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PLAN, MARKET AND UNEQUAL REGIONAL DEVELOPMENT IN YUGOSLAVIA

By Diane Flaherty

Introduction

The Yugoslav experiment in self-management that began in the early 1950s was a response to two perceived problems of central planning, economic stagnation and political alienation.[1] Viewing the two as inseparable and inevitable consequences of bureaucracy, Yugoslav policy makers proposed a system of political and economic self-management to promote effort and responsibility within the firm and commitment to equitable distribution of resources.

Economic reforms introduced in the 1960s were designed to rationalise and democratise the economy through decentralisation. Firms gained the power to retain most of their profits, to invest as they saw fit and to determine prices, all within broad macroeconomic balances set at the federal, or central government level. International trade was liberalised and individual firms could participate directly in transactions with foreign producers and sources of credit. The banking system began to allocate domestic credit in response to local conditions of profitability, rather than plan targets. Subsidies to marginal firms were reduced and for the first time unemployment was accepted as a temporary cost of improving efficiency. Firms were encouraged, indeed forced, to take seriously market criteria, both domestic and international. The political argument justifying decentralisation was that dismantling the planning bureaucracy would give workers control over their factories and communities and achieve a more substantive democracy.

In the first years of this experiment in decentralised socialism, there was wide agreement among Yugoslav economists on the advantages of worker control and firm autonomy. Unity degenerated, however, as conflict emerged between the goals the new economy was designed to fulfil, improved efficiency and more equitable distribution.

A major bone of contention about decentralisation has been the effect on Yugoslav regional income differences. The country is divided into eight regions, each with its own government administration, and these regions are separated by religion, ethnic origin, language and even alphabet, as well as economic differences. The northern regions, Croatia and Slovenia, were developed through their domination by the Austro-Hungarian Empire into the most industrialised areas. The poorest regions are those which had been until the beginning of the 20th century under Turkish control, Bosnia-Herzegovina and Kosovo-Metohia, and those with the least arable land, Macedonia and

Montenegro. In 1979 42% of the population in Kosovo-Metohia was still in agriculture while only 12% of the Slovenian population was agricultural, the infant mortality rates were 68 per 1000 in Kosovo but only 15·5 in Slovenia and the unemployment rates were 38% and 1% respectively. (See Table 1.)

Changes introduced by reform in the 1960s brought regional disparities to the fore. A central purpose of reform has been to discourage regional rivalry by replacing the allegedly political criteria of resource allocation inherent in central planning with the objective criteria of the market.

Instead, regional antagonisms sharpened as inequality grew. By the end of 1984 the conflict between improved efficiency through the market and improvement of the position of the poorest regions dominated discussion of policies for economic recovery.

The emergence of regional differences as a serious obstacle to national economic growth and stability was in part foreseen by Yugoslav economists opposed to decentralisation. However, neither their model nor that of proponents of reform has proved to be an accurate predictor of the impact of economic reform on regional disparities. The two-fold purpose of this paper is to test the basic premises of these models and to construct a model of regional relations more adequate to current problems. The first section presents the key propositions concerning reform and regional relations of those opposed to and those in favour of reform. The second section describes patterns of regional differences over time. The third section looks in more detail at the debates over decentralisation by constructing econometric tests of hypothesised effects of reform on regional income. In a concluding section, the arguments of each side about the consequences of decentralisation are evaluated in the light of the empirical results. The evidence appears to support the critics of reform but their expectations remain unfulfilled in important respects. Further, the failure of both analyses of reform and regional relations will be traced to the simple plan v. market dichotomy around which debate revolved. An only slightly more complex model of regional income suggests that the major influences of reform on income worked through *both* plan and market variables. For example, the less developed regions did suffer significantly lower income through the effect of unemployment on wages brought about by the reforms. However, this market effect was partially offset by the success of plan targets in allocating more investment funds to the poorer areas. Although there is clear evidence that regional income disparities grew after decentralisation, the explanation does not lie in wholesale 'marketisation' of the economy.

The debate over decentralisation and regional inequality

During the 1950s the problems of the less developed regions were similar to the problems of Yugoslavia as a whole; inadequacy of infrastructure, industrial capacity and mechanisms for integration of regions into a unified national economy. (The underdeveloped regions are Bosnia-Herzegovina, Montenegro, Macedonia and Kosovo; the most developed regions are Croatia and Slovenia; Serbia proper and Vojvodina are close to the national average and hence in neither group.) In these circumstances, the underdeveloped regions were simply more backward than the rest of the economy, for which the common solution of rapid growth of key industrial sectors within a centrally directed economy was prescribed.[2]

Yugoslav development strategy during this period was very similar to the Soviet strategy, with two exceptions emerging after the split with the Soviet Union in 1948. Planning priorities were shifted somewhat to emphasise manufacturing as a whole rather than only heavy industry, and regional disparity was attacked in plans to push the growth rates of less developed regions above the national average. The federal government in the 1950s had at its command a range of instruments typical of a still highly centralised economy. The less developed areas were favoured in the 1954–1960 plan in direct allocation of investment and in plan targets for income distribution. This limited wage differentials across sectors and regions.

By the end of the 1950s, however, both the efficacy of large transfers of resources toward infrastructure in the less developed regions and the role of planning in democratic, self-managed socialism were being questioned. The growth rates of the less developed regions lagged behind in spite of their shares of investment. In reaction, the more developed regions were becoming dissatisfied with their contributions to the development funds. Representatives of the richer regions argued that they had helped enough, the results were small in comparison to the aid, there were pockets of underdevelopment in their own regions and their efforts to increase the social product should be rewarded by increases first in their own standards of living.[3] President Tito acknowledged these concerns, arguing that instead of so much aid being given to less developed regions, more should be spent on production in regions where 'the means necessary for the development of the country as a whole could be created more efficiently'.[4]

Against this background of dissatisfaction with central planning and particularly its regional component, a set of reforms was introduced in 1961. Revisions in the tax system included replacement of a progressive tax on business income with a flat rate tax, an increase in the tax on investment funds relative to the tax on the wage bill and imposition of an excess profits tax. Although some tax rates increased, the net effect was an overall reduction in taxes to be paid to the federal government by the enterprise from an average of 60% of enterprise net income to 15%. Other reform provisions included elimination of controls on prices of consumer goods and all new products, devaluation of the dinar (from 300 to 750 per dollar) and removal of most import restrictions. The system of multiple exchange rates was also abolished.

The effects of reform were immediate and dramatic. In the first four months of 1962 retail prices increased by 25%, prices of agricultural products by 18% and the balance of payments deficit continued to grow despite devaluation. As domestic terms of trade turned against agriculture and international terms against domestic producers in general, the less developed regions suffered disproportionately due to their greater reliance on agriculture for income and imports for production. Unemployment rose in these areas as 'countless enterprises in Bosnia-Herzegovina, Montenegro, and Macedonia had to let workers go in the face of shortages of both operating and investment capital'.[5] Planned levels of investment were not reached in the country as a whole, because decentralisation led to 'evasions of the laws and directions requiring contributions to the federal government in the form of taxes and the investment and development funds of enterprises'.[6]

Finally, receipts of the General Investment Fund, the source of supplementary federal funds, fell precipitously, and at the end of 1961 the fund had liabilities of 116 million dinars. The inability of the fund to meet its obligations was much more damaging to the underdeveloped regions owing to their greater dependence on the fund for working as well as investment capital.

The pro-reform position: redistribution through rationalisation

Interpreting the 1961 experience with reform led Yugoslav economists into a deeper discussion of the role of decentralisation in a socialist economy. Debate over whether new, more radical reforms were necessary was centered on the relative costs and benefits of planning v. the market for efficiency and fairness. The pro-reform position emphasised the costs of centralisation, bureaucratic inefficiency and alienation of workers. It stressed the benefits of the market, incentive to individual workers and firms and a fair and 'socialist' distribution of income according to productivity.[7]

Citing the negative effects on incentives of artificial equality, of 'levelling off in the Chinese fashion', proponents of reform saw decentralisation as more efficient mainly because 'economic inequality is consequently a reflection of inequality of labour and hence an incentive to higher quality and greater productivity of labour and the development of science and technology'.[8] A second pillar of the pro-reform position was its analysis of the advantages of growth poles, or concentration of resources in more developed areas. In this view, only by allowing more investment funds to flow to advanced regions could advantage be taken of economies of scale, of capital-intensive techniques, of the positive externalities of existing industrial centres and of greater savings propensities of firms and individuals in the richer regions.[9] The argument of this analysis is that as growth in the more developed regions takes off with reform, less developed regions benefit both through increased resources available for investment in the economy as a whole and through expanded demand for their agricultural products and raw materials.[10]

Equitable distribution of the additional output generated by reform would be assured by eliminating class conflict through decentralising production. Without bureaucracy, all workers would enjoy the same social status, an equality that would not be violated by the fact that after reform all workers would not work under the same conditions and so would not receive the same earnings. In this view, even if reforms encouraged appropriation of the social product by developed regions, 'this does not alter the nature of the basic relation, that is, the fact that initiators and shapers of these relations are work organisations in which the contradiction between labour and capital has been abolished.[11]

Supporters of reform thus argued that worker management of the means of production not only abolishes class conflict but also precludes fundamental antagonisms among nationalities and regions. Because effective worker control ensures that class solidarity replaces identification with one region or ethnic group, efficiency improves and resources are distributed more fairly. In this analysis, 'national (regional) egoism' is at the same time the most serious obstacle to worker control and the most formidable barrier to rationalisation of the economy.[12] Efficiency and self-management become by definition consistent goals, since decentralisation simultaneously establishes the necessary conditions for worker control and fosters national or worker concerns rather than local or bureaucratic interests.

This is not to say that the real position of the less developed regions was neglected entirely. A special fund for the Development of Insufficiently Developed Areas was created in 1961 in recognition of the inability of these regions to perform to market standards and as a compromise with critics of reform. The 1966–1970 five-year plan called for contributions to the fund from all non-private firms in all regions of 1·85% of gross material product of the social sector. The contribution was raised to 1·94% in the five-year plan for 1971–1975.[13]

The anti-reform position: concentration and inequality.

The overriding concern of opponents of reform also was realisation of worker control. In their view, however, the regional consequences of radical reform were more likely to reduce than enhance effective self-management, because as resources concentrated in developed regions, workers there would gain disproportionate control. Regional differences are in this analysis crucial to an assessment of the full impact of decentralising reform on self management, on the ability of *all* workers to control their firms.[14] Behind the conclusion that decentralisation would increase inequality were several criticisms of the reformers' market orientation. The first disputed the argument that growth of the developed regions would help the less developed, on the grounds that relative prices tend to move against agriculture in developing market economies. Moreover, lower value added for agriculture and raw materials, products of the poorer regions, would mean wider regional disparities in income after decentralisation.[15]

On the question of whether planned or 'spontaneous' development is more efficient, the critical analysis of reform saw the reliance on 'spread effects' to reallocate investment funds to less developed regions as inherently inefficient.[16] Rather than leading to a rational allocation, 'it is only after the concentration of investments has grown to the saturation point (in the developed regions) that expansionary momentum or centrifugal spread effects can come into effect in practice'.[17] Direct and subsidised investment in the less developed regions, on the other hand, increases demand in the backward regions, creating markets for the developed regions. In addition, planning can stimulate the output of agriculture, which is a chronic bottleneck draining off scarce foreign exchange from industry, and speed the transition from a subsistence to a market economy. 'Peasant mentality' and 'provincialism' are thereby suppressed.[18]

Those who were cautious about reform did not suggest a return to the Soviet model of central planning. However, their analysis traced failures of centralisation to lack of real regional policy, to the subordination of regional economies to the drive to industrialise. From this perspective, the proposed reforms would simply reproduce the problems of the 1950s, with the 'spontaneous' allocation of the market replacing the planning bureaucracy as the mechanism through which policies neglectful of regional relations would be transmitted.[19]

This debate over reform reproduced arguments familiar from the literature on economic development, although with the significant addition of the dimension of self-management as the ultimate social goal. In its most elemental form, the decentralisation debate was between 'trickle down' and 'balanced growth' analyses. In the next section this formulation of the effects of decentralisation on regions is evaluated by considering actual trends in selected measures of regional disparity.

Regional income inequality

Overview of regional differences

Table 1 provides a summary of economic and social indicators of both national and regional levels of development for selected years from 1952 to 1979–81. The extent of underdevelopment in the 1950s emerges clearly in the high national averages for the percentage of population in agriculture and infant mortality rates. By the end of the 1970s, however, Yugoslavia as a whole was considered a middle-income country. This growth left the less developed regions better off absolutely but further behind the more developed regions in 1979 than in 1952. For example, the highest regional infant mortality rate was twice the lowest rate in 1952, but more than three times larger than the lowest rate in 1979. The economic activity rate among females in 1953 was two and a half times higher in the most developed region (Slovenia) than in the least developed (Kosovo), and more than six times greater in 1981. The size of households, too, varied more between richest and poorest regions in 1978 than in 1953, reflecting a widening gap between rates of population growth.

These last two points highlight the social, religious and cultural roots of regional differences. In the poorest region, Kosovo, family size actually increased between 1953 and 1978, while female labour force participation has remained nearly constant since 1961. In this and other less developed regions the population is more Moslem than in the developed regions. Moreover, the cultural orientation is toward Turkey and social norms reflect the role of women in Eastern societies. Women in Kosovo and Bosnia-Herzegovina marry on average three years sooner than women in the areas of the country which historically have been orientated towards Western Europe. To these factors should be added the economic structure, which in the least developed areas is still based on small farms operating near subsistence.

TABLE 1

Indicators of Regional Development, Selected Years

	SFRJ	*Bosnia/ Herze- govina*	*Monte- negro*	*Croatia*	*Macedonia*	*Slovenia*	*Serbia: Proper*	*Serbia: Kosovo*	*Serbia: Vojvodina*
Population:									
Agricultural (%)									
1953	60·90	62·20	61·50	56·40	62·70	41·10	67·20	72·40	62·90
1961	45·60	48·40	49·10	45·50	52·20	28·80	61·80	64·40	52·70
1966	44·90	45·10	41·00	37·70	45·80	26·00	50·20	58·40	40·60
1971	38·20	40·00	35·00	32·30	39·90	20·40	44·10	51·50	29·00
1979	29·30	28·90	26·00	24·10	28·90	12·50	34·50	42·20	32·00
Economically active (%)									
1953	46·30	42·50	36·40	47·70	40·80	40·80	52·40	33·20	45·40
1961	45·00	38·90	34·10	47·80	38·80	49·10	51·10	35·00	43·60
1966	44·10	37·80	33·10	46·40	38·80	48·30	51·40	30·10	43·60
1971	43·30	36·70	32·70	45·50	38·30	48·40	51·50	26·00	42·70
1979	43·30	36·70	32·70	45·50	38·20	48·40	51·50	25·90	42·70
Females economically active (%)									
1953	30·60	26·90	20·30	31·80	22·90	35·60	38·70	10·80	26·70
1961	34·90	26·50	22·60	39·90	24·50	46·50	42·10	18·80	29·20
1971	30·70	22·70	19·90	34·00	23·40	40·80	40·10	8·40	26·50
1981	33·10	24·30	21·80	35·60	30·60	44·80	43·00	7·50	30·90
Employment:									
Industry (%)									
1952	31·07	39·26	22·91	32·41	23·60	42·53	36·54	27·73	23·55
1959	33·40	36·50	22·82	33·67	27·19	40·27	36·97	29·46	26·37
1966	38·50	40·51	35·69	38·50	32·98	45·21	37·11	32·56	40·56
1972	38·85	39·55	30·53	36·75	34·88	45·35	38·46	34·00	36·97
1979	37·44	38·97	28·93	34·96	36·43	44·36	37·23	32·74	36·31
Female (%)									
1961	26·57	18·74	19·72	29·55	19·40	36·81	26·49	13·86	25·85
1966	31·31	23·17	28·82	35·37	25·22	41·11	27·17	35·43	19·79
1972	32·42	26·03	26·32	35·35	25·58	41·86	29·94	31·99	17·65
1979	35·21	30·70	31·40	38·83	37·07	43·85	33·08	20·36	35·22

Unemployment rate									
1952	4·80	3·28	1·66	2·98	6·49	1·81	3·87	7·30	3·39
1959	7·21	4·74	9·14	5·98	13·00	2·55	6·43	20·70	4·10
1966	7·62	5·57	8·17	6·50	19·63	2·71	7·58	26·50	5·70
1969	7·31	7·14	8·65	5·70	23·31	3·32	9·58	28·08	7·33
1974	12·13	11·05	15·97	5·39	27·07	1·46	13·65	28·11	10·28
1979	15·52	16·60	18·80	5·68	28·20	1·33	15·99	38·09	13·60
Average monthly wage (dinars)									
1952	70·17	75·30	61·10	76·01	61·00	77·05	77·60	72·40	60·90
1959	153·49	212·30	139·10	159·20	108·20	179·20	155·00	145·00	129·90
1966	666·13	651·00	612·00	725·00	589·00	824·00	676·00	660·00	592·00
1974	3389·13	3279·00	3163·00	3863·00	2888·00	4044·00	3192·00	3083·00	3601·00
1979	8333·13	7481·00	7724·00	9627·00	6230·00	10701·00	8469·00	7295·00	9138·00
Household receipts (average for all households, per member)									
1952	100·00	90·77	81·82	95·18	103·05	118·53	100·18	90·08	106·49
1961	100·00	85.99	88·99	102·58	73·59	115·85	N/A	93·77	104·88
1966	100·00	97·00	92·83	124·57	94·04	147·72	105·31	100·73	152·26
1972	100·00	85·12	67·84	132·03	91·46	189·13	109·08	89·27	140·54
1979	100·00	69·08	72·03	102·58	81·61	143·34	106·61	88·00	101·37
Income of farm households (per member)									
1957	100	74·3	71·6	114·7	85·7	134·3	90·8	43·5	152·6
1966	100	76·3	71·3	112·8	86·2	133·2	91·3	43·8	164·7
1972	100	71·8	72·2	108·6	87·5	124·1	94·2	47·3	189·2
1979	100	67·9	75·2	105·9	89·2	118·6	101·5	49	222·6
Infant mortality rate (per 1000 live births)									
1952	105·10	143·90	89·00	102·30	129·80	67·30	87·00	113·20	145·90
1961	78·20	98·50	60·50	63·70	110·90	29·40	68·70	67·30	127·20
1966	64·20	71·20	42·20	42·20	98·80	25·10	47·00	40·70	100·80
1971	47·30	63·10	33·80	32·40	84·60	24·00	40·30	33·20	92·20
1979	32·20	30·00	21·60	19·20	53·90	15·50	26·40	67·60	14·10
Number of persons per household									
1953	4·29	5·04	4·55	3·81	5·30	3·66	4·44	6·42	3·50
1961	3·99	4·64	4·43	3·56	5·02	3·47	3·97	6·32	3·31
1971	3·82	4·41	4·34	3·43	4·68	3·35	3·63	6·61	3·18
1978	3·60	4·03	4·10	3·20	4·49	3·23	3·34	6·76	3·00

	SFRJ	*Bosnia/ Herze-govina*	*Monte-negro*	*Croatia*	*Macedonia*	*Slovenia*	*Serbia: Proper*	*Serbia: Kosovo*	*Serbia: Vojvodina*
Share of investment in GDP									
1952	100·00	159·00	199·00	90·00	87·00	81·00	76·00	97·00	123·00
1959	100·00	88·00	125·00	85·00	139·00	69·00	106·00	139·00	132·00
1966	100·00	106·00	138·00	86·00	183·00	85·00	101·00	136·00	38·00
1969	100·00	93·00	184·00	87·00	174·00	86·00	107·00	133·00	38·00
1974	100·00	142·00	151·00	93·00	102·00	97·00	84·00	170·00	85·00
1979	100·00	105·00	168·00	99·00	105·00	90·00	91·00	189·00	105·00
Net output per industrial worker									
1952	100·00	90·87	108·31	39·44	56·03	64·11	N/A	N/A	N/A
1961	100·00	71·70	227·41	59·81	180·09	56·21	N/A	66·82	147·77
1966	100·00	92·17	108·90	80·55	120·33	96·95	111·98	72·89	199·96
1972	100·00	110·32	181·10	76·24	107·93	115·26	93·04	65·56	251·23
1979	100·00	107·19	177·30	93·83	92·47	97·46	81·93	151·65	133·37
Incremental capital/output ratio in industry									
1953–1956	3·40	6·00	13·00	2·50	5·30	2·60	2·93	2·05	2·21
1963–1964	1·70	1·90	1·90	1·60	4·40	1·30	1·76	1·24	1·08
1968–1969	2·49	3·85	2·34	2·94	2·41	1·87	2·35	1·98	2·36
1978–1979	3·00	3·04	2·05	1·96	3·45	3·99	2·69	2·68	1·72
Share of private sector in net domestic product									
1952	25·8	22·2	37·2	26·5	22·6	15·8	33·9	38·3	33·8
1961	24·6	25·8	24·1	21·3	21·5	16·3	26·1	41·2	32·6
1966	24·1	26·7	23·9	21·3	20·6	14·2	26·1	34·4	29
1972	19	21·3	17·1	17·2	20·6	11·8	22·2	30·9	21·2
1979	15	16·1	13·9	14·4	14·6	9·9	16·5	24·1	18·2
Share of private agriculture in net agricultural product (%)									
1952	94·1	97·8	98·2	94·3	93·8	93·1	98·4	98·1	83·7
1961	89	96·5	65·2	91·6	84·9	88·6	93·2	93·9	75·6
1966	80·4	92·8	93·1	80·2	74·7	79·6	90	84	61·5
1972	78·6	91·5	92·2	75·5	70·9	79	88·8	84·4	59·5
1979	72·1	83·5	80·9	70·7	63·1	60·7	86	80·2	51·6

Source: Statisticki Godisnjak and *Statisticki Bilten,* various years.
Branko Kubovic, *Regionalna Ekonomika* (Zagreb:Informator), 1974.
Dragomir Vojnic *Investicije i Fiksni Fondovi Jugoslavije* (Zagreb:Ekonomski Institut), 1970.

The social and economic structures interact to keep women out of economic activity in these regions, making the problem of more rapid development in these areas potentially explosive. Not just the economic character, but the historical, cultural, and religious features of these regions are called into question by federal programmes to equalise the level of economic development.

Measures of regional variation

In Table 2 measures of variation in regional economic indicators demonstrate clear trends toward increasing regional inequality over time. The first three indicators are various forms of income. Per capita national income *(narodni dohodak)* measures the total value of goods and services produced in productive activities[20] minus depreciation. Per capita net personal receipts *(neto licni dohici),* national income minus contributions to accumulation and funds, is the second measure of income. This category includes the salaries and other personal receipts disbursed to employees and workers,[21] bonuses, daily allowances, fees and other supplements, as well as the part of income from the private sector used for personal consumption. Both national income and net personal receipts include private sector as well as state sector activities. The third measure of income is average household receipts, which is a weighted average for households of all sizes.[22] Inequality is measured in three ways. First, the coefficient of variation captures changes in the relative position of any region, rich or poor. Second, the ratio of average incomes in the richest single region to the poorest single region picks up changes in the extremes of the regional distribution. Finally, to capture changes in the positions of groups of more and less developed regions, the ratio of average income for all more developed regions to average income for all less developed regions is computed.[23] From Table 2 it is clear that for selected years between 1952 and 1965 variation in most indicators increased slightly or decreased. Between 1965 and 1979, however, dispersion grew, and at a much faster rate than in the earlier period.

The statistical significance of increased dispersion of income after reform was tested by dividing all years from 1952 to 1979 into two periods. From 1952 to 1960 is considered the planned period, on the grounds that although firms were allowed some freedom in the disposition of retained earnings, the proportion of retained earnings was low and both wages and investment were to a large extent centrally determined. The years 1961–65 are excluded, because extremely rapid and wide swings in policy characterised this period of the first attempt at reform. Including these years would unfairly bias the results towards increasing dispersion with reform. The post-reform period is thus dated from 1966, the year following the introduction of the second round of reforms, and continues to 1979.[24]

Because the assumptions concerning normality of underlying distributions for parametric tests are not fulfilled by these data, the non-parametric Wilcoxon rank test was applied.[25] The null hypothesis for all measures of dispersion is that there is no difference in the pre-reform and post-reform levels of dispersion; the alternative hypothesis is that the dispersion is lower in the pre-reform period. For all three measures of income variation presented in Table 2, the null hypothesis was rejected at the 1% confidence level. Inequality in per capita national income, per capita net personal receipts and household income was

TABLE 2

REGIONAL VARIATION IN ECONOMIC INDICATORS, SELECTED YEARS

Measure of Variation and indicator	*1952*	*1959*	*1965*	*1969*	*1974*	*1979*
A. Coefficient of variation						
Per capita national income	46·3	46·7	42·9	44·9	48·6	57·3
Per capita net personal receipts	26·5	36·2	37·9	38·8	49·2	58·6
Household income	24·6	32·1	28·2	36·2	40·5	56·1
Wages	9·6	11·9	14·1	11·6	24·2	28·5
Productivity in industry	116·2	111·9	81·4	74·9	68·8	58·2
Percentage of population in agriculture	13·7	16·5	20·6	23·3	59·2	60·6
Percentage of employment in industry	13·5	8·5	3·8	3·7	3·8	4·1
Unemployment rate	37·1	61·2	81·2	81·1	80·1	66·2
B. Ratio of richest to poorest region						
Per capita national income	3·91	4·1	4·1	4·6	·5	5·2
Per capita net personal receipts	2·3	2·8	3·3	5·5	5·5	6
Household income	2·3	2·4	2·4	2·6	4·5	5
Wages	1·3	1·4	1·5	1·4	1·4	1·5
Productivity in industry	4·2	3·7	2·8	2·6	2·4	2·1
Percentage of population in agriculture	·6	·5	·45	·4	·36	·3
Percentage of employment in industry	1·9	1·8	1·3	1·4	1·5	1·5
Unemployment rate	·6	·3	·2	·2	·08	·07
C. Ratio of more to less developed regions						
Per capita national income	2·4	2·6	2·4	2·6	2·6	3
Per capita net personal receipts	1·9	2·2	2·2	2·9	2·8	3·1
Household income	1·6	1·7	·2	2·2	2·24	2·8
Wages	1·1	1·2	1·3	1·3	1·4	1·5
Productivity in industry	2·4	2·1	1·6	1·7	1·6	1·4
Percentage of population in agriculture	·8	·8	·7	·6	·7	·7
Percentage of employment in industry	1·3	1·3	1·2	1·2	1·14	1·1

Source: Statisticki Godisnjak and *Statisticki Bilten*, various years.

significantly greater in the post-reform than in the pre-reform period. In addition, dispersion among regions in wages, the percentage of the population in agriculture, the percentage of employment in industry and the unemployment rate were also significantly higher in the later period using the Wilcoxon test. Only productivity differences in industry among regions did not show a statistically significant difference between pre-reform and post-reform periods.

The result for unemployment needs further explanation, because the data series are not the same for pre-reform and post-reform periods. In the pre-reform period the unemployment rate is measured as the registered unemployed[26] divided by employment in the state sector. For the post-reform period unemployment is measured here by the registered unemployed divided by the total employment, including both state and private sector employment. The reason for this is that the data for private employment in the pre-reform period are extremely unreliable. However, as we can see from Table 1, the share of private sector activity in the less developed regions is higher than in the more developed regions, so that excluding private sector employment in the pre-reform period overstates the unemployment rate in the less developed regions relative to the more developed. This bias then reduces differences among regions in unemployment rates in the pre-reform period and makes the less developed regions in this period appear to be in a relatively better unemployment position than was actually the case. Therefore, if we could include private sector employment in the pre-reform period, we would expect that the test to determine the statistical significance of regional differences in unemployment rates between periods would yield even stronger results than those shown in Table 2. The bias thus does not appear to be a problem, since the results would be the same with either measure of unemployment rate.

A final note on measuring inequality is that one may question the region itself as the basis for measurement. As mentioned above, advocates of reform have pointed to inequality within the advanced regions, so-called pockets of underdevelopment, as evidence that explicit income transfers to less developed regions should be curtailed. In the absence of survey data on income differences within regions, this argument cannot be evaluated directly. There are, however, data on wage differentials within each region, disaggregated by sector. These data allow us to test a related hypothesis, that there are 'sectoral pockets of poverty' within the advanced regions. Larger and more rapidly increasing wage dispersion in the rich regions than in poor regions would lend support to the pro-reform position that income inequality within the more developed areas was a serious concern.

Table 3 shows that in fact the problem of 'sectoral pockets of poverty' is more characteristic of the less developed regions than either Croatia or Slovenia. In both of these regions the coefficient of wage variation was lower in 1979 than in any of the less developed regions. Moreover, the coefficient of dispersion was lower in Croatia and Slovenia in 1979 (12 and 11, respectively) than in 1959 (13·2 and 12·6). In all the remaining regions, with the exception of Serbia proper (which is a borderline case) the coefficient is higher in 1979 than in 1959. The coefficients of variation presented in Table 3 show that if there is a problem with

TABLE 3

COEFFICIENTS OF VARIATION FOR WAGES ACROSS 9 SECTORS*

Region	*1959*	*1969*	*1979*
Bosnia-Herzegovina	9·9	9·3	13·6
Montenegro	12·6	9·1	15·3
Croatia	13·2	7·1	12
Macedonia	14	19·8	17·6
Slovenia	12·6	6·4	11
Kosovo	N/A	13·7	16
Vojvodina	N/A	6·2	13·9

*The sectors are industry, agriculture, forestry, construction, transport and communications, trade, catering and tourism, arts and crafts, and housing and public utilities.

Source: Statisticki Godisnjak and *Statisticki Bilten,* various years.

'sectoral pockets of poverty' within regions, it has become more severe after reform in the less developed rather than the more developed regions.

A simple model of the level of regional income

Both sides in the decentralisation debate agreed on a common model of regional economic relations for Yugoslavia and divided the variables of the model into 'market' and 'non-market' forces. Both advocates and opponents of reform agreed that in the period of centralised planning, regional income distribution was relatively independent of market forces. Rather, inherited structural or non-market forces were seen as predominant. The most important among these influences on the level of regional income were thought to be a region's share of population in agriculture and its population growth rate, variables which reflect centuries-old differences in ethnic and religious traditions. Relatively low levels of income were the result of maintaining a high proportion of the population in subsistence activities rather than in the more productive sectors of emerging industry. The population growth rate, it was argued, held down the level of income by contributing to underemployment in agriculture. In the decentralised period, on the other hand, market forces were expected to be the major influences on the level of regional income. For example, with market determination of the level of output and prices, wages and therefore income would be more closely tied to productivity. In addition, since wage subsidies to firms and income subsidies to households were substantially reduced by the reforms, income in the decentralised period would depend more upon the level of economic activity of the population.[27]

In this section, a simple econometric model of the level of regional per capita income is constructed from the analysis of regional income put forward in the decentralisation debates. In the model, per capita personal income is linearly related to a constant term α_0 and two *market* variables, net output per worker (or productivity, PROD) and the percentage of population economically active (PAK), with constant coefficients α_1 and α_2 respectively. In addition, two *non-market* variables are included, the percentage of the population in agriculture

(PAG) and the growth rate of the population (GPOP), with constant coefficients α_3 and α_4. A regional dummy variable (REGDUM) is defined to have a value of one for less developed regions and zero for more developed. The equation is estimated separately for pre-reform and post-reform periods and is shown for the two periods as equations 1 and 2 in Table 4.[28]

The data for personal income per capita include both private and state sector activities. The series for productivity, however, do not include private sectors. This is because of the extreme unreliability of the data for private sector employment for the pre-reform period. Including private sector employment as the divisor in measuring output per worker produces very erratic results for productivity in the pre-reform period. To make the series consistent between periods, only state sector productivity was used for the post-reform period as well. Comparison of post-reform productivity data for state sectors only with data for both state and private sectors indicates that the absolute differences are small and that the ranking of relative productivity among regions does not change.

If this view of the Yugoslav economy as divided into a planned and a market period is correct, the percentage of the population economically active and the productivity variables (PAK and PROD) would have significant coefficients in the post-reform equation, while the structural or non-market variables (PAG and GPOP) should bear the burden of explaining the level of regional per capita income in the planned period. The results of the estimations of equations 1 and 2 in Table 4 generally suggest that both sides overstated the difference in factors associated with income per capita before and after reform. In the pre-reform period, as shown by the coefficients of equation 1, the two significant variables are productivity (PROD) and the percentage of the population in agriculture (PAG). Higher per capita income is associated with higher net output per worker and with a smaller proportion of population in agriculture. In the post-reform period, the coefficients of the variables PROD and PAG are still significant, but in addition there is a significant (and positive) coefficient on the percentage of the population that is economically active. The regional dummy variable is not significantly different from zero in the pre-reform period, but is significant and negative in the post-reform period. This confirms the results of the previous section, in which all measures of income dispersion showed increasing inequality between more developed and less developed regions after reform.

These results support the view that reform did indeed penalise less developed regions for the lower activity rates of their populations. In the 1950s, when the federal government redistributed income through control of wages and direct subsidies to firms and households, per capita income differences were not strongly associated with differences in rates of economic activity. When decentralisation removed most federal subsidies and shifted the burden of social spending onto regional governments, the market participation of the population did become a significant influence on the level of regional per capita income, as critics of reform predicted. These results suggest further that a simple dichotomy between plan and market periods does not adequately describe the Yugoslav

TABLE 4

FACTORS INFLUENCING THE LEVEL OF PER CAPITA INCOME

1. Pre-reform (1952–1960)							*R-squared (adjusted)*	*Durbin-Watson*
Per capita income =	a +	a PROD +	a PAK +	a PAG +	a GPOP +	a REDGUM		
Coefficient	1·290	0·014	−0·211	−1·679	−0·031	−0·046	0·993	1·958
t-statistic	5·797**	9·205**	0·979	8·206**	1·666	1·339		
2. Post-reform (1966–1979)							*R-squared (adjusted)*	*Durbin-Watson*
Per capita income =	a +	a PROD +	a PAK +	a PAG +	a GPOP +	a REGDUM		
Coefficient	338·4	0·196	15·988	−62·020	0·090	−3·706	0·958	1·422
t-statistic	1·329	12·716**	2·022*	10·562**	0·512	3·971**		

Significance: *significant at the 5% level.
**significant at the 1% level.

experience with reform. The decentralisation debates notwithstanding, both before and after reform a mixture of so-called market and non-market influences are associated with the level of regional income.

Regional differences in wages and productivity

The preceding section shows that regional income differences were exacerbated by the reforms, because the dummy variable for less developed regions was insignificant in the 1950s but significant and negative for the post-1965 years. Since wages are the major component of income, it is logical at this point to ask whether decentralisation also exacerbated wage differences among regions. To answer this question, a regression model to explain regional wages is constructed with a dummy variable for less developed regions. If in this model the dummy variable is again insignificant before reform but significant and negative after 1965, we shall conclude that wage differentials were increased by reform. A second result from the previous section was the increased prominence of market influences on regional income after reform. The model for wages investigates relative influence of market forces on wages before and after reform by including two categories of independent variables. The first are characteristics of the Yugoslav economy derived from central planning policies and/or structural conditions. The second incorporate more conventional market explanations of wages and productivity.

Explaining wages and productivity

The choice of independent variables to explain the level of regional wages is based upon the arguments of the decentralisation debates outlined above. As we have seen, a large body of Yugoslav theory implies that wages depend upon productivity even in socialism, although this link may be obscured by central allocation of resources. A second theme in Yugoslav debates posits a link also in the opposite direction: the incentive effect of higher wages makes productivity dependent on the level of wages. Hence, a model of wages constructed from Yugoslav theory might use a system of simultaneous equations for wages and productivity. Because of this simultaneity, the wage and productivity equations of the model are estimated by two-stage least squares procedures. (See note 28). To compare pre-reform and post-reform economic behaviour, the equations are estimated separately for each period.

Following the arguments of the decentralisation debates, the wage equation for each period (equations 1 and 4 in Table 5) includes first a variable representing plan priorities. This variable, PLAN, is constructed differently for the two time periods because plan priorities changed after reform. In the pre-reform wage equation (equation 1), PLAN is the share of output of heavy industry in total regional output, because diversion of income to these sectors was the basic growth strategy of the 1950s. Wage policy during this period was based on centrally-determined norms and was biased in favour of these priority sectors. After reform, what was left of national planning gave priority to sectors

TABLE 5

REGRESSIONS ON WAGES, PRODUCTIVITY AND INVESTMENT

								R-squared (adjusted)	Durbin-Watson
A. Pre-reform period									
Wages									
1. WAGE =	a_0 +	a_1REGDUM +	a_2PLAN +	a_3PROD +	a_4UNEM +	a_5SURP +	a_6(PRI(−1)	0·71	2·21
coefficient	*18·34	28·13	0·42	*3·41	0·26	*0·85	−1·21		
t-statistic	2·98	1·64	0·18	3·85	1·21	2·97	−1·72		
Productivity									
2. PROD =	b_0 +	b_1 REGDUM +	b_2 WAGE +	b_3KINT +	b_4INFR +	b_5SFIN		0·92	1·67
coefficient	*13·4	*−18·55	0·25	*0·82	*−1·21	*0·31			
t-statistic	9·43	−11·06	·97	9·91	−7·86	2·84			
Investment									
3. INV =	C_0 +	c_1REGDUM +	C_2INV(−1) +	c_3SFIN +	c_4SURP +	c_5PLAN		0·98	1·95
coefficient	6·93	2·42	*0·74	0·21	0·0	*0·93			
t-statistic	1·83	0·57	2·79	0·38	0·18	31·47			
B. Post-reform equation									
Wages									
4. WAGE =	$a_0$0 +	a_1REGDUM +	a_2PLAN +	a_3PROD +	a_4UNEM +	a_5SURP +	a_6(PRI(−1)	0·81	1·74
coefficient	*3546	*−1524	*−3201	*70·22	*−1·03	88·84	−31·87		
t-statistic	5·20	−2·51	3·64	9·32	−3·85	0·86	− 1·66		
Productivity									
5. PROD =	b_0 +	b_1 REGDUM +	b_2 WAGE +	b_3KINT +	b_4INFR +	b_5SFIN		0·86	1·76
coefficient	*179	−34·67	0·25	*−1·03	−0·46	*10·42			
t-statistic	22·33	−3·71	1·38	−6·45	−1·20	6·87			
Investment									
6. INV =	C_0 +	c_1REGDUM +	C_2INV(−1) +	c_3SFIN +	c_4SURP +	c_5PLAN		0·85	1·95
coefficient	16·74	45·09	*−0·3	*−1·61	*19·79	*57·30			
t-statistic	0·97	1·88	−3·92	−2·55	6·94	2·32			

*Significant to the 1% level.

producing for export to Western Europe, mainly consumer goods, including consumer durables and processed food, and limited capital goods such as small electric motors. In this period, too, higher wages for priority sectors were encouraged, but through indirect means such as availability of lower interest rates and higher allowances for retaining foreign exchange earnings in exporting firms. The variable PLAN in the post-reform equation for wages (equation 4) is therefore taken as the percentage of regional output produced in the targeted export sectors.

Market forces are represented in both wage equations by variables connecting regional wages first to overall economic performance and second to labour market conditions.[29] Economic performance variables here are productivity of labour, or net output per worker (PROD), and profitability (SURP). In the absence of direct data on profitability, a proxy variable is constructed, defined as enterprise surplus over wage costs (measured as the value of net output (value added) minus the wage bill) divided by the value of fixed assets. Costs of capital have been negligible in Yugoslavia. During the 1950s most assets were allocated from the federal budget. During the 1960s and 1970s capital was virtually free because the charges for use of the socially-owned capital were negative in real terms. Under these circumstances, the difference between net output and the wage bill is a good approximation to profit. The variable used to capture labour market conditions is the unemployment rate (UNEM), measured as the ratio of registered unemployed to the total labour force.[26]

Finally, the hypothesised self-managed behaviour of a decentralised economy is modelled as a relationship between wages and prices lagged one period (the variable PRI(–1), the lagged consumer price index). The argument here is that in a market environment self-managed socialist firms exercise their power over distribution of enterprise net revenues to adjust nominal wages to price increases. The more self-managed are firms, the more stable will real wages tend to be in the face of rising prices.[30]

The productivity equations (equations 2 and 5 in Table 5), with net output per worker as the dependent variable, include two categories of independent variables, structural and 'self-management'. The former are here the capital intensity of production (KINT), measured by capital-output ratios of enterprises, and the level of infrastructure of the region (INFR), measured by an index of availability of transport, communications and energy. The second category of variables represents the purported incentive effects of market orientation and self-management. Both sides in the decentralisation debate believed that the economy experienced productivity problems in the 1950s because planners broke the connection between wages and productivity.[31] There are two incentive variables in the productivity equations, WAGE and SFIN. The level of wages (WAGE) is measured by the average wage for all workers and employees in each region and the degree of autonomy of firms (SFIN) is measured by the proportion of investment that is self-financed. If an incentive effect is working, higher wages should increase productivity, as should the ability of firms, and hence workers, to make independent decisions about investment.

The most important variables in the wage and productivity equations are those which represent the dominant themes in the decentralisation debates. They are the regional dummy variable (REGDUM), the plan variable (PLAN) and the market variables unemployment rate (UNEM) and profitability (SURP). If reform is associated with increased inequality in wages and productivity, we would expect to find the coefficient of the regional dummy variable to be insignificant before reform and significant but negative after reform. If the view of the decentralisation as introducing wholesale 'marketisation' of the economy is correct, we would expect the coefficients of the market variables to be insignificant before but significant after reform. If both expectations are borne out by the results, we shall conclude that regional differences increased because market forces played a bigger role in the determination of wages and productivity after 1965.

Due to data limitations, the regression analysis in this section can be carried out only for state sector activities. The major problems are in data for investment, employment and the level of fixed assets in the private sector in the pre-reform period. Because of these limitations, the models tested here cannot estimate the influence of market or plan variables on the performance of the private sector. This omission is particularly important for agriculture. From the data on private sector activity in Table 1 it is clear that although the importance of the private sector overall has declined rapidly in all regions, private agriculture remains a substantial factor in the economies of the less developed regions. While the World Bank has argued that the effect of reforms on private agriculture has been to the detriment of the less developed regions,[32] and the data for farm household income in Table 1 show that the relative position of farmers in less developed regions has remained fairly constant since reform, this issue is currently a topic of heated debate in Yugoslavia. Because of the complex nature of comparisons between private and social agriculture owing to differences in geography and crop mix in the various regions, there is no consensus on how reform has affected agriculture as a whole or in the various regions. Anecdotal evidence provided by Yugoslav economists suggests that while price and investment policy has favoured agriculture in less developed regions, these gains have been offset to some extent by a foreign trade policy which has favoured the crops grown in the more developed regions.[33] The non-agricultural private sector also has become more important recently as the foreign exchange earnings of Yugoslavs employed abroad have been used to establish small family firms. Here, too, the data are sparse and unreliable and opinion within Yugoslavia is sharply divided over the extent to which reform has helped or hurt this type of activity. Unfortunately, with the limited information available, these issues too cannot be examined within the context of the model constructed here.

Results for wages and productivity

Comparison of equations 1 and 4 shows that the regional dummy variable in the wage equation did behave as expected by the critics of reform. Wage levels in less developed regions were not significantly below those in developed regions during the 1950s, but in the later period the less developed regions fell behind.[34] From equations 2 and 5 we see that the regional dummy in the productivity equation is significant for the first period *and* the second, hence reform did not affect significantly relative regional productivity. After reform, relative efficiency did not improve, despite the efficiency gains in less developed regions expected by supporters of reform from bankruptcies of marginal firms and the 'discipline' of the world market.

The results presented in Table 5 offer no clear pattern in either period of plan or market influences dominating. For the pre-reform period, the coefficient of the PLAN variable is insignificant. Of the two coefficients of the major market variables, unemployment (UNEM) and profitability (SURP), only the one for SURP is significant. This implies that neither the priorities of planners nor the unemployment rate had a substantial influence on the level of regional wages, but the profitability of enterprises did. In the post-reform period, as shown in equation 4, it cannot be said that plan priorities dominated, because the coefficient of the variable PLAN, although significant, has the wrong sign. The higher the share of priority sectors in a region's output, the lower its average regional wages. At the same time, the major market variables are not consistently significant. The unemployment rate (UNEM) does have a significant coefficient after reform, and the sign is negative, as expected: the higher the rate of regional unemployment, the lower is the average wage. The second key market variable for profitability (SURP), however, is not significant after reform.

The broad conclusion from these results is that the plan v. market dichotomy was not as important as Yugoslav debates assumed. Nonetheless, because the unemployment variable did become significant in the wage equation after reform, in one respect, 'marketisation' of the economy was responsible for deterioration of the position of the less developed regions. This result supports the arguments of those opposed to reform.

In general, the additional independent variables in equations 1, 2, 4, and 5 also do not give a clear picture of a plan v. market distinction. The two variables describing the purported incentive effects of decentralisation behave the same way in both periods. The coefficient of the variable SFIN is always significant and positive while that of the variable PRI(−1) is insignificant. Nonetheless, the results for the variable KINT, which measures the effect of differences in the capital-output ratios on the level of productivity, do lend indirect support to one argument of those in favour of reform. The coefficient of this variable is positive and significant in the pre-reform period and negative and significant in the post-reform period. From the data for incremental capital-output ratios in Table 1, and the fact that the average capital-output ratios are still about 25% higher in the developed than the underdeveloped regions, it is possible to argue that the post-reform policy of changing the pattern of investment in the less developed regions was successful in promoting efficiency. Given these data and the coefficients on KINT, it may be that the switch to more labour-intensive activities in the less developed regions, designed to use their comparative advantage, has helped to increase the efficiency of capital in these areas. After reform, large-scale manufacturing in less developed regions was discouraged, and the effect may have been the desired one of eliminating the wasteful 'turnkey' projects which characterised investment in these regions in the pre-reform period. However, as we know from the results shown in Table 2, wage and income inequality among regions still have not been reduced by improved efficiency of capital in the less developed regions.

Investment and future income inequality

A central disagreement over decentralisation was the extent to which short-term growth of regional inequality would be overcome in the long run by reallocation of investment toward less developed regions as a result of market forces alone. To see who was correct, we regress investment on a series of variables with a dummy variable for less-developed regions. If the coefficient of the dummy variable is insignificant before reform but significant and negative after reform, we shall conclude that reform did damage the long-term prospects of less developed regions by widening differences in levels of investment.

Explaining investment

The investment equations for the pre-reform and post-reform periods appear as equations 3 and 6 in Table 5. Here, too, the regression equation is constructed to test for the assumed switch from plan to market with reform. The most important independent variables are the plan variable PLAN and the market variable SURP, defined above. The dependent variable, INV, is measured as net investment in fixed assets.

Additional independent variables bring in other dimensions of the decentralisation debates. Lagged investment (INV(−1)) is a planning variable which captures the phenomenon of 'hooking on to the plan'. This describes behaviour that builds rigidities into the allocation of investment because once the central authorities fund a project in one year, its continued funding, even at higher than planned levels, is necessary to avoid scrapping the whole project. This phenomenon has been blamed for the productivity declines in Yugoslavia at the end of the 1950s and was supposed to be eliminated by decentralisation and self-financing.[35]

The hypothesised effects of the market on self-management appear in the variable SFIN, or self-financing, measuring the extent to which firms invest using their retained earnings. The greater the autonomy of the firm, the higher the level of self-management. The more self-managed the firm, moreover, the higher is investment likely to be relative to the non-worker managed firm. This follows because the maximand of the self-managed firm is profit per *worker,* not profit on *capital.*

Results for investment

The regional dummy variables in equations 3 and 6 of Table 5 are both insignificant. Reform did not change significantly the allocation of investment to less developed regions. Thus, while the improvement expected by the supporters of reform did not materialise, neither were the dire predictions of the opponents fulfilled. This result has potentially the hopeful interpretation that regional income inequality may not be a permanent feature of the Yugoslav economy.

Looking to the coefficients of the plan and market independent variables, we again find no unambiguous evidence for a plan v. market dichotomy. The coefficient of the variable PLAN is significant both before and after reform. The key market variable, SURP or firm profitability, does support the notion of 'marketisation' since its coefficient is insignificant before but significant after reform. The post-reform coefficient of SURP indicates that the level of investment after 1965 did depend, as expected, on the profitability of firms.

The results for the remaining variables are highly erratic. The self-financing variable, which would be expected to become significant (and positive) only after reform, is in fact significant but *negative* in the post-reform period. Lagged investment is significant and positive in the pre-reform equation but significant and negative in the post-reform equation. These results do not support the case for a plan v. market distinction between pre-reform and post-reform years.

Overall, we see that in spite of the positive association between profitability and investment, which critics of reform thought would adversely affect investment in the less developed regions, the regional dummy variable shows no decline in the position of less developed regions. The countervailing influence of plan priorities apparently kept the less developed regions from falling behind in investment.

Conclusions

Two central conclusions can be drawn from the empirical results presented here. First, the weight of the evidence is that less developed regions lost out with reform. All but one measure of dispersion shows deterioration of the position of less developed regions after 1965. Of the regional dummy variables in the regression equations, the wage dummy indicates worsening of relative wages in less developed regions, while the productivity and investment dummy variables show no change in the relative position of less developed regions.

Second, it is clear from the regression results that a simple plan v. market dichotomy is inadequate. The economy of the 1950s, as described by the equations of Tables 4 and 5, was influenced significantly by variables expected to operate only in a decentralised, market environment. For example, in the wage equations of Table 5 a significant coefficient is found for profitability in the pre-reform period. In the simple view of the 1950s, this variable should not play a role in the level of wages because centrally determined wage norms were aimed at equalising regional wages despite lower profitability in less developed regions. Yet, the goals of planners notwithstanding, wages did reflect profitability differences in the 1950s. On the other hand, in the post-reform equations plan variables are still significant. In particular, investment resources apparently still flowed to sectors favoured in the national plans, perhaps with the effect of improving relative incremental capital-output ratios in the less developed areas. Market variables, too, behave unpredictably. The key market variable for profitability is significant in the wage equations only *before* reform.

Implications for future regional relations are mixed. That the impact of federal government policy on investment was still in evidence after reform suggests that the market may continue to play a relatively limited role in the future distribution of income among regions. However, it is disturbing that productivity does not seem to have been affected by the pattern of investment. In spite of the apparent success of government policy to support levels of investment in less developed regions, and the success of a new mix of investment with greater emphasis on less capital-intensive activities in increasing the efficiency of capital, no significant relative improvement in productivity has been forthcoming. At the same time, in one crucial respect the market has led to increased inequality. By connecting wages to the unemployment rate, reform has reduced the income of less developed regions. Since current policy calls for further reductions in non-wage income in the future, we can expect the unemployment effect on wages to have increasingly serious consequences for regional income differences.

These results do not lend themselves to an optimistic prognosis for the position of less developed regions. Planning has limited regional differences only in levels of investment, but this policy has not diminished productivity differences. Market influences, where they do operate, cause less developed regions to fall further behind. Therefore, we must conclude that the evidence supports the general case put forward by the critics of reform. In this model, reform has held back the less developed regions relative to the advanced and there are no obvious countervailing influences sufficiently powerful to make future regional relations more balanced.

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[10] B. Čolanović, *Development of the Underdeveloped Areas in Yugoslavia,* (Belgrade 1966), pp. 38–40.

[11] Vojo Rakić, 'Economic Relations in the Yugoslav Multinational Community', *Socialist Thought and Practice,* 1965 No. 1, p. 40.

[12] Vojo Rakić, 'Guidelines for the Future Activities of Communists and Working People', *Socialist Thought and Practice,* 1964 No. 4, p. 230

[13] Joseph Bombelles, 'Transfer of Resources from More to Less Developed Republics and Autonomous Provinces of Yugoslavia, 1971–1980' Occasional Paper: Research Project on National Income in East Central Europe (L. W. International Financial Research, Inc. 1981), pp. 2–12; Zvonomir Baletić and Bozo Marendić, 'The Policy and System of Regional Development' in Rikard Lang, *et al.,* editors, *Essays on the Political Economy of Yugoslavia,* (Zagreb 1982), pp. 249–56.

[14] Kosta Mihailović, 'Prilog izgradnji koncepcije regionalnog razvoja', *Ekonomist,* 1965 No. 4, p. 568; Radivoj Uvalić, 'The Functions of the Plan and the Market in the Socialist Economy', in Radmila Stojanović, ed. *Yugoslav Economists on Problems of a Socialist Economy,* (New York 1964), p. 141.

[15] Kiril Miljovski, 'Possibilities for Development of Undeveloped Regions', in Stojanović, ed. *Yugoslav Economists . . . ,* p. 8.

[16] Dinko Dubravčić, 'Autofinanciranje investicija u Jugoslovenskog industriji: 1958–1962', *Ekonomske Studije,* 1967 No. 5, p. 42; Horvat, *An Essay . . . ,* pp. 107–9, argues this point, although without a specifically regional theme.

[17] Mihailović, 'Prilog . . . , pp. 40–1.

[18] Kosta Mihailović, 'The Regional Aspects of Economic Development', in Stojanović, ed. *Yugoslav Economists . . . ,* p. 41.

[19] Kiril Miljovski, 'Izmedu planske i tržisne privrede', *Ekonomist,* 1965 No. 3, pp. 8–9; Slavka Ranković, 'Yugoslavia's Economic Development', *Socialist Thought and Practice,* 1964 No. 4, p. 63.

[20] The definitions that follow are from the preface to the statistical yearbook of the SFRJ. National income and social product are computed for all productive activities for the social and private sector. Consequently, national income and social product are computed for the following productive activities: manufacturing, mining and quarrying, agriculture, forestry, operation of irrigation systems and kindred activities, construction, transport and communications, the productive part of arts and crafts (exclusive of handicraft personal services) and also the productive part of public utilities (water supply, heating plants and the like) Non-productive activities, such as organisations of associated labour performing cultural-social activities, administrative agencies, liberal professions, arts and crafts rendering personal services and the like, are not covered by computation of national income.

Social gross product (the value of production) is the amount of invoiced sales (proceeds for goods and services), increased or decreased by the difference between the amount of changes in stocks of finished products and unfinished production and decreased by the amount of purchase value of sold goods, materials and waste products. Social product, as the value indicator of the results of final production, is the sum of national income and depreciation. National income is the newly-created value in the course of the year. Net personal incomes cover personal incomes and other personal receipts. Under net personal income in the private sector is shown that part of the income of private producers disposable for the personal consumption of their households.

[21] Workers are distinguished from employees on the basis of whether the requirements for a job are skill or education. Broadly speaking, workers are blue-collar workers and employees are white-collar.

[22] Each of these forms of income represents a distinct measure of economic development. Per capita national income measures the overall productivity of a region, the per capita net personal receipts capture the capacity to maintain a standard of living through income from work and household income measures the level at which households support themselves including the household's wages, own production and government transfer payments.

[23] This property is descriptively desirable since it avoids the problem with mean-dependent measures that they may indicate a lower inequality for a distribution with the same relative variation but a lower mean. See Amartya Sen, *On Economic Inequality* (New York 1973), pp. 28–9. The normative content of mean-independent measures is constant relative inequality aversion. See Anthony Atkinson, 'On Measurement of Economic Inequality', *Journal of Economic Theory,* 1970 No. 2, p. 252. While a case could be made for using a mean-dependent measure reflecting increasing

inequality aversion on the grounds that a richer country should be excused less inequality, such a measure here would bias measurement of inequality strongly in favour of the opponents of decentralisation who argued that reform and market influences would significantly raise inequality.

[24] Periodisation is not straightforward. While it is generally agreed that reform became institutionalised only after 1965, there were changes in the late 1950s which reduced some central control over wages. The problem with defining the post-reform period from 1966 to 1979 is that these years are characterised by stop-go cycles in central government intervention into prices, wages, foreign trade, etc. This could be a reason to introduce new variables into the model. For example, if firms in the post-reform period reacted to unpredictability of federal policy toward wage increases, we might find the level of wages to be influenced by firms' fear that in the future wage increases will not be allowed. If so, wages would not be strongly associated in any simple way with productivity, profitability or any of the economic variables included in the wage regressions of Table 5. This possibility points to the need for further investigation into the determination of wages in each region and year. To test for the effects of the particular periods chosen, the post-reform period was divided into two separate phases, before and after the new Consititution of 1974 and the Associated Labour Act which created new mechanisms for central coordination. This distinction proved to be statistically insignificant for all measures of inequality and also in the regression equations.

[25] J. L. Hodges and E. L. Lehmann, *Basic Concepts of Probability and Statistics,* (San Francisco 1967), pp. 305–10.

[26] Unemployment data cover only persons registered at communities for unemployment. There is some evidence that the undercounting from including only registered unemployment may be countered to some degree by the existence of registered job seekers, many of whom may be registered although currently employed. A second problem with the unemployment data is that the level of registered job seekers may be very sensitive to economic cycles. See Carmelo Mesa-Lago, 'Unemployment in a Socialist Economy', *Industrial Relations,* 1971 No. 2 pp. 51–3.

[27] Dušan Bilandžic, 'Pretpostavke razvoje samoupravljanja' *Naše Teme,* 1966, No. 3, p. 25; Drago Gorupić, Problemi daljne izgradnje našeg privrednog sistema', *Bilten Ekonomskogo Instituta,* 1964 No. 5, pp. 22–3; Gorupic 'Neki problemi . . . ,' pp. 54–5.

[28] Observations are pooled from 8 regions for the nine years of the pre-reform period and for the same 8 regions for the 14 years of the post-reform period. Because of the well-known tendency toward autocorrelation in pooled cross-sectional and time series data, the Cochrane-Orcutt procedure was used to estimate these equations. See R. S. Pindyck and D. L. Rubinfeld, *Econometric Models and Economic Forecasts,* (New York 1976), pp. 202–11. Except where noted, the degree of multicollinearity as measured by the partial correlation coefficients between each pair of independent variables was deemed not substantial.

[29] For examples of this approach, see V. Bakarić, 'Planning and the Law of Value in Yugoslavia', *Socialist Thought and Practice.* 1969 No. 75; International Labour Organization, *Worker's Management in Yugoslavia,* (Geneva 1962); Miljovski, 'Između planske . . . , OECD, *Economic Survey of Europe,* (Geneva 1965).

[30] Bilandzić, 'Pretpostavke . . . , p. 27.

[31] Gorupić, 'Problemi daljne izgradnje . . . , p. 23; Drago Gorupić, 'Aktuelni problemi radničkog samoupravljenja u privredi', *Ekonomski Pregled,* 1971 No. 3–4, p. 48; Mesarić, 'Certain Aspects of Our Planning System', *Ekonomski Pregled,* 1962 No. 8, p. 591.

[32] V. Dubey, *Yugoslavia: Development with Decentralization,* (Baltimore 1975), p. 158.

[33] Interviews with Z. Baletić, Ekonomski Institut Zagreb, 20 November and 12 December 1984 and 21 and 23 January 1985; Interview with M. Teodorović, Ekonomski Institut, Zagreb, 22 January 1985.

[34] In evaluating the empirical results, it must be noted that the equations of Table 5 assume that the same structure of the economy prevailed before and after reform.

[35] Rikard Lang, *et al.,* 'Problemi koncentracije proizvodnje i pojave monopola', *Bilten Ekonomskoga Instituta,* 1964 No. 1, p. 1–4; Stambolić, 'A Broader Base . . . ,' pp. 54–7; Dušan Pirec, 'Nekoliko napomena o robnoj proizvodnji u socijalistickim društveno-ekonomskim odnosima i racionalnom rukovođenju privrednom', *Nase Teme,* 1966 No. 9, p. 58.