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A NOTE ON ADJUSTMENT PROCESSES IN CROATIAN INDUSTRY DURING THE EIGHTIES

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THE MAKING OF THE SHOCK AND CONSTRAINED ADJUSTMENT IN ITS WAKE

ABSTRACT

This paper analyses the dynamics and structural changes of Croatian industry in the late phase of socialism under the pressure of adverse external conditions of the eighties. The conclusion is drawn that the adjustment processes of the »managerial« type (changes of the export/import ratios and of energy intensity) were more successful than those of the »systemic« type (changes in employment and the volume and structure of investment).

The oversupply of petrodollars on financial markets in the seventies tempted many semi-industrialised countries to try a quick jump over the threshold of development. Indiscriminate imports of investment and consumer goods were realised through massive inflow of capital, and huge debts were accumulated.

The socialist countries of Eastern Europe were especially vulnerable to the trap of overindebtedness. The absence of private ownership stimulated the irresponsible behaviour of managers and bureaucrats and aggravated its consequences. The socialist credit-takers did not risk their own capital, and foreign creditors were not allowed to convert financial claims into ownership of productive assets if the debtor defaulted.

The oil-price shock and the debt crisis that followed in the early eighties had, thus, a devastating effect on the socialist economies in Eastern Europe.

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Their rigid economic system and autarchic structures³ prevented them from adapting successfully to the new adverse circumstances. The economic calamities that followed were one of the significant factors contributing to the political upheaval in 1989–1990.

Although not typically socialist, the Yugoslav economy⁴ had some basic socialist features i.e. the absence of private entrepreneurship and capital markets. Lacking these institutions, Yugoslavia relied on a system of centrally planned investment and rationing of capital outlays. On the other hand, markets for goods and services were well developed, and only some prices were moderately distorted by governmental interventions. The enterprises were run by a mixture of political and workers' management and their economic position was largely determined by prior investment decisions they had little influence on. In the eighties, however, the government's say in investment decisions of enterprises became rather limited.

A well-known feature of the Yugoslav economy are the marked development disparities of its regions.⁵ According to developmental criteria Croatia takes second place among the six Yugoslav republics, benefiting especially from tourism and remittances of its migrant workers in Western Europe.

The study of adjustment processes in Croatian industry in the eighties pertains, then, to a case of rather moderate socialism in a comparatively well-off Eastern European region.

In this paper we shall compare the development dynamics of Croatian industry⁶ in the periods before and after the economic shock of the early eighties. We shall, then, describe three aspects of the adaptation process – the changes in export/import ratios, changes in the energy-intensity of industrial production and changes in the volume and structure of investments. In the final part we shall speculate on the dependence of adjustment processes on managerial abilities within systemic constraints, on the one hand, and the prevailing ownership relationships, on the other.

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Typically, a socialist industrial structure would be characterized by a high share of capital and energy intensive raw material processing industry and a correspondingly lower share of consumer and investment goods industries, whose products were mostly non-tradable in convertible areas because of low quality.

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Out of the huge literature on the structural and systemic aspects of the development of the Yugoslav economy we shall refer to some of the more recent Yugoslav contributors. Marsenić (1986) e.g. gives a general overview of the characteristics of the various phases of post-war economic development. Bajt (1986) while covering the same period is more critical in analysing the interaction of the systemic and developmental factors. Mencinger (1989) gives a comprehensive review of the systemic changes with special emphasis on the last phase of »contractual« socialism.

5 A good account on the influence of economic policies on regional development in Yugoslavia is given in Flaherty (1988). Milanović (1987) considers the regional patterns of growth in Yugoslavia with special reference to impediments to interregional capital flows.

6 »Industry« will here include manufacturing and mining as well as electricity production.

DYNAMICS OF INDUSTRIAL GROWTH IN CROATIA BEFORE AND AFTER THE SHOCK

The basic mechanism of adaptation of Croatian industry to the shocks of the early eighties was probably not dissimilar to that prevailing in other socialist or non-socialist countries facing similar sudden constraints.

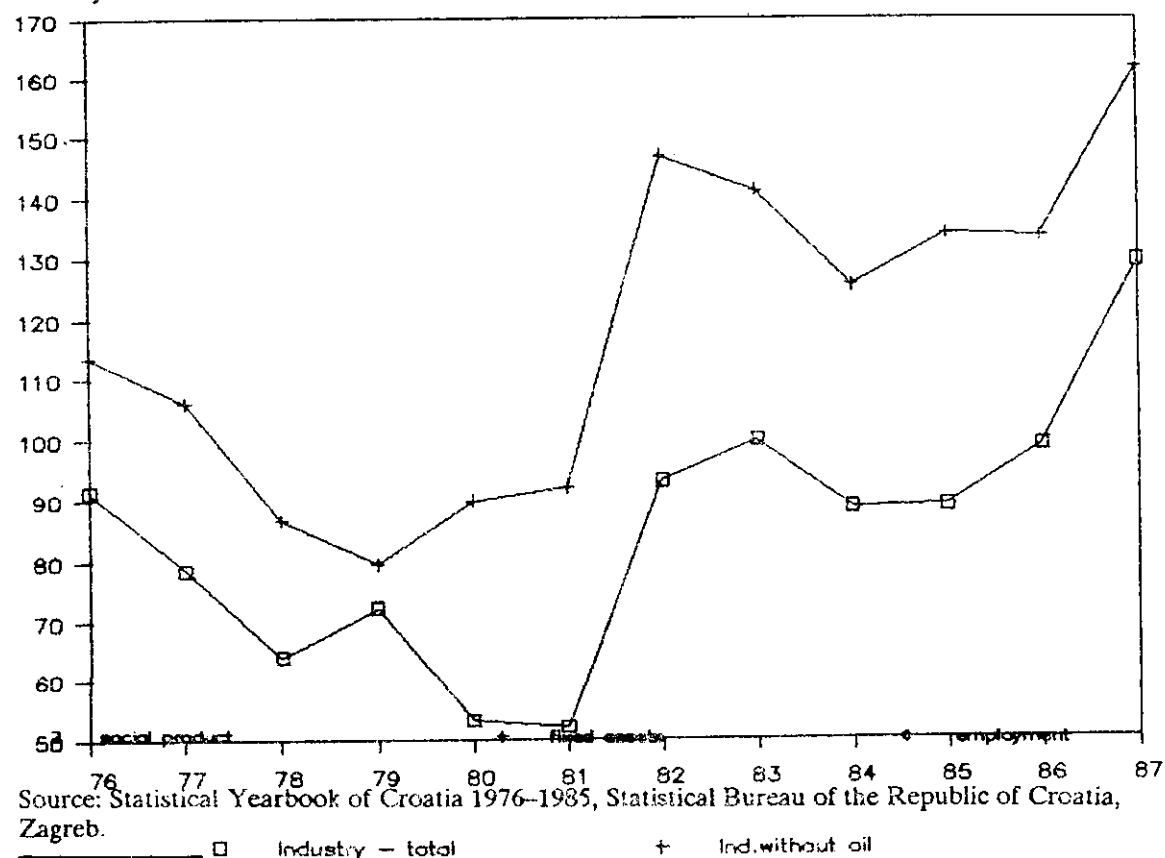
The swift rise of oil prices and the drying up of foreign sources of deficit financing could not be immediately met by an increase of hard currency export earnings. Instead, imports had to be reduced and they could not be instantly substituted by domestic products.⁷ As a consequence there were shortages of energy, raw material and other inputs to industry and the level of industrial capacity utilization declined. The growth rates of industrial social product decreased and even became negative in some years.

Other changes, reflecting systemic constraints, were less swift. Real personal incomes were substantially reduced over a couple of years, mainly through the enforcement of social compacts i.e. non-market regulation. The decreasing internal demand had a favourable influence on the trade balance and helped eliminate shortages.

Some other economic flows were rather resilient to external pressures. The growth of fixed assets, reflecting former investment decisions, remained

Graph 1

Annual rate of growth of the social product, value of fixed assets and employment in the Croatian industry from 1976 to 1985



⁷ The only available substitution option was to turn to a soft currency oil supplier. The Soviet Union became the main but not the exclusive provider of oil and its products to the Yugoslav industry.

on a high level for some time. Since capacity utilization decreased, the efficiency of the use of capital fell even faster. Employment continued to grow as well, and labour productivity consequently declined.

Graph 1 illustrates some of these phenomena by indicating the changes of the growth rates of social product, fixed assets and employment in the Croatian industry between 1976 and 1985.

In the years between 1976 and 1979 all three aggregates rose strongly. After 1980 the growth rate of social product was the quickest to decline, the rates of growth of fixed assets and employment following only slowly. Whenever the growth rate of social product was smaller than that of fixed assets the capital coefficient necessarily rose – most visibly in 1982 and 1983. Similarly the growth rate of employment was higher than that of social product in most years between 1980 and 1985, indicating a continuous decrease of labour productivity.

Table 1 / AVERAGE ANNUAL RATE OF GROWTH OF THE SOCIAL PRODUCT AND EMPLOYMENT IN THE INDUSTRY OF CROATIA IN THE PERIODS 76-80 AND 81-85

Industrial branches	Social product		Employment	
	76-80	81-85	76-80	81-85
	percent			
Industry	6.37	0.80	3.28	1.81
Electricity	4.49	-3.48	3.69	1.14
Oil refineries	3.42	-4.33	3.19	-0.47
Production of non-ferrous metals	11.13	-0.24	17.80	-3.85
Fabricated non-ferrous products	5.60	2.11	-1.06	4.48
Metal products	12.19	-1.41	6.49	1.52
Machinery	8.46	0.94	6.44	3.22
Transport equipment	14.42	5.77	-1.53	4.41
Shipbuilding	-8.19	7.98	-0.29	1.68
Electrical machinery and equipment	6.12	1.30	2.50	1.05
Basic chemicals	4.04	9.95	7.05	4.24
Other chemicals	12.68	-0.32	6.61	0.78
Wood and wood products	4.59	1.58	-0.20	1.55
Furniture and fixtures	6.48	-0.18	5.53	2.15
Paper and paper products	8.40	0.45	-1.23	0.85
Textiles	3.78	-0.55	2.51	0.55
Wearing apparel	4.96	2.82	0.03	2.81
Leather and fur products	4.92	0.65	2.56	4.10
Footwear	7.06	5.32	7.02	4.67
Food products	6.33	1.00	2.75	1.85

Sources: Statistical Yearbook of Croatia 1976-1985, Statistical Bureau of the Republic of Croatia, Zagreb.

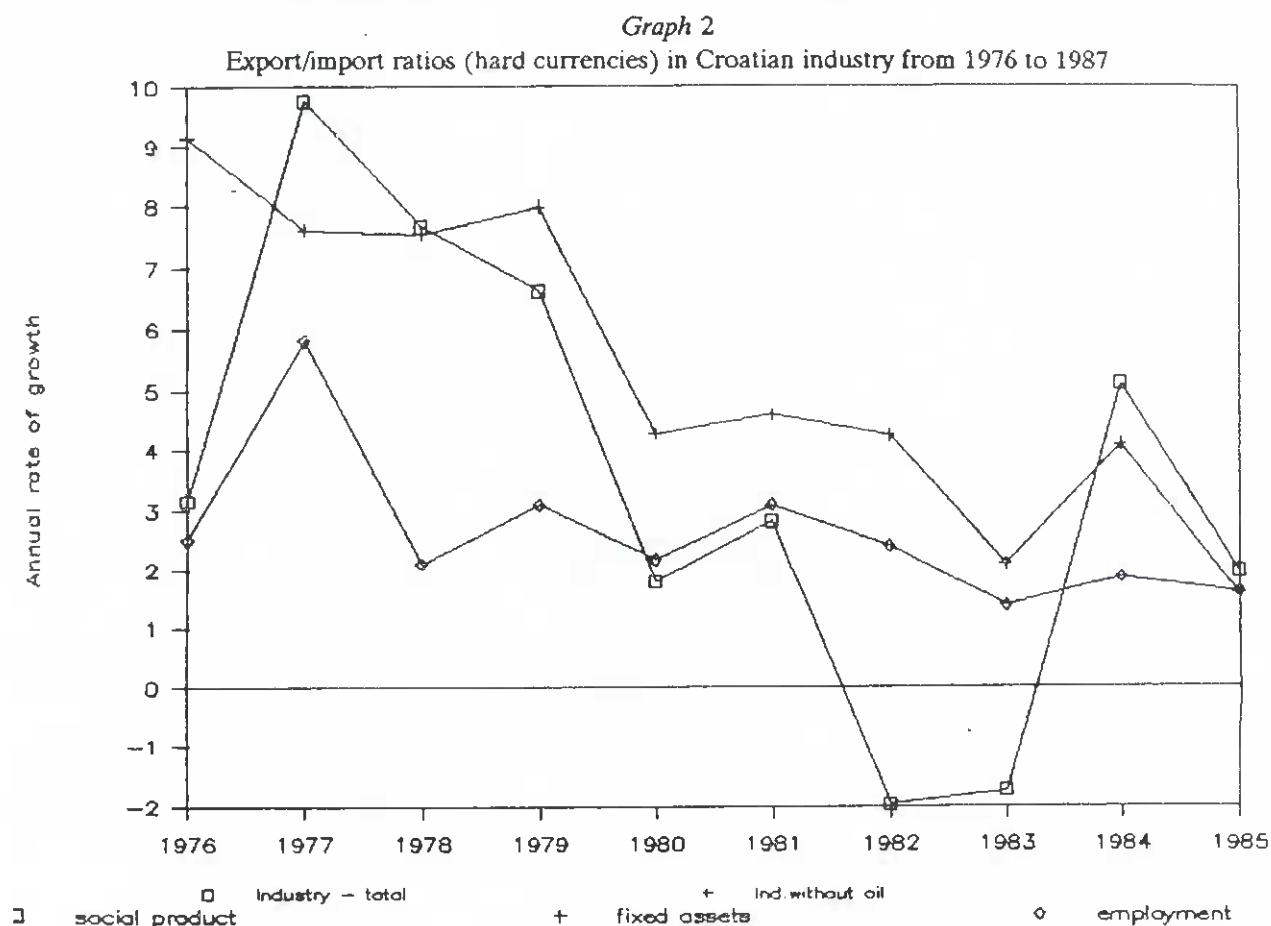
Table 1 contains data on average growth rates of social product and employment in various industrial branches in the pre-shock (1976–80) and post-shock (1981–85) period. There are several branches that differ from the generally bleak trends of the industry as a whole.

Shipbuilding is an important export industry of Croatia, and its cyclical ups and downs had little in common with the circumstances of other autarchic branches – its social product rose strongly in the domestic crisis period 1981–85. A substantial rise of the data for the basic chemicals branch, on the other hand, was due to the completion of a large petrochemicals plant and a large fertilizer plant, both of which were not quite adjusted to the necessities of saving energy. Energy transforming branches – power plants as well as oil refineries – fared worse than the industrial average. That was likewise the fate of some energy-intensive branches, e.g. aluminium production. The labour intensive consumer goods branches with a high share of exports developed satisfactorily even in the post-shock period.

ADJUSTMENT OF THE CROATIAN INDUSTRY REFLECTED IN CHANGES OF EXPORT/IMPORT RATIOS

A good indicator of the degree of irresponsible economic behaviour in the pre-shock years and of the ability of the economy to adjust in its wake are the industrial export/import ratios, especially those concerning hard currencies trade.

Graph 2 contains two sets of data on hard currencies export/import ratios in Croatian industry from 1976 to 1987. The first relate to the total of industry,



the second to industry after the deduction of oil and oil products imports and exports.⁸

It can be seen that the low point of the export/import ratio⁹ for total industry was reached in 1981, just after the oil prices shock. If oil is excluded, the lowest export/import ratio appears in 1979. The disappearance of foreign credit lines forced the industry to radically improve the export/import ratios in 1982. After several years remaining on approximately the same level, there was another improvement in 1987.

Table 2 / EXPORTS, IMPORTS, SALES AND EXPORT/SALES RATIOS
IN CROATIAN INDUSTRY FROM 1978 TO 1987

mil din

	78	79	80	81	82	83	84	85	86	87
EXPORTS										
1	30231	33772	54424	72775	111005	162226	320939	584520	847046	1836822
2	1931	2505	4358	3891	2085	7438	24306	10443	22643	33145
3	18800	22682	35951	43289	68502	105484	185947	290395	453368	1190115
4	1917	2400	4322	3860	1576	7431	24299	10414	22639	32884
IMPORTS										
1	37679	43272	79267	95827	92301	136029	317633	458781	610386	1306961
2	11900	11068	37083	41942	30201	42683	142761	179656	196155	413996
3	29298	31422	67494	83068	73657	105927	210195	326894	459708	921044
4	9804	5881	32235	40147	28049	36370	81066	117669	136567	205511
SALES										
1	252917	333485	472504	677017	857466	1223233	2034802	3651346	6561917	13364499
2	28596	34997	61975	82497	92729	122885	216535	233165	447323	844895
EXPORT/SALES										
A	11.95	10.13	11.52	10.75	12.95	13.26	15.77	16.01	12.91	13.74
B	7.43	6.80	7.61	6.39	7.99	8.62	9.14	7.95	6.91	8.91

- 1 - industry total
 2 - oil and oil products
 3 - industry - hard currency
 4 - oil and oil products - hard currency
 A - total export/sales
 B - hard currency export/sales

Sources: Industrial Statistics (1978-1987), Statistical Bureau of the Republic of Croatia, Zagreb.

Source: Industrial Statistics (1976-1987), Statistical Bureau of the Republic of Croatia

⁸ Since the prices and volume of imported oil fluctuated substantially between the pre-shock and post-shock years it seems sensible to exclude it from the total data for industry.

⁹ It should be noted that these data do not reflect the total export/import ratios. On the import side consumer and most investment goods are excluded, while on the export side agricultural products are not taken into consideration.

The data in table 2 give further insight into the processes of adjustment in foreign trade. A definite switch toward soft currency imports of oil can be noted in the years from 1983 onwards. In itself that was a factor contributing to the improvement of the hard currency export/import ratios.

Some significant conclusions can be drawn from the ratios denoting the share of exports in total sales of the Croatian industry. An after-shock improvement of the share of exports – both for the total and hard currency exports – can be observed, but the level of the ratios in absolute terms remains very low. The rise of the hard currency export/import ratios during the eighties was thus predominantly caused by a reduction of imports rather than by an increase of exports. This indicates that industry retained its autarchic characteristic, remaining oriented mostly towards domestic markets.

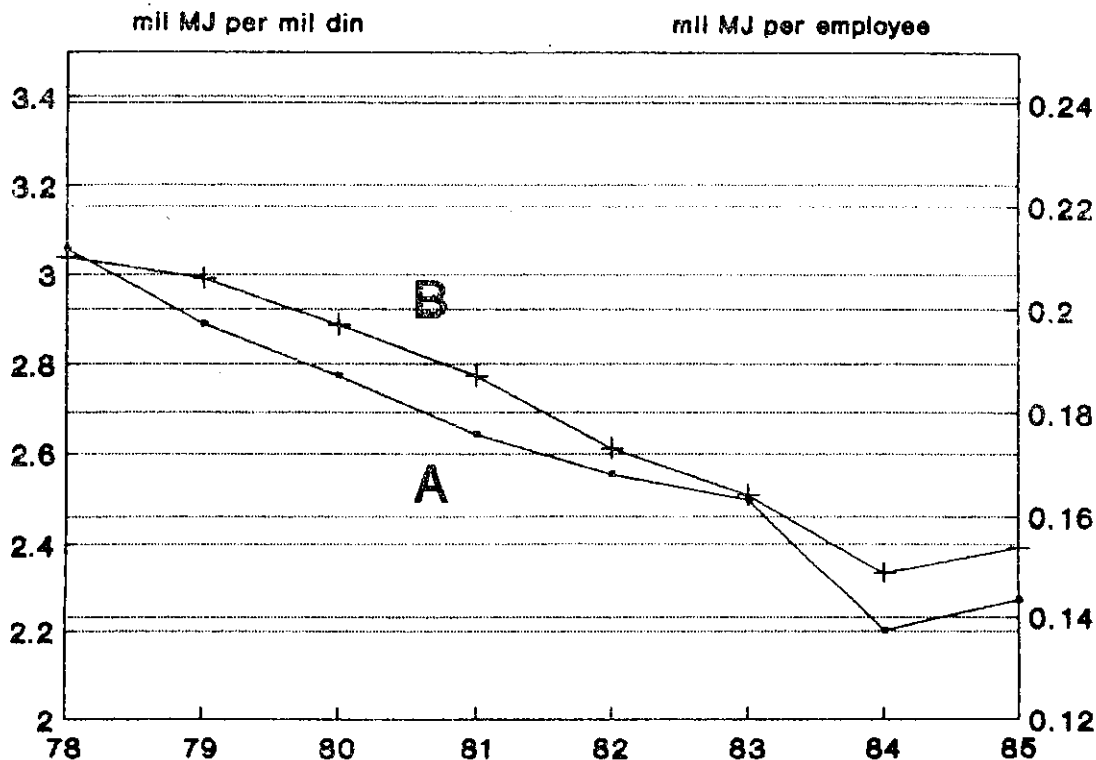
THE DECREASE OF ENERGY INTENSITY IN INDUSTRY

The increase in oil prices at the beginning of the eighties caused a general rise of energy prices, inducing an energy saving effort all over the world. Reduction of energy intensity (energy used per employee) or the energy coefficient (energy used per unit of product) are additional indicators of the ability of the economy to adapt to new external constraints.

It should be noted that in Yugoslavia post-shock energy consumption was under the influence of both price increases and oil imports restrictions. The combined effect was rather strong and energy consumption per employee and per unit of product substantially decreased. The data in graph 3 illustrate these developments.

Graph 3

The energy coefficient and energy intensity in Croatian industry from 1978 to 1985



A – energy coefficient (mil MJ per mil din, prices 1972)

B – energy intensity (mil MJ per employee)

Source: Statistical Yearbook of Croatia (1978–1985), Statistical Bureau of the Republic of Croatia

As in most developed countries the reduction in the consumption of energy was accompanied by a change in the structure of consumption. Electricity increased its share, while the share of oil derivatives, especially heavy oil for industrial combustion, fell sharply.

The technical aspect of energy savings in industry cannot be fully documented. Some explicit waste has obviously been eliminated, some energy saving measures with low capital outlay were realised, and some structural change in industry (closure of energy intensive plants) was achieved. The data in graph 3 suggest that the total effects were not negligible.

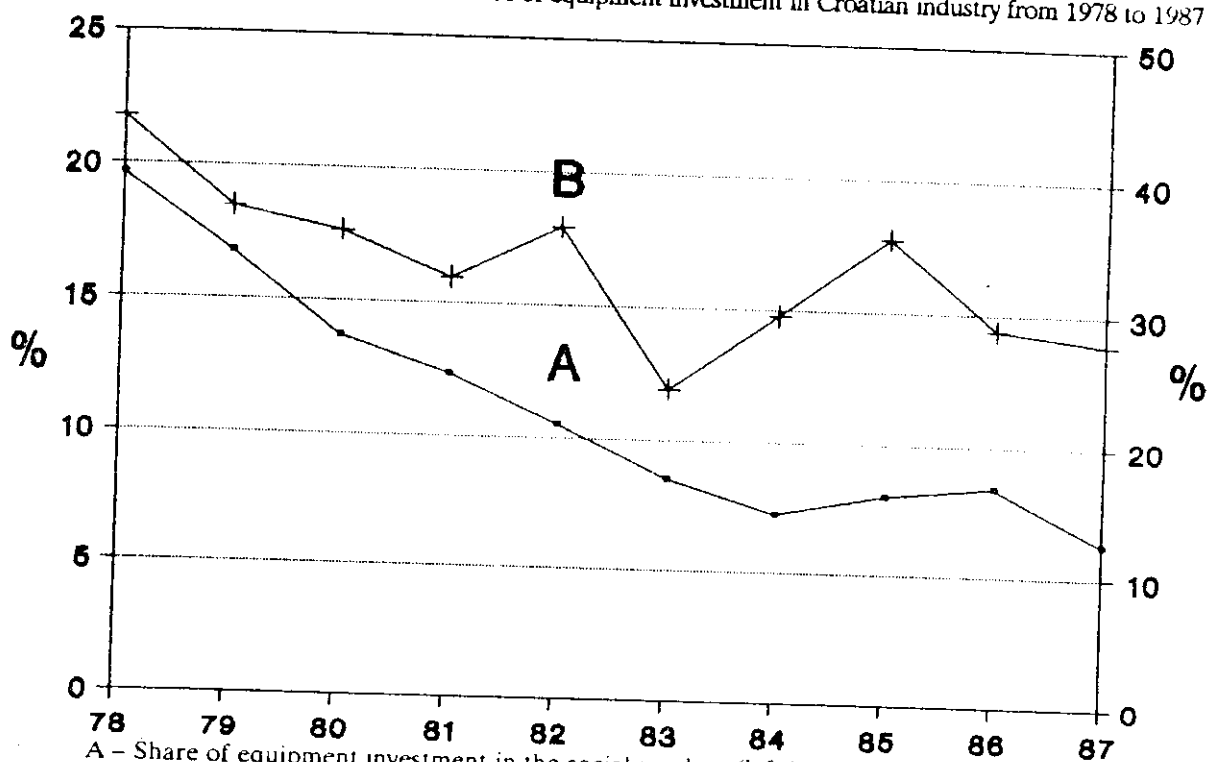
CHANGES OF VOLUME AND STRUCTURE OF FIXED-ASSETS INVESTMENT

Investment behaviour in Croatian industry under external pressures in the eighties has obviously been influenced by the existing system of self-management and social ownership.

Reducing »Illyrian« theories¹⁰ to their essentials it can be safely assumed that the self-managed firm always tries to protect its employees with respect to both employment and personal income.

Graph 4

Indicators of the volume and structure of equipment investment in Croatian industry from 1978 to 1987



A - Share of equipment investment in the social product (left hand scale)

B - Share of imported equipment in total equipment investment

Source: See graph 3

¹⁰ In his seminal article on the self-managed firm Ward (1958) used the term »Illyrian« to emphasize the model character of his construction as well as possible similarities to the real-life Yugoslav enterprise. Domar's (1966) contribution started an avalanche of articles on the economic theory of producer co-operatives - see e.g. the references in Bartlett, Uvalić (1985).

If the total income of self-managed firms declines, the volume of investment as well as its share in the social product will be reduced so as to minimize the reduction of employment and personal income.

If there are import restrictions because of the urgent need to improve the trade balance, the firms will protect the given level of capacity utilization by importing the necessary raw material and semimanufactures at the expense of investment goods imports. Investment in imported equipment will, hence, decline.

The data in graph 4 confirm the assumption that an important change in the level and structure of the investment of Croatian industrial firms occurred during the after-shock years. The share of investment in total equipment in the social product of industry decreased from just under 20 percent (a very high percentage) in 1978 to a level significantly lower than 10 percent in all years after 1982. The share of imported equipment in total equipment investment fell from over 43 percent to levels under 30 percent in most years after 1982.

Table 3 / BRANCH STRUCTURE OF EQUIPMENT IN THE CROATIAN INDUSTRY FROM 1978 TO 1987

(in percent)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Electricity	10.58	12.38	14.78	10.81	13.69	15.89	11.98	12.38	16.03	23.17
Oil refineries	9.02	11.80	8.66	7.18	4.92	4.29	2.41	1.00	0.99	1.63
Production of non-ferr. metals	4.11	0.19	0.20	0.03	9.29	9.97	9.12	0.18	9.12	0.23
Fabricated non-ferr. products	0.20	0.10	0.13	0.09	0.12	0.14	8.98	9.33	0.60	0.15
Metal products	4.45	5.93	5.71	5.00	5.36	6.69	8.00	7.65	6.49	4.87
Machinery	3.74	4.38	3.61	3.17	4.63	5.44	5.66	5.99	5.41	7.38
Shipbuilding	2.08	0.90	0.74	0.62	1.19	1.48	2.43	3.08	3.78	1.92
Electrical machinery and equip.	2.38	3.23	2.67	3.31	3.86	2.97	2.77	2.50	7.57	7.03
Basic chemicals	12.29	8.74	15.69	27.71	23.66	25.86	11.13	9.78	5.76	3.16
Other chemicals	3.69	5.14	5.81	6.22	3.32	2.90	3.81	3.78	2.99	3.33
Building materials	9.70	6.35	5.53	3.97	2.91	1.87	2.44	2.23	2.90	2.21
Furniture	2.93	2.30	2.68	3.14	2.58	1.83	2.50	3.00	3.70	3.63
Textiles	3.51	2.39	1.98	2.26	2.25	3.10	3.51	2.72	5.02	4.05
Wearing apparel	2.00	2.08	1.78	2.22	2.05	3.27	3.05	3.93	5.23	5.74
Food products	8.91	13.63	8.72	6.57	7.10	5.53	6.36	6.28	6.46	8.46

Source: See Table 1

The branch structure of equipment investment within industry is reproduced in table 3.

Two branches – electricity and basic chemicals production – account for more than 35 percent of total industrial equipment investment in the years 1981 to 1983 and this share was not much lower in the preceding years. The non-ferrous metals branch had a high share of industrial investment, especially in 1984 and 1985. These shares are an indicator of the high capital and energy intensity of the industrial structure as planned in the pre-shock years and rigidly realised in the post-shock period.

On the other hand the rise of the share of equipment investment in the textile and apparel as well as in the furniture production indicates a positive adjustment, since these industrial branches bore the brunt of the after-shock export effort.

AN EVALUATION OF THE MAIN ASPECTS OF ADJUSTMENT PROCESSES OF CROATIAN INDUSTRY IN THE EIGHTIES

Adjustment processes in Croatian industry, described in this paper, can be divided into two groups.

The first embraces adjustment processes that concern the product and input mix and depend more on managerial skills than on systemic constraints. The changes indicated by export/import ratios and by energy intensity indicators obviously belong to this category.

It seems that in this area comparatively good adjustment results were achieved even under the constraint of the socialist system. The export/import ratio of Croatian industry substantially improved in the eighties as did the energy intensity indicators. With the decrease of governmental influence on investment decisions the branch structure of investment improved, too.

The second type of adjustment processes includes those that were predominantly influenced by the existing system of self-management and social ownership. Changes in the volume of investment as well as changes in employment reflect adaptation of this type.

The adjustments in this category have been much less satisfactory. A sharp decrease of the volume and import content of equipment investment was caused by the resistance of self-managed firms to reduce personal income and employment when their total income decreased under adverse external conditions. Employment rose while production decreased causing a substantial fall of labour productivity.

It seems that the large »investment deficit« incurred by the Croatian industry in the eighties as a result of both systemic and external causes, is the most important single negative effect of the adjustment processes. It made Croatian industry obsolete and its survival chances in competition with other comparable industrial countries declined. Increasing the very low investment rate and its import component, resulting from adjustment processes in the eighties, remain therefore high on the economic policy agenda in the transition period of the nineties.

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REFERENCES

- A. Bajt (1980), »Economic Growth of the Socialist Federal Republic of Yugoslavia (SFRJ) – Results and Costs«, *Socialist Thought and Practice*, Vol. XXVI, No. I, 34–58.
- M. Bartlett, M. Uvalić (1985), *Bibliography on labour-managed firms and employee participation*, EUI Working Papers No. 198/85, Florence, European University Institute.
- E. D. Domar (1966), »The Soviet collective farm as a producer co-operative«, *American Economic Review*, 56, 734–57.
- D. Flaherty (1988), »Plan, market and unequal regional development in Yugoslavia«, *Soviet Studies*, Vol. XL, No. 1, January, 100–124.
- D. Marsenić (1986), »Economic Development, 1945–1984«, *Yugoslav Survey*, Vol. XXVII, No. I, 69–98.
- J. Mencinger (1989), »The Yugoslav Economy – Systemic Changes 1945–1986«, *The Carl Becker Papers in Russian and East European Studies*, No. 707, July.
- B. Milanović (1987), »Patterns of regional growth in Yugoslavia, 1952–83«, *Journal of Development Economics*, Vol. 25, No. I, 1–19.
- R. F. Miller (1989), »Theoretical and Ideological Issues of Reform in socialist Systems: some Yugoslav and Soviet examples«, *Soviet Studies*, Vol. XLI, No. 3, July, 430–448.
- B. N. Ward (1958), »The firm in Illyria: market syndicalism«, *American Economic Review*, 48, 566–89.

PROCESI PRILAGODAVANJA U HRVATSKOJ INDUSTRIJI U TOKU OSAMDESETIH GODINA

U članku se analiziraju dinamika i strukturne promjene u hrvatskoj industriji u kasnim fazama socijalizma pod pritiskom nepovoljnih vanjskih uvjeta u osamdesetim godinama. Zaključuje se da su uspješniji bili procesi prilagodavanja »poslovnog« tipa (promjene u odnosu izvoz/uvoz i u energetske intenzitetu) nego oni »sistemskog« tipa (promjene u zaposlenosti te u opsegu i strukturi investicija).

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