličnih dohodaka po zaposlenom u privredi sugerise da pritisak nezaposlene radne snage neće uticati na obaranje prosečnih ličnih dohodaka, itd.).

Statička, odn. dinamička simulacija predstavlja obaveznu fazu rada na prikazanim makroekonometrijskim modelima u Jugoslaviji. Dobijeni rezultati sugerisu da specifikirani modeli uglavnom uspešno prolaze ove provere njihove uspešnosti, da verno reprodukuju prošla kretanja. Ukoliko su se javljala relativno veća odstupanja (npr. funkcija uvoza i investicija kod KMS), tada su autori novom specifikacijom pokušali poboljšati njene performanse ili su jednostavno te endogene varijable preveli na spisak egzogenih.

Simulacioni pristup vrednovanju alternativnih mera ekonomske politike našao je svoje mesto kod makroekonometrijskih modela koje smo prikazali. U okviru IER i EIPF korišćen je i drugi pristup zasnovan na maksimiziranju funkcije društvenog blagostanja uz ograničenja nametnuta ekonometrijskim modelom. Pri tome su primenjeni različiti algoritmi optimalne kontrole ekonometrijskog modela (Bolg (1980) i Pfajfar (1980), (1982)).

Ono što se može zaključiti na osnovu prikazanih modela jeste očigledno odsustvo razrađene i zaokružene makroekonomske teorije samoupravne privrede. Autori modela su često posezali za teorijskim i empirijskim rezultatima analiza ostalih tržišnih privreda da bi na osnovu njih pokušali naći adekvatnu specifikaciju pojedinih jednačina u modelu. Pri tome su različiti autori iz šireg mogućeg skupa determinanti endogenih varijabli, prema svom saznanju, birali pojedine faktore za koje su smatrali da su relevantni u opredeljivanju kretanja endogenih varijabli. Obično je izabrani podskup faktora bio različit od modela do modela da bi se ta razlika povećala prilikom operacionalizacije pojedinih promenljivih. Za pojmove iz ekonomske teorije, kao što su: raspoloživi dohodak, novčana masa i dr. moguće je dati alternativne statističke definicije, pa se razlike među modelima mogu javiti i iz tih razloga.

Smatramo da je ipak jedna od glavnih determinanti razlike među modelima njihova namena. Npr. ukoliko je jedan od sektora u fokusu tada će ostali blokovi modela biti visoko agregirani ili će brojne varijable, odn. faktori biti tretirani egzogeno u odnosu na model. Ili, ako se želi sagledati da li na nivou sektora postoji usklađenost ponude i tražnje, gradiće se modeli tipa GSMS, koji su po svojoj strukturi i konstrukciji bitno različiti od ostalih agregatnih modela upravo zbog toga što služe u različite svrhe.

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MACROECONOMETRIC MODELS IN YUGOSLAVIA

Zlatko KOVAČIĆ

Summary

This article reviews the main characteristics of the structural form of macroeconomic models which are in temporary use or are being constructed in Yugoslavia.

Work on macroeconomic, so-called Keynes-Klein's models in Yugoslavia is concentrated in Ljubljana (the Economic Institute of the Law Faculty and the Institute for Economic Research), Zagreb (the Economic Institute) and Belgrade (the Institute of Economic Sciences and the Institute for Industrial Economics). This review includes the models constructed in these institutes.

The common characteristic of the reviewed models is their essential Keynesian nature although alternative theoretical approaches were included in certain sectors in the specification of certain equations.

We encounter both yearly and quarterly models at the national level (Yugoslavia) or at the level of a specific republic (Slovenia). From the point of view of sectoral aggregation we find "pure" macroeconomic

metric models as well as combined models (input-output and macroeconomic).

On the basis of the reviewed models we can conclude that the lack of macroeconomic theory of the self-government economy led the authors to rely on theoretical and empirical analysis based on the experience of other market economies in order to find an adequate theoretical specification of certain equations in the model.

A confirmation of adequate specification was sought both at the theoretical level in the analysis of results and with the use of a wide range of statistical tests. The models are relatively successful in static and dynamic simulations and have been used in evaluating alternative economic policies using the simulation and optimization approach.

John W. Sewell, Stuart K. Tucker, and contributors
GROWTH, EXPORTS, JOBS IN A CHANGING WORLD ECONOMY
Ed. Overseas Development Council
Transaction Books, New Brunswick (USA) and Oxford (UK), 1988,
str. 275

U prikazu prethodne publikacije u izdanju Prekomorskog razvojnog saveta *Sjedinjene Američke Države i Meksiko: suočenje s novom tehnologijom* izneo sam tezu da u procesu informatizacije privrede i društva *ponuda* (znanje o onome šta je novo i šta bi trebalo početi primenjivati) daleko nadmašuje *tražnju* (znanje o mogućnosti, društvenoj opravdanosti, korisnosti i vrenenskom redosledu primene novog), kao i da ovaj tip neravnoteže ne može biti otklonjen palijativnim, kratkoročnim merama tekuće ekonomske politike. S druge strane, s teorijskog stanovišta, strukturna neravnoteža uzrokovana (ne)primenom dostignuća treće tehnološke revolucije morala bi se razmatrati u kontekstu: a) proizvodne analize, b) analize tražnje i c) razmatranja blagostanja i regulacije. Drugim rečima, karakteristike najnovije faze razvoja svetske privrede zahtevaju kvalitativno drugačiji pristup problemu privrednog razvoja: a) dugoročni versus kratkoročni; b) ofanzivni vs. defanzivni; c) kompleksni vs. jednostrani.

Sticajem okolnosti, najnovija publikacija istog izdavača *Rast, izvoz, poslovi u procesu menjanja svetske privrede* predstavlja svojevrsnu potvrdu iznesene teze. Pored uvodnog članka Johna W. Sewella »Upravljanje ekonomskom krizom i tehnološkom promenom«, zbornik obuhvata pet priloga u kojima su analizirana dostignuća treće tehnološke revolucije i njihov uticaj na budući razvoj svetske privrede.

U članku »Predstojeći izbor visoke tehnologije: restrukturiranje međuzavisnosti« Manuel Castells i Laura D'Andrea Tyson ističu da će u procesu primene novih tehnoloških rešenja baziranih na mikroelektronici, nacionalne ekonomske politike, kako razvijenih tako i zemalja u razvoju imati veliki značaj. Sa stanovišta zemalja u razvoju ekonomska politika morala bi obezbediti uslove za efikasno usvajanje (adaptaciju) nove tehnologije. U tom kontekstu fleksibilan pristup transferu tehnologije, izgradnja različitih strategija u odnosu na pojedine (inostrane) proizvođače, intenziviranje domaćeg razvojno-istraživačkog rada, kao i intraregionalna kooperacija imaju prevashodan značaj. Istovremeno, međutim, razvojne mogućnosti zemalja u razvoju (kao izvod (ne)primene mikroelektronike) zavisice i od politika visokoraz-

vijenih zemalja, a pre svega SAD. Autori naglašavaju da osnovni zadatak ekonomskih politika razvijenih zemalja mora biti stimulisanje tražnje (u svetskim okvirima) za mikroelektroničkom tehnologijom, a putem koordinacija rasta njihovih vodećih sektora i razvojnih prioriteta zemalja u razvoju.

Jonathan D. Aronson analizira mesto i značaj sektora usluga u budućem razvoju svetske privrede. Uloga tercijarnog sektora rapidno će se povećavati, kako u apsolutnom tako i relativnom smislu. Za zemlje u razvoju, bez obzira na heterogenost grupacije, od posebne je važnosti napuštanje tretmana sektora usluga kao tzv. »industrija u povoju«. Drugim rečima, zaštitni, protekcionistički tretman nespojiv je sa modernim, tehnološki obnovljenim sektorom usluga. Nasuprot tome, selektivna liberalizacija i postupna privatizacija nameću se kao ozbiljne opcije u povećanju efikasnosti pomenutog sektora.

Ubrzani rast zemalja u razvoju podrazumeva i perspektivnu modernizaciju poljoprivrede. Povećanje poljoprivredne proizvodnje neće, međutim, smanjiti uvoz odnosnih proizvoda iz visokorazvijenih zemalja. *Vice versa*, tvrdi Robert L. Paarlberg — tražnja za poljoprivrednim proizvodima funkcija je veličine dohotka, što bi jednostavno rečeno značilo da ubrzanje rasta i blagostanja direktno uzrokuje veću potrošnju i uvoz poljoprivrednih proizvoda. S druge strane, izvozni potencijal visokorazvijenih zemalja, a pre svega SAD, zavisiće od (ne)uspešnosti njihove fiskalne i politike selektivnog protekcionizma.

Slično je i sa primarnim proizvodima, doskora osnovnim nosiocima deviznog priliva većine zemalja u razvoju. Negativni trendovi u odnosima razmene razvijenih i zemalja u razvoju mogu biti zaustavljeni ukoliko dođe do: a) diverzifikacije izvoza sirovina; b) uklanjanja uvoznih restrikcija u razvijenim zemljama; c) politikom zaštitnih cena osnovnih sirovina; d) modernizacijom sektora eksploatacije sirovina i e) aktiviranjem stranih direktnih investicija u pomenuti sektor. Uloga visokorazvijenih zemalja, ističe Raymond F. Miksell, može doći do izražaja naročito kroz pojačanu aktivnost Svetske banke i regionalnih asocijacija.

Nova tehnološka revolucija unosi bitne promene u obim i strukturu zaposlenosti. U tom kontekstu odnosi Sever—Jug poprimaju sasvim novu dimenziju. Paralelno sa stvaranjem efikasnijeg sistema obrazovanja, usavršavanja i adekvatnih programa prilagođavanja, SAD i ostale razvijene zemlje moraju doprineti liberalizaciji izraženih migracionih tendencija i to putem kreacije stabilnih uslova privredivanja.

Očigledno je da savremene tendencije u svetskoj privredi nisu spojive sa crno-belim klišeima i istrošenim paradigmatima ekonomske analize. Kompleksnost fenomena — proizvoda razvoja nove tehnološke revolucije — zahteva kvalitativno drugačiji pristup od dosadašnjeg. Najnoviji zbornik Prekomorskog razvojnog saveta karakterističan je upravo po napuštanju kako mistifikovanih, tako i zdravorazumskih promišljanja budućeg razvoja svetske privrede.

Institut ekonomskih nauka, Beograd

Željko ŠUSTER

JUGOSLAVIJA I EVROPSKA EKONOMSKA ZAJEDNICA

Zbornik radova, redaktor Ljubiša Adamović

Institut za međunarodnu politiku i privredu, Beograd, 1988, str. 258

Ovaj zbornik radova veće grupe autora nastao je kao rezultat naučnog skupa na temu »Treće proširenje Evropske ekonomske zajednice: pristupanje Španije i Portugalije i posledice po saradnju Jugoslavije s EEZ«. Skup je održan u Institutu za međunarodnu politiku i privredu u Beogradu, 19. marta 1986. godine, u saradnji sa Centrom za marksizam Univerziteta u Beogradu i Marksističkim centrom Organizacije SK u Beogradu.

Ovaj zbornik radova dolazi u pravo vreme kada se oči svetske javnosti sve više upiru u EZ, a zemlje nečlanice ove i drugih integracija, kao i konkurentske — SAD i Japan, pribojavaju se dolaska »famousne« 1992. godine, kada će zajedničko tržište prerasti u jedinstveno.

EEZ, premda najznačajniji trgovinski partner Jugoslavije, najveći njen poverilac, vodeći prodavac licenci i najznačajnije imigraciono područje, još je nedovoljno proučena kod nas. Ne postoji institut koji bi se kontinuirano bavio ovom problematikom. Izvesno popunjavanje ove praznine očekuje se od časopisa »Evropa danas« koji je sredinom 1988. godine počeo da izdaje IMPP.

Premda EEZ nezadrživo ide napred ka potpunoj harmonizaciji unutrašnjeg tržišta, u ovoj knjizi posmatrana je Evropa »desetorice« na pragu svog trećeg, južnog proširenja.

U prvom i najobimnijem delu knjige sagledane su posledice proširenja EEZ na Jugoslaviju. Posebna pažnja, razume se, poklonjena je sferi trgovine EEZ i Jugoslavije kojoj su najvećim delom posvećeni radovi: Lj. Adamovića, B. Alendar, D. Đurić-Bijelić, G. Kovačević i E. Stojić-Imamović. Analizirana je i finansijsko-bankarska saradnja EEZ i SFRJ (O. Đurđević), kao i socijalna politika u EEZ (E. Vajs) u kontekstu »iberijskog« proširenja zajednice. Ovaj deo zbornika je, ujedno, i u najtešnjoj vezi sa njegovim naslovom.

U drugom, dosta heterogenom delu po predmetu istraživanja, čiji su autori Lj. Adamović, D. Savin, B. Alendar, M. Jeftić, M. Vojinović, J. Stevović-Buha, M. Stojčević i E. Vajs, razmatran je spoljnotrgovinski položaj Zajednice i njena politika u svetlu rastućeg protekcionizma u svetu. Iz brojnih radova može se sagledati tehnološko slabljenje EEZ u odnosu na njene najvažnije ekonomske partnere, SAD i Japan, kao i pokušaj stvaranja evropske industrijske strategije. Takođe je sagledana monetarna politika EEZ (EMS) za koju se konstatuje da nema većeg upliva na spoljnotrgovinsku razmenu i kretanje kursa dinara.

Treći deo obuhvata radove autora R. Petkovića, B. Zupana, D. Lopandica i V. Pilić-Rakić pod zajedničkim naslovom »Politički i institucionalni aspekti EEZ«. Naročito su zanimljivi prilozi u kojima su učinjeni pokušaji da se odgovori na aktuelno pitanje o mogućnosti uključivanja neutralnih i nesvrstanih zemalja u EEZ.

U četvrtom delu pod nazivom »Meditranska politika EEZ«, autori M. Andrić i M. Jovanović se ponovo, u ovom kontekstu, vraćaju analizi implikacija, prvenstveno u trgovinskoj sferi, južnog proširenja EEZ na Jugoslaviju kao sredozemnu zemlju koja sa ovom carinskom unijom ima (sui generis) sporazum o saradnji.

U prilogu zbornika data je hronologija odnosa SFRJ—EEZ i spisak svih učesnika navedenog naučnog skupa (većina referata je objavljena u ovoj knjizi).

I pored heterogenosti priloga, te nezahvalnog redaktorskog posla koji je imao dr Lj. Aramović, i neumitne činjenice da vreme teče i da u ovom trenutku sve više pažnje zaokuplja analiza posledica koje će po Jugoslaviju imati ostvarenje JEA 1992. godine, ovaj zbornik je veoma dragocen jer predstavlja svestranu analizu stanja i politike EEZ kao i ekonomske saradnje Jugoslavije sa ovom integracijom u svetlu njenog poslednjeg proširenja. U oskudici domaće literature iz navedene oblasti ova knjiga predstavlja značajan prilog za sagledavanje i razumevanje sadašnjih i budućih ekonomskih odnosa Jugoslavije sa privredno sve snažnijom i jedinstvenijom »dvanaestoricom«.

Institut ekonomskih nauka, Beograd

Jasenska TOMAŠ-JURIŠIĆ

ERRATA

Due to editorial difficulties, the following text has been omitted from the first printing of the article »Sequencing of Economic Liberalization Policies in Developing Countries: A. Review of Principal Issues and Results« by Dubravko Mihaljek (*Economic Analysis and Workers' Management*, no. 1—2/1988, vol. XXII, pp. 81—132). The text should be inserted between the second and the third paragraph on p. 86.

However, between the observation that exports and growth tend to move together, and econometric evidence in favor of the hypothesis »Exports Imply Growth«, there is a lot of naive reasoning. The hypothesis of export promotion has typically been tested by looking at some sort of regression of a real output growth variable on a real export growth variable. Some authors even went so far as to include the variable »exports« along with labor and capital in a production-function type relationship, using the enumerated arguments to justify the treatment of exports as production inputs (Ram, 1985). Others, like Balassa (1978 and 1985), followed a more indirect route, and tested the hypothesis that the export-oriented policies lead to better growth performance than policies favoring import substitution. Recently, Jung and Marshall (1985) published a study that casts serious doubt on the causal relationship between exports and growth at least in the current econometric use of this word. In a sample of 37 developing countries they discovered that exports Granger-caused higher growth rates only in four instances, which strongly suggests that the evidence in favor of export promotion is much weaker than previous studies have indicated.

Suffering from severe economic problems, and at the advice of international lending institutions (that based their policy recommendations on the above results), a number of developing countries embarked during the 1970s on major attempts to liberalize their economies through reforms aimed at increasing the role of the price mechanism and reducing the barriers to international trade and capital movements. These attempts were especially pronounced in Argentina, Chile and Uruguay, the so-called Southern Cone countries of Latin America, where the implemented policies followed fairly closely the advice of economists on elimination of quantitative restrictions, reduction of tariff levels and their dispersion, and removal of restrictions on capital movements. However, a decade and a half after the policies aimed at transforming these countries into export-oriented economies were first implemented, there is ample evidence that they were to a large extent failures. Tariff barriers were re-erected, commodity and financial markets re-regulated, and the collapsing banking sector re-nationalized, transforming what for a short while seemed to be »free market miracles« back into tightly controlled economies isolated from the rest of the world. There was again a proliferation of articles in economics journals, this time trying to explain what went wrong with the liberalization programs (see Corbo, 1987; Corbo and de Melo, 1985 and 1987; Diaz-Alejandro, 1981; Dornbusch, 1982, 1983b, 1985, and 1986; Edwards, 1985a and 1987a; Edwards and Cox-Edwards, 1987; Frenkel, 1982 and 1983; Fasano-Filho, 1986; Harberger, 1982 and 1987; McKinnon, 1982; de Melo, 1987; Sjaastad, 1983).

Special Issue on Organizational Democracy in Trade Unions

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307	Wolfgang Streeck	Editorial Introduction
PAPERS		
319	Detlef Jahn	'Two Logics of Collective Action' and Trade Union Democracy: Organizational Democracy and 'New' Politics in German and Swedish Unions
345	Ida Regalia	Democracy and Unions: Towards a Critical Appraisal
373	Wolfgang Seifert	Some Thoughts on the Problem of Internal Union Democracy in Japan
CURRENT INFORMATION		
397	Ingrid Fredriksson	Job Sharing in Sweden: Some Examples
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404		Invitation: Workshop, Hyderabad, December 1988
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Call for Papers

The European Economic Association will hold its fourth annual congress in Augsburg, West Germany, from Saturday September 2 till Monday September 4, 1989. Contributed papers in all areas of economics, including the history of economic thought and economic history, are actively solicited. Submissions should include two copies of the paper and of a one-page abstract, and must be sent *before March 1st, 1989* to the Programme Chairman:

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CLANCI

Marta BAZLER-MADŽAR: Regionalna diferencijacija nivoa razvijenosti i efikasnosti privređivanja	271
Lino BRIGUGLIO: Ravnotežni i neravnotežni modeli tržišta rada	177
Roger A McCAIN: Učenje kroz praksu u kapitalističkom i ilirskom preduzeću: kontrolno teorijsko istraživanje	35
Gregory K. DOW: Evolucija oblika organizacije: selekcija, efikasnost i nova institucionalna ekonomija	139
Mark S. ELLIS: Strana ulaganja u Jugoslaviji — prikaz Zakona o zajedničkom ulaganju sa amandmanima i predloženim izmenama	235
Shoji HARUNA: Proizvodna strategija samoupravnog preduzeća i cenovna neizvesnost	53
Branko HORVAT: Čista radna teorija cena i tehnološke promene	1
Branko HORVAT: Model sa više potrošnih dobara i jednim kapitalnim dobrom	169
Branko HORVAT: Model heterogenog kapitala	227
Ivan MEŠKO: Neglatki i nekonveksni modeli poslovnih procesa	63
Vesna PASETTA: Model organizacione strukture samoupravnog preduzeća	197

PREGLED OBLASTI

Zlatko KOVAČIĆ: Makroekonometrijski modeli u Jugoslaviji	289
Dubravko MIHALJEK: Periodizacija politike ekonomske liberalizacije u zemljama u razvoju: pregled osnovnih problema i rezultata	81

PRIKAZI KNJIGA

<i>Pat Howard: Breaking the Iron Rice Bowl: Prospects or Socialism in China's Countryside.</i> New York, London: M. E. Sharpe, Inc., 1988	
Vladimir GLIGOROV	133
<i>Costis Hadjimichailis: Uneven Development and Regionalism.</i> Ed: Croom Helm, London, 1987	
Tomislav STOŠIĆ	221
<i>Cathryn L. Thorup and contributors: The United States and Mexico: Face to Face with New Technology.</i> Transaction Books, New Brunswick (USA), and Oxford (UK), 1987	
Željko ŠUSTER	136
<i>John W. Sewel, Stuart K. Tucker and contributors: Growth, Exports, Jobs in a Changing World Economy.</i> Ed. Overseas	

Development Council, New Brunswick (USA) and Oxford (UK), 1988, pp. 275

Željko ŠUSTER 321

Milan R. Kovačević: Finansiranje domaćih organizacija stranim ulaganjem. Izd: Institut za ekonomiku industrije, Beograd, 1987, str. 201

Željko ŠUSTER 224

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Jasenska TOMAŠ-JURIŠIĆ 134

Jugoslavija i Evropska ekonomska zajednica. Zbornik radova. Redaktor: Ljubiša Adamović. Institut za međunarodnu politiku i privredu, Beograd, 1988, str. 258

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