JUGOSLAV INSTITUTE OF ECONOMIC RESEARCH

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Some Comparisons

The postwar economic development of Yugoslavia may be conveniently broken down into three periods: prior to 1952, 1952 – 1960, and 1961 – 1962 The first period was characterised by full recovery of war damages, deeply going social changes and great losses of the economy due to a severe economic blocade. The second period is a period of fast and uniform growth, with a slight acceleration of growth in the second half of that period In the beginning of 1961 a sudden slackening of growth took place, the rate of growth was halved and continued to be so low until the second half of 1962, when a movement towards earlier growth trends became apparent. The reasons for the 1961 – 62 cycle are very specific and will be mentioned later. Thus, only the eight – year period 1952 – 1960 may be considered sufficiently characteristic for a study of the growth rate of Yugoslav economy.

It will be of some interest to start our inquiry by compiling a table of comparative growth rates for those countries which experienced fastest growth in the period 1952 – 60.

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* This paper was presented at the Eight General Conference of the International Association for Research in Income and Wealth, Corfu, Greece, 24th – 30th June, 1963. I am indebted to Ivo Vinski, Mićo Nikolić and Stevo Stajić for helpful suggestions and criticisms during the preparation of the paper and to my assistant Ljubomir Madžar for help in compiling the necessary statistics. I also benefited from the discussions with the members of IARIW.

Growth rates of the fastest growing countries in the period 1952 – 1960 /in %/

	Per capita product	Industrial output	Agricultural output
Yugoslavia	8.8	13.4	7.1*
Bulgaria	8.1	14.0	5.5
Soviet Union	8.0	10.9	5.9
Japan	7.8	15.4	3.6**
Romania	7.4	11.2	4.8
Israel	6.9***	. . .	10.6**
Czecho–Slovakia	6.0	9.7	2.6
Austria	5.9	7.0	3.1**
Western Germany	5.8	8.9	1.4**
Greece	5.7	8.6	6.8**
Italy	5.6	8.9	3.9**
Hungary	5.6	6.7	4.7
Poland	5.5	11.2	3.1

Sources and notes:

Per capita product is either gross national product or national income; in some cases material production definition in others S.N.A. definition of national product is used. The data for per capita product are taken: for Yugoslavia from *Statistički godišnjak Jugoslavije 1962* pp. 54 and 93; for the Soviet Union from *Narodnoe hozjajstvo SSSR v 1960 godu*, pp. 60 and 102; for other countries from *U.N. Statistical Yearbook 1961*, p. 488.

The data on industrial product are taken from *U.N. Statistical Yearbooks 1960 and 1961*, pp. 60, 78–88, and pp. 60, 70–80. The data on agricultural output are taken: for the Soviet Union from *Narodnoje hozjajstvo SSSR v 1960 godu*; for Bulgaria from *Statističeski godišnik 1961*, p. 170; for Poland from *Rocznyk statistyczny 1961*, p. 259; for Czecho – Slovakia from *Statistička ročenka 1961*, p. 230; for Hungary from *Statisztikai évkönyv 1961*, p. 133; for other countries from *U.N. Statistical Yearbooks 1959, 1960 and 1961*, p. 84, 90 and 82.

* On the basis of two–year averages: 1952–53 and 1960–61.

** The base year is 1952–53, the final year is 1959–60.

*** Period 1952–59.

If we had data for all countries, one or two more countries would possibly be included in the above table. Accordingly, the general picture would not change substantially. However, it is difficult to say what the quoted figures mean precisely. No standardization of data could be attempted here. We shall only try to explain the statistical meaning of the data referring to Yugoslav economy. The fact that Yugoslavia heads the list of the fastest growing countries – whatever the precise growth differences among these countries may be – makes this venture worth while.

One more comment should be added. In most countries, agriculture, manufacturing and mining generate between one half and two thirds of gross national product; in Yugoslavia even more than two thirds /68 % in 1960, material product definition/. Consequently, an examination of the growth rates of these sectors provides a useful check for the data on the real product of the economy as a whole

Indices of industrial output

Yugoslav statistics define manufacturing, mining and power generation as „industry". Changes in industrial output are measured by a device called „volume indices".

The index number problem in this field is well known. If one takes the base–year weights /Laspeyres' index/ the rate of growth tends to be inflated, since output of new products / with high prices in the base–year /tends to expand fastest. Conversely, the final year weights /Paasche's index/ depresses the rate of growth. As there is no clear–cut theoretical solution for the choice between the two indices, the choice to be made is usually a matter of practical convenience. Yugoslav

„volume indices" belong to the family of chain indices and thus fall somewhere between the two extremes.

The data are collected for 503 products or groups of products which represent about 88% of industrial gross national product. The quantity and value weights are known for each product or group of products. The sums of depreciation and wages are used as weights. Profits are not included in the weights as they have been frequently changed by purely administrative interventions /differentiated capital and turnover taxes/ and these changes would affect the uniformity of the series. The weights are not permanent, they are *changed every year* *

Real National Product

„Volume indices" are not a particularly efficient device for calculating real national product for the economy as a whole. They would artificially depress the growth of the economy since agriculture, which employes about one half of the labour force, would get an unduly heavy weight. The frequent practice of deflating national product aggregates in current prices by price indices – cannot be carried out with great precision, since price series are deficient. Thus the following procedure was applied **

Extensive surveys of price structure of some five hundred industrial products and product groups are conducted. These surveys produce, among other data, price, costs, GNP and national income *per unit of output*. In order to get real national product, quantities of final industrial product were weighted by GNP per unit of output. The weights were chosen from the year 1956. Quantity data on five hundred

* For a detailed description of the statistical procedures applied see Savezni zavod za statistiku, *Indeks fizičkog obima industrijske proizvodnje /Indices of Physical Volume of Industrial Output/*, Metodološki materijali 82, Beograd, 1957.

** Cf B. Marković, *Kretanje društvenog proizvoda i narodnog dohotka FNRJ 1947-1959 / Social Product and National Income of Yugoslavia in 1947-59/*, Studije i analize 13, Savezni zavod za statistiku, Beograd 1960.

products are calculated monthly. The data on added value, in current prices are collected annually, directly from the enterprises. A standardised accounting scheme is obligatory for all enterprises so that the national totals obtained by aggregation may be considered reliable and consistent. Besides, profit and loss accounts as well as balance-sheets of enterprises are available to statistical authorities. Thus a/ instead of ordinary market prices, prices in terms of GNP are used as weights, b/ the weights are constant but are taken from the year in the middle of the period, c/ the quantity data used represent total and not final output since the weights applied are not full but are „value-added" prices, d/ the figures are derived from original accounting documents and e/ the coverage is complete for all practical purposes.

It might be of some interest to compare the growth rates derived by volume indices and real product method for *industry*:

	Indices		Rates of growth
	1952	1960	in %
Volume indices	100	274	13.4
Real GNP indices	100	263	12.8

Real GNP indices are depressed in relation to volume indices as they ascribe heavier weights to slowly growing industries /turnover tax is included in GNP weights/. Consequently, the growth of industrial output, as measured by real GNP, seems to be somewhat underestimated.

In *agriculture*, data are collected for about 50 products which constitute over 90% of total agricultural production. Since as yet no calculations of the GNP per unit of output of particular products have been made, full prices and not GNP prices are used as weights. In either volume indices or GNP indices only final product is considered, but there are still some differences:

	Indices		Rates of growth
	1952	1960	in %
Volume indices	100	195	8.7
Real GNP indices	100	178	7.5

Differences arise because volume indices measure only pure agricultural output, while GNP indices include various non-agricultural activities performed on the farms and peasant holdings

A Possible Upward Bias

As weights have been taken from a mid-period year, the extremes of either Laspeyre's or Paasche's indices are avoided. But a bias from a possible price disparity may still exist. Indeed, price disparity in Yugoslav economy has been very great for institutional reasons. Industry is fully socialized, agriculture is predominantly privately owned. It is easier to convert surplusses into investment in a socialized sector than in a private sector of an economy. For this reason, industrial prices have been artificially inflated and agricultural prices artificially depressed. Now, industry expands at a rate nearly twice higher than the rate of growth of agriculture Accordingly, the rate of growth of the economy as a whole will be somewhat inflated Since 1956, the gap between industrial and agricultural prices has been gradually being filled in. Low agricultural prices have begun to hamper the expansion of socialized sector in agriculture and, consequently, hinder the desired fast growth of agricultural output. So, a vigorous upward movement began. By 1962, when it was felt that the disparity between agricultural and industrial prices had been eliminated, agricultural producer prices rose by 54% and industrial prices by only 7.5%.* In this way, during the six-year period 1956–1962, the level of agricultural prices rose by 43% above the level of industrial prices. If now we take the 1962 prices as weights, we get the following change of the rate of growth of GNP for the period 1952–62.

* *Indeks*, No. 3, 1963., p. 37.

1956 prices as weights	10.1%
1962 prices as weights	9.8%

The calculation is very rough, but it indicates, I believe, the order of magnitude of the weights changes effects. The effects appear to be remarkably small.

The Impact of National Product Definitions on the Rate of Growth

The estimate of Yugoslav GNP according to the S.N.A. definition produces about 12 percent higher figure than the one calculated by Yugoslav statistics according to the material product definition.* It is of some interest to find out whether this definitional differences have any greater impact on the computation of the rate of growth.

If we assume that the volume of services remains constant, while the rest of GNP – represented by Yugoslav GNP figures – expands at a rate of 10 percent, the growth rate on the basis of S.N.A definition will appear to be 8.9 per cent. However, the volume of services

* The very detailed estimates by Mr. B. Zeilhofer of the Federal Planning Bureau of GNP according to S.N.A definition produce the following indices /estimates of Yugoslav statistics -100/:

1957	1958	1959	1960
108	112	111	112

does not remain constant. In Yugoslavia and in almost all other countries*, services, estimated in current prices, expand faster than the material part /which includes also transportation and trade/ of GNP. This should not necessarily imply that the *volume* of services expands faster than the rest of GNP since the rate of productivity increase in the field of services is lower than in the other sectors of the national economy. But in any case the two parts of GNP tend to move closely together.

We may conclude that for definitional reasons growth rates may be distorted in both directions. But whatever the bias may be, if is of marginal importance.

The impact of quality changes

So far, no satisfactory measure of the impact of quality changes on the volume of national product has been proposed. Nor is such a measure really necessary for our present purposes. What we are interested in is not an absolute measure of national product but a comparison of the growth paths of various countries. Accordingly, it is sufficient to know whether

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* In an unpublished paper by S. Stajić of the Investment Institute in Belgrade, fifteen countries were studied. In the period 1954-59 only three of them – France, Japan and Turkey – showed smaller growth rates of GNP in current market prices, when NNP was estimated according to the S.N.A. definition as compared with Soviet material product definition. The difference in absolute levels of two alternative GNP estimates varied between 15 and 22 per cent.

Kuznets' data for U.S.A. show the following changes in the share of services in the national income during the interwar period:

% share of services in national income

	1919	1918	1938
Finance	10.3	13.0	10.1
Services	9.3	12.8	13.7
Government	5.7	9.9	16.7
Total	25.3	35.7	40.5
National income /billions of dollars/	65.9	83.4	64.9

/S.Kuznets, *National Income and its composition 1919-1938* National Bureau for Economic Research, New York, 1954, pp. 163-4/.

the quality and diversity of goods produced in countries to be compared have moved approximately parallely or not. In this respect the following indications are available: what people buy when they travel abroad, whether they convert foreign currency into foreign goods or into domestic currency, what prices does domestic export fetch on the world market, whether competitive imported products are available at not too different prices at the domestic market, and, of course, the directly observable changes in the quality and diversity of goods on the basis of personal knowledge of the market. All five indicators show that the quality of goods was improving and the diversity of production and consumption was increasing at an exceptionally fast rate in the period 1952 – 1960.

Conclusions

There seems to be a slight upward bias in the Yugoslav national product statistics due to a price disparity between industrial and agricultural prices in the base year. On the other hand there is a downward bias due to an exceptionally fast improvement in quality and diversity of products in the period under consideration. On balance, the figures appear to be reliable and to convey a generally accepted meaning of rates of growth.
The three periods of Yugoslav postwar economic development may be described by the following table.

The rates of growth of GNP in %

	1947–52	1952–60	1960–62	1947–62
Industry	4.6	12.8	6.8	9.2
Agriculture	–3.3	7.5	–0.8	2.6
National economy	2.0	10.1	5.3	6.7

Source: SGJ 1962; data for 1960 – 62 are preliminary estimates of the Federal Planning Bureau.

The spurt in agricultural output was due to three main factors:

(1) Between 1952 and 1960 investment in agriculture sharply increased. In particular there was a rise of the number of tractors and widening of the scale of application of fertilizers.

	1952	1956	1959
Gross fixed investment in agriculture milliards of dinars, 1956 prices	34.8	56.1	120.7
Index	100	161	247
Number of tractors	6,266*	15,691**	26,500
Index	100	251	423
Fertilisers used in kg per ha of cultivated land	6	44	111
Index	100	733	1850

* 1951
** 1957

Sources: Institut za ekonomiku investicija. *Investicije 1947-1960*, pp. 86-87
SGJ 1962, p. 125.

(2) Gradual substitution of domestic varieties of seeds by the Italian wheat and American hybrid corn which proved to be well adapted to Yugoslav soil and climatic conditions and – provided modern techniques of cultivation are applied – give considerably higher yields.

(3) Institutional changes were the most important factor since they made possible that (1) and (2) were achieved. The old, administratively induced, system of peasant producer co-operatives was left, even

stimulated, to disintegrate by special laws and other measures after 1952. Only really economically viable cooperatives survived. By that time the socialized part of agriculture – was well enough organized to absorb new techinques and help the subsistence sector to go ahead. There developed various forms of cooperation between the socialized and the private sector of agriculture in which both partners found their economic interests.

In the period 1945 – 1949 the economy expanded at a rate never experienced later; in 1950 – 52 there was an absolute decline in output due to economic blocade, two severe droughts and great organizational changes. Both trends produced rather low rates in the period shown in the table /1947 – 52/ for which relatively reliable data exist. In the second period* growth was fast and steady with an acceleration tendency, which becomes apparent if we break that period into two sub-periods.

Rates of growth of GNP in %

	1952 – 56	1956 – 60
Industry	12.6	13.0
Agriculture	5.9	9.0
National economy	8.5	11.7

The extraordinary high rate of growth of agriculture was the main factor of speeding up economic growth in the second half of the second period. The slackening of development in 1961 occured under quite unorthodox conditions. The prices and wages were rising, the situation was on the general inflationary and still the firms did not use the available productive capacity. Since the change was sudden, it cannot be explained, at least not exclusively, by longrun factors. The explanation could be found in several sudden and partly conflicting reforms carried out simultaneously in 1961, which, temporarily, caused export to stagnate, left

* For detailed description see my paper "The Characteristics of Yugoslav Economic Development", *Socialist Thought and Practice, No 1, 1961*; published also by Jugoslavija, Beograd, as a separate edition.

business without money for necesary payments and disorganized the wage-system.* In the second half of 1962 the rate of growth began to move upwards again.

Here we may resume the argument from the first section of this paper. The table compiled there, exposes the fallacy of the time-honoured views that fast growth is characteristic for backward, economically undeveloped countries. In fact, no really backward country appears on the list of the fastest growing economies, and even if we had more adequate data, no more than one or two such countries would be included. On the other hand highly industrialized countries, varying in size and resource endowments -- such as Czecho-Slovakia, Germany, the Soviet Union, Japan, Austria, – are included in the list. The table also indicates some reasons for rapid growth. Out of thirteen countries, eight /Israel included/ have a type of economic organization which might be labelled „planning". Now, it is possible that some of the growth rates are inflated, some of them even seriously inflated. Still, this would only change the order of the countries listed according to growth rates, and would not change, at least not substantially, the list itself. In other words, it is not likely that any of the countries included would have to be dropped out. Also, the fact that the national product statistics for the country that heads the list meet international standards in this field - suggests that per capita growth rates /around 9%/ are not a fake but a real fact or a real possibility.

There can be little doubt that planning should be considered as one of the most important factors of rapid growth. The explanation why it is so is a rather simple one. Planning shifts the marginal efficiency of

* For a detailed analysis see B. Horvat and associates, *Uzroci i karakteristike privrednih kretanja u 1961. i 1962. godini /Causes and Characteristics of Economic Fluctuations in 1961 and 1962/*. Dokumentaciono-analitički materijali 7, Savezni zavod za planiranje, Beograd, 1962. The study, together with the discussion at the annual meeting of the association of Economists, where it was presented, was summarized in *Ekonomist, No* 1 1963.

investment curve upwards and thus increases the accumulation possibilities of the economy in question. * Adam Smith's Invisible Hand may be considered also as a sort of Planning Bureau, and the market it directs is certainly a kind of planning mechanism. But the market works rather crudely and mostly ex post. If then we introduce ex ante coordination of business activities and beforehand on the paper eliminate all those wasteful decisions which would in practice be eliminated by the market -- we get planning. Market supplemented by an ex ante coordination seems to be the device for lifting the rate of growth to levels which had sometime been considered impossible.

* For a detailed theoretical analysis of this statement see B. Horvat, *Economska teorija planske privrede /The Economic Theory of Planned Economy/*, Kultura, Beograd, 1961.

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