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THE USE OF INPUT - OUTPUT MODELS IN CZECHOSLOVAKIA

By
SIM CO VIC JA'N
School of Economics Bratislava

This paper is aimed at giving a view of the using of input - output balances and indicators derived from them as informations in the prognosis of the CSSR development.

It consists of two parts, the first involving methodological knowledge connected with the application of the input - output analysis of input - output relations of a general character, let us say concreted to the sphere of personal consumption.

The aim of the second part is to give some information about long-term tendencies in forming of relations of national income distribution in CSSR conditions with an extra view to explain the requirements to satisfying of non-production needs, namely personal consumption and export.

Recently, we often can meet opinions according to which the continuous development is an intersection of the following factors :

- new forms of the possible, i.e. a v a r i a t i o n of the old ;
- rationality of a reasonable choice, i.e. s e l e c t i o n :
- preservation of the already well - tried, i.e. r e t e n t i o n .

We think that on the basis of linkage of these three view-points it is necessary and even possible to consider the space for using the input - output analysis of input-output relations.

From the mentioned factors a further piece of knowledge results which can be formulated as follows.

The scientific and technical progress and development creates and prepares new space for forming of technological processes and it is natural that even phantastic ideas arise here for realisation of which the preconditions are not always given. The managing and planning authorities concentrate therefore their interest on the following problems :

Where and in what way the resources are going to be controled (clearlier expressed being used) being at our disposal only in a limited and reasonable amount?

How will the distribution of the development potential in the existing and new established commodities take a place?

It is at the same time a question of the reaction of a particular industry to appeal's and impulses of their technical nature. They can react to it either consciously or «jump» into the next stage almost unprepared.

We consider it necessary to emphasize once again, that the evolutionary development represents and means also to preserve the well - tried situation.

But who is able to give us such information and what kind of it represents on acceptable situation ?

Where can be found well tried situations by what means ?

Finally before all to find and get an answer and information at that time period in which probably new alternatives could not be tested yet ?

New possible forms which we mentioned as the first factor deserve an additional note. The society changes is building up new technological equipment around itself and introducing new technologies. It is convinced to be automatically better equipped in this way. This applies, however, only when we have chosen the right equipment and the right means for its realisation. It is necessary, however, to add that the term «innovation» gained also the karakter of a slogan that is captivating. But the basic task in decision - making is to contribute to the development. And this can also be achieved by good imitations of others (from other countries) and this is often done. Results elaborated world wide are taken over and it is on one hand possible to learn from them, on the other hand , the further development can be built up upon them step by step.

Why do we draw attention to the mentioned ideas ? They are to help us to limit the applicability space of the input-output analysis of input-output relations for purposes and objects for prognostic works i. e. for selection, rationality of choice.

In our country in CSSR the course of innovation processes had to and has to be marked by input-output changes of two character types from its very beginning.

a) by technological changes in the sense of general goals of building up socialism. The technological aspect does not require any further commentary.

b) to the ideological aspect, however, we have to add, that it is formed not only by the tasks of building up socialism but also by the problems of management and construction of informations systems.

The two aspects forms one unseparable whole, by their mutual linkage they are to create and form the conditions of increasing the economy and innovation ability of the CSSR national economy.

For this purpose it is necessary :

— the best possible understanding of complex (direct and indirect) linkages among the industried ;

— to contribute to reducing of limitations in connection with understanding of complex phenomena and with consideration of such large system as the CSSR national economy is ;

— to reduce the danger degree of a wrong analysis evaluation and the successive resulting.

The resulting success of this whole suggested activity sequence depends on the fact how we shall manage the partial activities connected with the input-output analysis of input - output relations, in other words, to understand, identify, describe and evaluate the problems in time and in a big enough extent.

Thus when working with computation Technique, the suggested activities consist of these step-by-step instructions :

— what is to be done,

— how is to do it,

— when is it to be done,

— how is it to be done,

The variation of preserving the well-tried situation (retention) is to be done by dislocation of the development potential which is at our disposal.

To obtain the complexity of the problems we have to add that the conditions for the starting, initial situation of strategic planning by means of the methods of input-output analyses of input-output relations has to prepare space calculating with an increased rationality and economy, deduces, tactical, Technological measures for enhancing of the innovation ability within the respective industries and secures the planning sequence.

The problem of planning and forecasting by means of data base from input-output balances can be and has to be considered from three aspects :

— from the viewpoint of objective (material) contents, from the viewpoint of organisation,

— from the viewpoint of the approach itself, i.e. what method and means **will** be necessary for its realisation.

SOME PROBLEMS OF BUILDING A DATA BANK ON INPUT-OUTPUT RELATIONS

In the **CSSR** the basic aim of an examination and analysis of input-output changes is to reveal the main factors and the mechanism of their functioning in the national economy as a whole. In this process of collecting the necessary informations the doubtlessly central position takes the building of a data bases.

The first condition for managing informations on the development of input-output linkages in the **CSSR** were created in 1964. From this year input-output balances have been worked out and constructed in five year intervals. They are elaborated in general aggregation: for the **CSSR**, **CSR** and **SSR** (Czech and Slovak republica). They exist in various variants : gross sales, gross production, with included or excluded import, in retail or wholesale prices.

The building up of a reliable data background for application proposes is connected, briefly said, with a profound methodological conceptional preparation for the following spheres :

— dialogue processing,

- standardized use of programme software,
- standardized control of the run of the dialogue data processing.

Important turning points are here the following limitations :

- the range of a direct data applicability, the degree of their quality, completeness and actualizing due to the development in time,
- building up of a data base by means of a flexible data collection **and** their effective piocessing,
- determining of definition, dialogue and users languages, classitications, code systems, of registers and dials (their setting up).

These requirements are demonstrated truthfully enough by a connection which suggests the existing dilemma in the form of possible conflicts (chart 1).

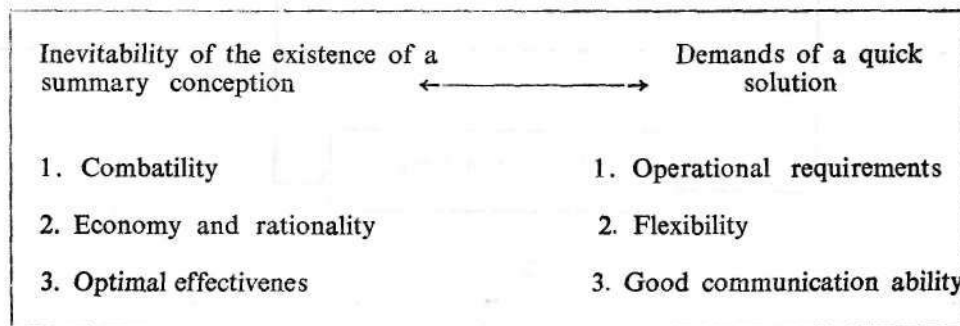


CHART 1

Besides an important methodological requirement is their dynamisation in time by means of additional computations for the single years of **the** interval examined (five-year plan).

For the sake of clear arrangement and vivid, demonstrative image we also give the scheme of data creation and construction (Chart 2).

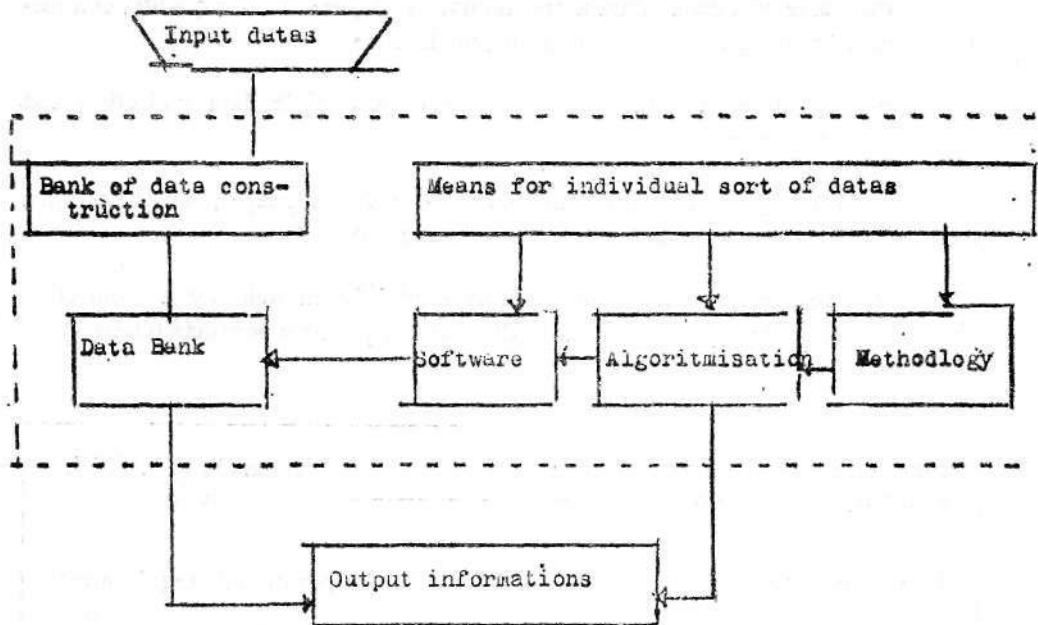


Chart 2

The input-output balance of input-output relations is a developed scheme of the extended reproduction process in which all sides of this process in a structural cross section are recorded by means of production flows. The input-output balance and the model for an analysis of input-output relations based on it contribute to explanation of many problems.

In later, further years also balances of other kind came in to being in the CSSR for purposes of long-term and five-year plans.

In comparison to classical balances this type has some particularities. The most remarkable being :

— in accordance with the methodology planning contains deliveries but not consumption of products,

— there is no balancing of the whole sphere of national economy.

In the CSSR thus a further system of input-output balances is being set-up within which not the viewpoint of production but before all the delivery aspect is preferred.

Meanwhile they are aggregated practically into two nomenclatures in the projection of the 8th five-year plan for the CSSR in dimension 40 X 40 and 22x22, for the purpose of forecasting in the industrial — food, industrial — agricultural complex and for the Slovak republic also in the dimension 53 x 53.

In these further balances selected products are divided into blocks representing relatively closed technological fields.

- 1) fuel-energy
- 2) metalurgy - machines and applicances
- 3) chemical industry - consumption
- 4) construction - building materials
- 5) Agriculture - food industry complex.

We have to add that these industrial blocks are still in different stages of elaboration. Owing to the prognoses for the sphere of retail turnover the fifth block and then the third block are them most elaborated ones.

AN ANALYSIS OF FULL DEMAND OF FINAL CONSUMPTION IN AN AGRICULTURAL AND FOOD COMPLEX

To provide the population with food is of a great importance in all countries. Increasing of the living standard of working people requires a constant increasing of the agricultural production as well as of food industry. For this purpose it necessary to exploit natural resources more effectively and more profitably, to

speed up the realisation of the results of technical progress, to increase the output of agricultural cultures and products etc.

An analysis of the full (direct and indirect) demand coefficients for this purpose was realised on the data of modified balances of interbranch relations, first for the Slovak Socialist Republic, later a rough carry out also for the CSSR on the data for 1982 on producer prices and with the included import.

The production consumption (the first quadrant) is divided into 53 positions essentially roughly as follows :

a) the producing branches on the positions 1 - 36 represent agricultural and food complex (divided into commodities) and include the second and third activity sphere (agriculture and forestry or purchase of agricultural products, their manufacturing, transport and realisation of .his production;

b) producing branches on the positions 37 - 51 represent the first activity spheres, i.e. branches providing the complex by capital and material means and together with the agricultural and food complex form the agricultural and industrial complex ;

c) production of beat and energy is given on the position 52 ;

d) the rest of the producing branches of the national economy is given in aggregates form on the position 53.

| Row number | Activity sphere code | Producing branch Name |
|------------|----------------------|---------------------------------|
| 1. | sphere 2 code 030 | Plant production |
| 2. | | Animal production |
| 3. | sphere 3 | Shaken and combed flax |
| 4. | | Shaken and combed hemp |
| 5. | | Sea products and sea fish |
| 6. | | Fatten cattle and meat products |

7. Products from small farm animals and wild animals
8. Fruit and vegetable products
9. Alcohol free drinks
10. Eggs and egg products
11. Dairy - milk products
12. Industry plant, oils, animal fats and their derivatives
13. Edible vegetable oils and fats
14. Aromatic and gustatory substances and colourings for food industries acids.
15. Food concentrates and other especially prepared foods
16. Seasoning and pastry ingredients
17. Milk products
18. Doughy and pasty products
19. Bakery products
20. Sugarhouse products
21. Biscuits
22. Candies sweet shop products and
23. Confectionary products
24. Maith products

| | | |
|-----|----------|--|
| 25. | | Bewery products |
| 26. | | Potatoes and starch products |
| 27. | | Alcohol (without sunthetic one) yeast and vinegar |
| 28. | | Wine and mead |
| 29. | | Spirits |
| 30. | | Natural and artificial ice |
| 31. | | Tobacco products |
| 32. | | Hot spring products |
| 33. | | Industrial fodder forage |
| 34. | | Purchase activities of agricul- tural and forestry products |
| 35. | | Sales and supply activities (in- clusive the stock economy activities). |
| 36. | | Inland and foreign trade activi- vities (incl. catering) |
| 37. | Sphere 1 | Cooling and freezing equipments |
| 38. | | Filling and packing machines and packing finish machines. |
| 39. | | Machines and manufacturies for sugarhouses, breweries, malt-ho- uses, distilleries, wine manu- factoring, production of yeast, moulds, acids, vinegar enzy- mes of fats and oil, starch ma- nufactures, potatoe drying hou- ses machines manufacturing milk |

| | | |
|-----|--------------|---|
| 40. | | Eggs, corn and fodder, flour, meat fish, tobacco, chocolate, sweets and food conservation |
| 41. | | Wheel and caterpillar tractors |
| 42. | | Parts of agricultural machines, e- quipment and assemblage and fit up machines |
| 43. | | Agricultural machines and equip- ment machines and equipment |
| 44. | | Agricultural machines and equip" ment for common board and sale |
| 45. | | Industrial fertilizers |
| 46. | | Plant protection preparations and insecticides |
| 47. | | Animal production preparation |
| 48. | | Repairs and maintenance of tra- ctors, agricultural machines and equipment |
| 49. | | Metal package |
| 50. | | Glassware package |
| 51. | | Construction production |
| 52. | | Energy and heat |
| 53. | Other sphere | Other branches, subbranches and production spheres in the na- tional economy (aggregate). |

For the sake of gaining a better idea we give the used designation of the final consumptions columns in the 2-nd and 3-rd quadrant.

2-nd quadrant :

- personal consumption
- social consumption
- investments
- changes of inventory levels, circulating funds and reserves
- total export
- Interrepublic spillover
- losses and balance differences.

3-rd quadrant :

- depreciation and value of depreciated assets
- wages and salaries
- profit or loss
- turnover tax

Observed are further also:

- production assets total
- number of workers.

This analysis made brought several interesting **results which, however, we are not** going to deal with in the given consideration **in this paper.**

DYNAMIC OF LINKAGES IN THE TECHNOLOGICAL STRUCTURE OF PRODUCTION

An interesting contribution to using of the application possibilities of input-output, models represents the examination of technology linkage dynamic, the starting point are appropriately constructed indicators globally characterizing the development of the coefficients in rows and columns of the input-output coefficient matrix (matrix A). We shall try to give their brief characteristics.

Such indicators are :

$$r_i(o, t) = \sum_j a_{ij}(t) \log a_{ij}(o) \sum_j x_{ij}(t)$$

$$a_j(o, t) = \sum_i a_{ij}(t) \log a_{ij}(o) \sum_i a_{ij}(t)$$

where

the values $Q(o,t)$ indicate the characteristics of the stability of the i -row (row stability), the values s_k indicate the characteristics of the development stability of the j -th column (column stability) of the input-output coefficient matrix in the period $\langle o,t \rangle$. The values $a_j(o)$ and $a_j(t)$ represent the elements of the input-output matrix (input-output coefficients) in the first period and $a^{\wedge}(t)$ represent the technological coefficients in the period t .

Finally it is perhaps desirable to give some additional explanatory notes.

The essential and characteristics feature of the socialist economy is its planned development which is an objective law of the socialist social production, when elaborating the conception of the long range outlook for the development of the branches of nourishment we are before all interest and we must be interested, to find a feasible answer on the question of how the national economy goals of the agricultural and food complex are formed.

The formulated goals of the development of agriculture and nourishment have two sides :

rational nourishment structure and
self- sufficiency.

On one hand we are to secure the so-called optimal nourishment of the population that means such a level and structure corresponding to the requirements of a rational nourishment of the population, on other hand to meet this goal on the basis of the CSSR self- sufficiency in the basic foods. These two sides of the goal contain :

When judging from the viewpoint of national income maximization a certain contradiction. Securing the structure of national nourishment conceptually also requires a corresponding structure of agriculture and food nourishment. This production structure, however, need not be optimal from the viewpoint of the national economy (maximum criterion).

To get an idea of the living level and self- sufficiency of Czech and Slovak Socialistic Republic we shall call attention on the variants of the «consumption food basket» which is the first problem that is to be solved.

We have to note that there exist several models of the consumption basket.

First of all it is the consumption basket, recommended by medicins (recommended food rations) the s.c. optimal nourishment model elaborated for Czechoslovakia within a long range outlook of the agricultural and nourishment branch up to 1995.

Variants of the consumption food basket and their real consumption in the CSSR.

By means of the apparatus of input-output analysis at least to a certain extent the structure of the consumption basket was evaluated from the viewpoint of total social costs on the consumption basket. Of course the possibilities of applying this viewpoint are relative limited, there are in fact only s.c. medically permissible changes in the consumption basket structure, e.g. exchange of meat kinds, of meat and milk, of particular oil and fat sorts, of potatoes and flour e.t.c.

Securing the goal model of nourishment, however, is not only a matter of agricultural and industrial production growth. An uneasy task is to achieve the necessary change in consumption structure, in consumption habits. A problem will be, for example, to overcome the tendency of increasing (instead of decreasing) of sugar and fats but also egg production (mainly the medical viewpoint is considered).

It is necessary to achieve a considerable reduction of flour consumption to the benefit of potatoes.

Shortly said in Czechoslovakia we aim at a continuous improvement of the health condition of population by a national nourishment at creating condition for a more effective fight against civilization diseases by increasing the consumption of vegetables and fruit, potatoes and whole meat flour and reduction of fat and sugar consumption.

Real Consumptions In the CSSR

| Indicator measure | unit | Reality | | Recommended rations | | Consumptions in FRG | Consumptions proposal |
|-------------------|-------|---------|-------|---------------------|-------|---------------------|-----------------------|
| | | CSSR | SSR | | Model | | |
| Meat total | kg | 89,3 | 79,1 | 90 | 90 | 90,2 | 90 |
| incl. poultry | kg | 10,6 | 13,7 | 13 | 13,5 | 10,2 | 13,7 |
| milk | l | 252,2 | 240,8 | 251 | 255 | 250 | 255 |
| eggs | piece | 337 | 358 | 306 | 325 | 284 | 306 |
| sugar | kg | 36,6 | 33,1 | 31 | 35 | 35,6 | 35 |
| flour | kg | 113,3 | 106,1 | 91 | 91 | 68,3 | 85 |
| potatoes | kg | 81,9 | 71,5 | 96 | 95 | 83,2 | 95 |
| vegetables | kg | 68,1 | 88,3 | 103 | 97 | 73 | 103 |
| fruits | kg | 61,6 | 46,6 | 70 | 70 | 121,1 | 75 |

There exist various ways of how affect the food consumption structure as e.g. medical education organisation of boardings and food sale, of foods, change of the assortment e.t.c.

The most important thing, however, will be the solution of some economic problems e.g. the retail price relation. At present there is an evident disproportion between the retail prices of potatoes and flour (flour products).

Mainly for these reasons it was not possible to start from the basic model of consumption recommended by medics. It will be possible to realize this model - which merely is the most justifiable according to all indicators only later after 2000.

The proposal of food consumption as well as the elaborated goal model, emphasizes on a step-by-step elimination of lacks existing up till now in the nourishment of population i.e. reducing of the high energy consumption, mainly carbohydrates (glycerates, sugar). At the same time they emphasize the medically required albumens (especially of animal origin) and a substantial increase of C-vitamin consumption (before all by higher consumption of fruit and vegetables and an equitable distribution of their consumption in the course of the year).

The proposal of food consumption takes into consideration to some extent also the diet habits that cannot be changed within a few years so that in some food stuffs there were more extreme deviations from the recommended proportions of food consumption.

The proposal takes into account food growth per capita before all of meat milk potatoes, fruit, vegetables and on the other hand with reduction of egg, wheat and sugar consumption.

In this discussion we finally have to mention the supposed development of agricultural production where just the input-output analysis of input-output relations provides an effective means of an analysis.

On the basis of the data gained from the realized computations and by means of a comparison to the agriculture of economically developed European countries it is possible to draw the conclusion that the more significant reserves of an increase of agricultural production in the CSSR are the following :

— in yields per hektar of potatoes harvest (43 % under the level of the EEC), sugar beet (23 % less than in the EEC), in fruit growing (only the quarter of the EEC level) but mainly in the hektar harvest of perennial grass growth one year fodder and in the quality of fodder (53 % of the level of hektar harvest calculated in hay in the FRG).

— in reducing of fodder consumption before all of grains on unit of animal production mainly in cattle breeding.

— in the FRG less grain fodder is consumed as in CSSR, the lesser grain consumption rate is based mainly on high production and better hay quality from perennial grass growth.

— reduction in losses of produced production more significant are these reserves in volume fodder, in potatoes, in sugar beet, in maize and leguminous plants.

— by introducing of highly effective factors, intensification means and technology, input trends of scientific and technological progress mainly application of biology and genetics, the most effective utilisable reserves of a further intensification are in volume fodder, in cereals, potatoes and in fruit.

From the suggested development on the basis of calculations of input-output models and of course their ways of forecasting generally starts such a suggested development of basic qualitative indicators of agricultural production :

a) hektar harvests in tons per hectare

4,39 present state

4,70 year 1995

4,97 year 2.000

from this :

1) cereals

1,88 present state

2,58 year 1995

2,72 year 2.000

2) potatoes

16,30 present state

20,00 year 1995

21,60 year 2.000,

3) sugar beet

33,25 present state

38,71 year 1995

40,30 year 2.000

b) consumption on 1 kg of production

1) 1 kg of live cattle weight

2,20 present state

2.10 year 1995

1,90 year 2.000

2) 1 kg of pigs weight

4.11 present state

4,00 year 1955

3,50 year 2.0000

3) 1 kg of poultry

3,80 present state

3,60 year 1995

3,50 year 2.000

From the viewpoint of our considerations that fact is important that it is, possible to express methodologically by means of input - output models of the input - output analysis the needs of agricultural production, it is disponsible fund **and** the reserves by a survey of disponsible necessary and reserve land survey,

— briefly which express in the country where the whole land, is already cultivated the situation in production funds.

"POSSIBLE GOAL VARIANTS AFTER ACHIEVING OF AUTONOMY AND AN OPTIMAL NOURISHMENT MODEL

The basic problem that will be necessary to examine (and solve) by means of input - output analysis after achieving of self sufficiency is the national economic all effectiveness of the further development of agriculture and branches securing the nourishment of population. That means to solve the problem of now to secure the necessary growth of national income by an effective intensification of the growth of agricultural production, by an effective use of all production resources. Here it is not so much absolute growth of the national income that matters but its growth per one worker. This demand has not been enforced in such an extent as it will have to be brought off after securing optimal nourishment on the self sufficiency basis, when it will become the primary goal of national economy also for the branches : agriculture and industries.

It will also be necessary to concentrate on a substantial reduction of labour forces in the primary production, in comparison with the FRG in our primary production 60 per cent more labour forces are occupied.

In this way we could gain both a growth of our own efficiency per one worker and space for an increase of the average wages.

This would, however, require to increase the inputs into agricultural technology and to find employment for the free - made labour resources, which is not difficult but what is important also required, in non - agricultural branches. For such computations is the apparatus of the input - output analysis of input - output relations very appropriate.

In conclusion of this section we consider it purpose ful to state that such a national economy complex as the analysis of input - output relations of an agricultural and industrial complex is, represents a specific macroeconomic level, which is located in the hierarchy of national economy structure between the level of total characteristics of national economy and the level of national economy

branches. They express a continuation of integration processes in economy and deepening of labour division, cooperation and specialisation. The management and planning of national economic complexes requires new forms and methods, mainly a consequent use of the balance method and goal programming method. For that reason the system of complex management by means of input - output analyses of input - output relations represents one of significant forms of perfecting of management and planning of the national economy.

THE INFLUENCE OF STRUCTURAL AND TECHNOLOGICAL CHANGES ON LABOUR PRODUCTIVITY, THE BASIC SPECIFICITIES OF LABOUR PRODUCTIVITY DEVELOPMENT IN PRODUCTION BRANCHES OF THE CSSR ECONOMY

The delivered value, structural and technological changes in addition to also influence the new added value and so they determine the character of labour productivity development in the individual branches of national economy as well.

Macroeconomic knowledge of this relations contributes to creating of an information basis for such an orientation of a further economic development by planning and control organs which considers the needs following from a simultaneous reducing of the material production intensity and increasing of labour productivity as completely as possible. Our goal is to contribute to the solution of these problems by means of mapping of basic macroeconomic linkages and relations.

In our examination of labour productivity in the CSSR we started from two basic indicators. The first type is given by the social labour productivity and live work productivity.

The second type is represented by a complex labour demand (direct and indirect).

For the given branch:

The social labour productivity $\pi_i(t)$ expresses the amount of value added by processing per one worker in this branch in the period $\langle t \rangle$ i.e.

$$a_i(t) = h_i(t) L_i(t), \quad i = 1, 2, \dots, 28$$

$h_i(t)$ = value added by processing in branch i

$L_i(t)$ = number of workers needed for producing of production in branch i ;

productivity of live labour $z_i(t)$ expresses the amount of produced production per one worker in this branch in the period t , i.e.

$$z_i(t) = x_i(t) L_i(t), \quad i = 1, 2, \dots, 28$$

$x_i(t)$ = production in branch i .

The indicator social labour productivity $p_i(t)$ is an analog indicator of the gross national income for production branches and it is given by the difference of production and material costs from the balance of input - output relations.

The increase value of the labour productivity $z_i(t)$ we also use to designate as direct production labour demand.

Complex labour demand for the individual branches $k(t) = [k_1(t), \dots, k_{28}(t)]$ expresses the number of workers from the sphere of whole production field needed to produce one unit of the final production (use) in the corresponding branches in the period t , i.e.

$$k(t) = n(t) [E - A/t]^{-1}$$

$n(t) = n_1(t) \dots n_{28}(t)$ — direct labour demand of production for which the following holds :

$$n_i(t) = 1 z_i(t)$$

$A(t) = a_{ij}(t) \dots, i, j = \Gamma, \dots, 28$ matrix of input - output coefficients computed on the basis of input - output flows of home production. Symbol E represents the identify matrix.

While the indicators of the first type are a direct expression of labour productivity from the viewpoint of new added value as well as from the viewpoint of delivered plus new added value the indicator of the second type equals the inverse value of the labour productivity from the viewpoint of that part of new added value that is determined from final use (production).

'•.v;'

We use to call it «complex (direct and indirect) labour productivity».

It is necessary to realize that while the social labour productivity (better under standable) (live labour productivity expresses the value amount added by processing in a given branch per one worker of this branch the complex labour productivity expresses the amount of final use which with cooperation of the rest of branches is created in the given branch per one worker of the whole production sphere. That means that the social labour productivity and labour productivity-present the direct expression (isolated) independent on other branches of effectiveness in the given production branch and the complex labour productive represents in turn such an effectiveness expression in the given branch which also takes into consideration the indirect influence (through the input - output relations) of other production branches on this branch. For the particular production branches the validity of the following relation was conformed by computation).

Labour work productivity > complex labour productivity social labour productivity

From the viewpoint of intensification mainly the relations between the social labour productivity and live labour work productivity are important as well as the relations between the social labour productivity and complex labour productivity. The importance of the first relation system follows mainly from the characteristics of the production effectiveness development from the viewpoint of the growth of the new added value within the particular production branches.

The importance onf the second relation group follows from a certain characteristics of the development level of input - output relations from the wiepoint of labour productivity in the particular branches.

Substantially all the above described indicators correspondingly indicate that in CSSR economy in 1973 - 1982 the most outstanding growth of labour productivity has been recorded and achieved mainly in the branches: ferrous metallurgy, machines and appliances, chemical industry, paper and cellulose industry, glass and fine ceramic industry.

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