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THE WAGE-PUSH INFLATION
IN YUGOSLAVIA 1965-85

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INTRODUCTION

Yugoslavia has developed a unique socio-economic system known as the self-management model. The decentralized, market self-managed economy achieved a rapid growth for more than thirty years, and became an example of a successful economic and development policy for other less developed countries. However, during the 1980s Yugoslavia faced deep crisis. The political and economic problems that confronted Yugoslavia are both a serious test and a challenge for the self-management model.

Inflation is one of the major manifestations of the crisis. Retail prices increased by 2.6 per cent per year in the 1950s, 11.1 per cent in the 1960s, 19.9 per cent between 1971-74 and 16.7 per cent per year between 1974-79. During recent years Yugoslavia has had the highest level of inflation in Europe. Retail prices accelerated rapidly from 30.4 per cent (1980) to 75.7 per cent (1985) 88.1 per cent (1986) and even 118.4 per cent (1987) or 48.5 per cent per year in the period 1980-85 (62.3 per cent per year from 1980 to 1987). With such a rate of inflation, all economic indicators were worse and the standard of living fell to the level of the mid-1960s.

The causes of inflation in Yugoslavia are undoubtedly of mixed character. In designing an adequate stabilization policy it is important to determine first which are the main factor(s).

Inevitably, when an economic disequilibrium occurs producing inflation, it is necessary, for example, to cut real incomes of certain social groups to overcome imbalances.

A very frequent explanation for Yugoslav inflation among officials, Yugoslav economists and economists abroad who deal with a self-managed economy is the wage-push mechanism. This explanation is also the basis for the IMF and the IBRD recommendation for a stabilization policy. The focus of the wage-push explanation is that an increase in wages is the main cause of inflation. The consequence for economic policy is clear: a successful stabilization policy requires a cut in real wages.

This paper focuses on the question of whether an increase in personal incomes[1] is a primary cause of inflation. It is usually argued that a

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[1]. The term 'personal incomes' is used throughout as the official term for wages in Yugoslav conditions. This term emphasizes that personal incomes are an ex-post value as part of enterprise income and that personal income is a remuneration for a personal contribution to enterprise income.

specific institutional framework, where workers' control over income distribution is seen as a corner-stone of self-management, gives the chance for wage-push inflation. In the self-managed economy workers have a more powerful role in the decision-making process than workers in a capitalist or centrally planned economy. They have, even in theory, a monopolistic position in the process. So, one might hypothesize that they behave rationally from their own point of view, but irrationally from the point of view of the whole economy; for example, wages increase more rapidly than productivity. If they really do over a long period, then the cost-push inflation will occur.

The objective of this paper is to examine how and with what power personal incomes influence inflation. In other words, it is focused on the wage-push element of the Yugoslav inflation and, more precisely, on the differences in the inflation growth and its origins between the 1960s, 1970s and the 1980s.

This analysis is limited by focusing only on personal incomes as the cause of inflation. A more complete analysis is impossible without considering other aspects so that, consequently, only the role of personal incomes on inflation is designated, and the complex interlinks between factors is lacking.

The first chapter of this paper analyzes different theoretical explanations of inflation with regard to the role of wages in generating the process of increasing prices. On this basis, the classical, Keynesian, monetarist and structuralist views are compared. Separately, as the most important for the proposed question, the cost-push approach and Phillips curve are highlighted.

The second chapter illuminates the growth pattern of the Yugoslav economy and the institutional development, with particular attention given to the system of wage determination and the system of price formation, and identifying the main characteristics of the models of a self-managed market economy. Finally, the mechanisms of the wage-push inflation in these institutional conditions are explained.

In the third chapter the empirical analyses which emphasize the role of wages, in generating Yugoslav inflation are reviewed. Then, using empirical evidence and computation, the period between 1965 and 1985 is analysed (and further back where statistical data are available).

The relation between the increase in personal incomes and the increase in productivity is first shown (including the use of a version of adjusted Selden's model). Then, the relation between unemployment, personal incomes and inflation (including estimation of the Phillips curve in Yugoslav conditions) is examined. Lastly, the share of personal incomes in gross domestic product (income) is looked at, together with inter-sectoral differentials in personal incomes as the possible origin of the wage-push inflation.

The research, based upon the wage-push explanation as a general theoretical framework, points out that in the self-managed market economy a strong wage-push element of inflation takes place. One can even expect that the major factor of inflation is the increase in personal incomes. Our findings support this proposition for the period between the mid 1960s and the mid 1970s. From the late 1970s, however, increasing personal incomes could only be a propagating factor of inflation. In other words the analysis proves, by using the same indicators as the wage-push approach usually does, that the wage-push explanation was a realistic interpretation of the Yugoslav inflation in the 1960s and 1970s, but not for the 1980s. Thus, an economic policy which makes real personal incomes only fall suddenly, and the one which is usually prescribed by the IMF and the IBRD, cannot solve the problems of inflation in Yugoslavia.

I   THE ROLE OF WAGES IN DIFFERENT THEORETICAL EXPLANATIONS
    OF INFLATION

Inflation can be defined as a persistent rise in the general level of prices in an economy (King, 1979:7, Killick, 1981: 1). Alternative definitions refer to the main causes of inflation (demand, structural, costs etc.), to the decreasing value of money, or to the faster increase in nominal income than the increase in the real output (Jovic, 1976:10).

In economic history inflation was an episode usually related to the war situations. From the 1970s it is a chronic, increasing problem of the world economy, especially in the less developed countries.[2]

In LDCs inflation was seen as an inevitable price of fast economic growth. Hence, it was tolerated. But, during the 1970s with a very high level of increase in price, it was seen rather as a serious limit to growth. Other negative influences of inflation have to be taken into consideration, as well: the impact on economic structure, on the income distribution, on the competitiveness of the world market.

Inflation can be explained by the mechanism, the impulses and the inflation situation. According to the causes of inflation several approaches can be distinguished: demand-pull and cost-push inflation, inflation caused by a weak structure, or forced by internal and external factors etc. However, in this first chapter different schools of thought will be critically illustrated and contrasted in relation to the explanation of inflation: the classical view, the Keynesian, monetarist, and structuralist view. In particular, the role of wages will be analysed and, as it is most relevant to the proposed question, the cost-push approach and the so-called Phillips curve will be highlighted.

1. The Classical View

The main characteristic of the classical model is the automatism of self-regulating economic activity. The model makes a number of strong assumptions

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[2]. In the text which follows, LDCs will be used for 'less developed countries' and DCs for 'developed countries'.

about goods and the labour market, especially full wages and price flexibility. In the model, a balanced level of prices and wages is created from the markets of goods and labour separately, by contrasting supply and demand. The labour market is in a state of constant equilibrium at the full employment level. In this situation the aggregate supply curve is vertical and independent of the level of prices. Thus the rise in prices or unemployment is possible only in the short-run.

The model is based on a number of very strong assumptions which are unrealistic. It cannot explain recession and boom because it assumes full flexibility of wages and prices. In the short run, transaction costs and information problems associated with job finding and obstinate wages and prices occur, but the model does not take them into account (Dornbusch & Fisher, 1985: 376, 384). A more general objection in the classical model is the self-regulation of economic activity.

As was mentioned before, wages in the model are the price for the labour force, the exact cost of additional workers. Wages are formed on the labour market and a firm will take on more employees as long as the marginal product of labour exceeds the cost of additional labour (wage). Equilibrium in the labour market achieved by contrasting supply and demand of the labour force is at the same time at the full employment level.

The correction of the model by introducing the wage floor assumption, for example that in the short-run money wages are rigid downward, does not help. Although it explains how a reduction in demand can lead to unemployment it is not realistic. There is a sharp asymmetry between the behaviour of wages in full employment and below full employment, and the wages are not fully flexible when labour demand exceeds the full employment level. Then, the wage floor model implies that real wages move countercyclically (they fall during expansion and rise in a recession) but there is no clear-cut evidence of this cyclical behaviour of wages (Dornbusch & Fisher, 1985: 389).

2. The Keynesian View

Keynes analysed a tendency of rising prices in the case of full employment (the war situation) (Keynes, 1940, in Ball & Doyle, 1970). He proposed upward price flexibility in full employment. The deficit on the goods

market, labelled 'inflationary gap', produces an increase in prices. The mechanism is as follows: an increase in nominal income to the full employment level, with a constant propensity to save, influences disturbances in the relationship between supply and demand, and consequently prices will rise. Inflation will continue until disequilibrium exists, which implies the importance of fiscal policy to reduce the available income.

The primary condition for inflation is state deficit financing of investment in full employment. A further rise in prices is produced by investment finally from the rising profit (on the basis of rising prices), and the third inflationary impulse is the increase in wages in an attempt to define the standard of living.

There are several limits to Keynes' analysis. There are no external sources of inflation or monetary factors in the explanation. The argument that voluntary saving influences the fall of prices is not convincing, because only the market of goods is analysed, rather than the market of factors of production. The role of workers and capitalists in generating inflation is not completely differentiated (Jovic, 1976: 19).

One of the main objections of Keynes' analysis of inflation is its static character. Keynes' followers tried to dynamize it, but the main feature of Keynesianism is its diverse approach. Until the middle of the 1960s the dominant view was summarized by the so-called Phillips curve which gave a precise prescription for economic-policy for a certain level of economic activity and a certain level of inflation. Since the mid-1960s the emphasis in economic policy shifted to direct control of wages and prices. From the political Left, Keynesianism was criticized because of its general assumption in favour of the market mechanism, and from the Right because of active government management. Friedman's objection was that income ratio K was not as unpredictable as Keynesians supposed. The New Cambridge School's objection was related to the timing of the exchange rate and monetary restrictions (King, 1979: 52).

The Phillips curve defined the long-run inverse relation between nominal wages and unemployment, for example there is a trade-off between wage inflation and unemployment (Phillips, 1958, in Dornbusch & Fisher, 1985: 386). This statement is based empirically on UK inflation between 1861 and 1957. There are three hypotheses at the outset. Firstly, the demand for labour and the level of unemployment significantly influence nominal wages. Secondly, changes in the rate of wages are influenced by changes in demand

for labour and unemployment. Thirdly, changes in nominal wages are triggered by changes in retail prices (or changes in the cost of living). The important point of the model is the natural rate of unemployment, that is a certain level of unemployment where there is a zero rate of inflation. It is then possible to make a prescription for policy-makers: monetary and fiscal policies influence both the level of economic activity and the rate of inflation. Hence, a government has to choose between stability of the economy and full employment.

Although very influential, the approach mentioned above can be criticized on several points. It seems to be a simplification of reality. As Phelps and Friedman independently pointed out (Phelps, 1967, Friedman, 1968 in Dornbusch & Fisher, 1985: 423), a Phillips curve was not useful for policy-makers because, as they predicted, it would shift upward if the government tried to keep unemployment under the natural rate and would shift downward if unemployment was above the natural rate. They argued that, besides the unemployment rate, the expected inflation also had to be introduced. In the long run, as they concluded, there is no trade-off between inflation and unemployment; e.g. the economy moves to the full employment rate of unemployment whatever the rate of change of wages and prices. During the 1970s the situation of stagflation occurred, that is, unemployment and the rate of nominal wages increased together, contrary to the Phillips' argument (Glyn & Sutcliffe, 1972: 179). It can be added that there is no theoretical basis for clarification of the causality between the inflation rate and the only independent variable - unemployment (Jovic, 1976: 86).

3. The Monetarist View

The monetarist theory of inflation has its origin in the quantitative theory of money. According to the 'old' quantitative theory of money, the relationship between inflation and money is very simple: an increase in the money stock in circulation influences an increase in the general level of prices. Fisher formalized this theory in his equation $MV = PT$ and $MV + M'V' = PT$ (M- money stock, V- money velocity, P- prices, T- quantity of goods-outcome and M', V' deposit money and its velocity, respectively) (Fisher, 1911 in Jovic, 1976: 31).

The counterarguments to Fisher's and the 'old' quantitative theory of money are clear. Money is seen as an abstract stock, without taking into account variables which determine quantity of money. In addition, it is a simplification of economic reality with a mechanical explanation of why an increase in money supply produces an increase in prices.

The 'old' quantitative theory was the basis for development of the very influential new monetarism. The basis of Friedman's theory is that economic subjects want to have a certain quantity of money in their possession. At the same time the demand of money is stable. The monetarist model of inflation consists of several elements. The relationship between the rise in the quantity of money and the increase in nominal income is synchronized and positively correlated with a certain time lag. A monetary increase produces an increase in the general level of prices 6-9 months later than an increase in the nominal income occurs. In the 5-10 years period an increase in money influences production, in the longer period an increase in prices only. Thus, inflation is perceived as 'at any time and in any place a monetary phenomenon' (Friedman, 1968 quoted in Griffith-Jones, 1981: 3). The element of expectation plays an important role in generating inflation. An implicit assumption is a totally competitive market (Friedman, 1970 in Jovic, 1976: 34-6).

Although it can be said that contemporary monetarism is not homogeneous, economic policies which it implies are more or less straightforward. From the statement about long-term equilibrium with full employment (for example the possibility of self-regulation) the prescription for economic policy could be derived. It includes dismantling protection for the domestic economy externally, and internally a policy of deregulation with wage control, dismantling price control and balancing budget financing. The differences in the monetarist economic policies exist because of differences in the economies (predominantly between DCs and LDCs) where these measures are implemented.

A number of researchers found a positive, but lagged correlation between inflation rate and monetary expansion (Killick, 1981: 11). However, correlation per se does not prove a causality between variables. As Killick argued, there is an element of superficiality in the monetarist explanation, which fails to examine the circumstances that result in the creation of excess money. (Killick, 1981: 16, King, 1979: 52). Griffith-Jones noted that the monetarists tended to ignore other relevant factors such as

sociological, political or economic which can be the causes of changes in money stock rather than its result (Griffith-Jones, 1981: 3). It seems that Friedman generalized episodes in economic history, because it is difficult to prove that monetary factors produce inflation exclusively, or that they are always the main factors of inflation (Jovic, 1976: 43). The sharp separation of money supply and money demand is not real. Finally, the following statements need clarification: an excess in money mass produces an increase in real consumption; an increase in real consumption influences an increase in prices, and an increase in prices eliminates the excess of money mass (Hagger, 1964, in Jovic, 1976: 43).

The monetarists see labour as any other commodity, as subject to the same universal strict laws of the market. Thus, the monetarist economic policy includes the individualization and the commoditization of labour force as a goal. In other words, it reduces and weakens trade unions. As the monetarists argued, an efficient labour market requires a certain natural rate of unemployment. The policy of deregulation was successful in weakening the working class and its bargaining position for wage increases, but not successful in rising profits and investments. In particular, monetarist economic policy in LDCs, in spite of wage control and a weakening working class, led to recession with high unemployment and a high level of inflation.

4. The Structuralist View

Schultze (1959) developed the sectoral demand-shift inflation model. The main elements of the model are sectoral excess in demand, the rigidity of prices and downward wages and the cost-push mechanism of inflation. According to the model some prices are flexible (raw materials). Other prices are only flexible upwards. Industrial prices are determined by the up-mark mechanism. Finally the excess in demand is flexible only upwards and wages tend to equalize (for example wages tend to rise at the same rate as wages in ruling sectors). Inflation can occur, therefore, when there is no excess in aggregate demand. Sectoral excess is enough to induce an increase in prices and wages in other sectors and to multiply them.

From the model, which combines demand-pull and cost-push elements, a selective and restrictive economic policy can be derived for overcoming inflation.

Although an important contribution to the theory of inflation, the model can be criticized. The excess in demand is treated as an exogenous variable, so one of the main factors is not determined. The model explains the influence of demand to prices and wages but does not mention contrary influences (Hagger, 1964 in Jovic, 1976: 74).

The structuralists developed a model of generating inflation in LDCs based on the example of Latin America. While they agree that monetary expansion is a propagating factor in inflation, they argue that more fundamental are structural causes. Generally, the basic source of inflation is the pressure of economic growth on an underdeveloped social and economic structure. In agriculture slow growth of productivity tends to put production behind demand. In foreign trade problems arise because of deterioration in terms of trade against primary producers. In the public sector a deficit arises because of inelasticity of income in the taxation mechanism.

The structuralist policy recommendation begins with the fact that monetary and fiscal policies cannot slow down inflation without incurring costs to economic development. Then the measures for overcoming structural problems will be successful. The changes in economic structure by reforms means import substitution production, development of agriculture production and export opportunities.

This model of inflation is created using the case of Latin America and, consequently, is not an adequate model for all LDCs. Even the specific bottle-necks, which are the basis for explanation, are 'policy induced' (Kirkpatrick & Nixon, 1987: 195). There are several counterarguments to structuralist economic policy: government defends only the interest of middle and upper income groups that appreciate the policy of reducing imports and import substitution; the economic costs of protection are too high; 'export pessimism' is a mistake and an inward-oriented strategy will not solve anything.

5. The Cost-Push Approach

The difference between demand-pull and cost-push inflation is based on the distinction of causality. For this purpose the inflation mechanism, inflationary impulse and inflationary situation are analysed. The inflation

mechanism is of cost-push character if prices and wages are determined by costs, for example when they do not react to the excess in demand. Inflationary impulse is caused by costs if inflation begins with an increase in real wages. When an economic policy to control and diminish the demand is introduced without any results in decreasing the inflation, but with a certain level of unemployment and unutilized capacity, then the cost-push inflationary situation exists.

The cost-push inflation occurs with a monopolistic element in the labour market and goods markets. The former case relates to the so-called wage inflation. Keynes made a difference between spontaneous and induced wage determination. If wages are formed as an exogenous variable then an increase in wages is the main cause of inflation. Conditions on the labour market are changed and wages, instead of following an increase in prices, now rise before prices. Thus, in this inflation model, institutional forces such as trade unions, oligopoly and/or the relationship between supply and demand of labour play a basic role in the determination of wages. A primary increase in wages is possible since producers can shift the increase in costs to prices (oligopolistic, or monopolistic situation, or simply a mark-up mechanism of price formation). A secondary increase in wages occurs when workers want to defend an increase in their real wages. At the same time, workers in other sectors demand an increase in wages to equalize wages with ruling sectors. Hence, two flows exist: the wages-prices-wages flow and the wages-wages flow.

There are several criteria for testing the wage-push inflation. First, the relationship between an increase in the wage rate and output per worker, for example increase in productivity. If real wages increase faster than productivity then the wage-push inflation occurs. But, the limits of this criterion are similar to the situation in demand-pull inflation. Only in a depression and increasingly unemployment is this criterion confident. Secondly, the criterion forms the sequence of increase in wages and prices. But it is very difficult to draw firm conclusions about the sequence. Thirdly, the criterion is a decrease in the profit rate, a faster increase in wages per hour than weekly or monthly income, and an excess in demand for the labour force. The counterargument is that profit is also determined by the conditions on the good market.

In the conditions of an imperfect good market firms are able to determine prices independently of the relationship between supply and demand.

Thus, they can generate an inflationary impulse without any increase in the costs of production, for example autonomously. It is the so-called mark-up mechanism of price formation which influences inflation in the condition of stable or optimally increasing demand, as well as the rigidity of downward prices. On the contrary, mark-up price formation can reduce demand-pull inflation. In these conditions any pressure of costs is easier to realize than in the conditions of a competitive market.[3]

6. A Comparison Between Explanations

In the question of full employment the main distinction between the classical view and that of Keynes is self-regulation with full employment (the classical model), in contrast to the equilibrium in the case of unemployment (the Keynesian model). Similarly to the classics, the monetarists state that full employment is possible with a difference in the natural rate of unemployment and the long run timing. The structuralists stated that, due to the imbalances, the economic structure of LDCs has always underutilized capacity.

In the classical model inflation is not possible, only short-run disturbances in prices during the adjustment process. According to inflationary impulse the Keynes' and the monetarist models of inflation can be labelled as demand-pull. In the explanations, however, an opposite role of money is presented: in the Keynes' an increase in money is a product, in the monetarist a cause. The structuralist model is a mixture of cost-push and sectoral demand-pull character. Contrary to these models, the main cause of inflation in the cost-push explanation is wages (profit) or the mark-up mechanism of price formation. This approach, the cause of inflation, is found in the monopolistic, oligopolistic mechanism on the good and/or labour force markets.

On the question of economic policy, the classical model proposed self-regulation of an economy; similarly, the neoclassical monetarist approach prescribed the policy of deregulation. Keynes was preoccupied with unemployment and with active government role for regulating economic

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[3]. The inflationary pressure of profit is less than that of wages because, first, profit has a relatively smaller share in prices than wages and, second, the pressure of profit is usually not as continuous as the pressure of wages.

activity. From a specific inflationary situation (war situation) in full employment, can be derived a useful fiscal policy for dismantling demand. The Phillips curve prescribed the choice between unemployment and inflation. The structuralists recommended development policy for overcoming structural imbalances. The cost-push approach recommended control of wages and the dismantling of oligopolistic and monopolistic elements on the markets.

According to the classics wages are determined by marginal product of additional labour. In the classical model wages are fully flexible. Keynes stated that in full employment wages are rigid downward. The Phillips curve stated that wages are determined by the level of unemployment, and consequently an increase in prices. The monetarists recommended a policy of deregulation. In practice economic policy of this sort weakens the bargaining position of workers and limits the tendency of real wages to increase. For them labour is a commodity and they want to establish a completely free market for labour. The structuralists saw wages as flexible only upwards with a tendency towards equalization between sectors.

II WAGES AS THE CAUSE OF YUGOSLAV INFLATION

Yugoslavia experienced a very rapid socio-economic growth in the post-war period, up to the 1980s. A unique self-managed market economy was created and an extensive industrialization process took place. What does the Yugoslav experience show?

It is clear that an efficient socialist economy must be an amalgam of plan and market, centralization and decentralization, control and local initiative (Nove, 1983: 138). Although the Yugoslav practice has varied over different periods, it showed that the mix of these elements is the basis of a successful socialist economy.

Workers' self-management was created with an attempt to challenge the process of centralization and bureaucratization in the society. It was at the same time an effort to diminish the classical role of the state and the ruling role of the Communist Party in the economy and society. Strictly speaking, self-management refers to the totality of self-governing activities in a society, including work organizations and social and political bodies. Workers' self-management emphasizes the role of workers in the process of (re)production (Dunn & Obradovic, 1978: 30).

During the 1980s self-management faced deep crises. There are three approaches to socio-economic crisis in Yugoslavia. First, failures of self-management can be considered only in the context of the general crisis. The second approach relates problems to the prevalence of counter-productive attitudes and behaviour. Finally, the third approach states that both the institutions and the idea itself were ageing (Zukin in Ramet (ed.) 1985: 77).

Whatever explanation is accepted, inflation is one of the major manifestations of the crisis. Without doubt, there are several causes of the Yugoslav inflation. On the one hand several external influences are present: foreign exchange bottle-necks, world inflation, exchange rate policy. On the other hand internal causes are overinvestment, government deficit, expansionary monetary policy, workers incomes, structural imbalances. In the second chapter of the paper the growth pattern of the Yugoslav economy and institutional development will be illuminated with particular attention given to the system of price formation and personal income determination. The main characteristics of the models of self-managed market economy will be shown.

Finally, the mechanisms of the wage-push inflation in these institutional conditions will be explained.

1. Growth Pattern

The Yugoslav economy achieved a very rapid rate of growth during more than 30 years of extensive industrialization.   On the basis of rapid growth of investment and employment the structure of production and the labour force were changed.   From a typically agrarian country it became industro-agrarian. The structure of internationally traded goods was changed.   At the same time, inequalities between regions increased and, especially from the mid-1960s, problems of instability, unemployment and inflation grew.   In the 1980s the Yugoslav economy faces deep crisis.

Before the Second World War Yugoslavia was a poor agricultural country. National income per caput was $60-70, over 75 per cent of the population lived off and worked in agriculture.   More than 70 per cent of all land holdings were less than 5 hectares.   The annual production of electricity was 71 kwh per caput, steel production 15 kg per caput (Pusic, 1987: 154).

Rapid industrialization was seen as an obvious solution to the problem of poverty.   Investment of around one third of the GNP (with the peak in the 1976-80 period when investment was 36.9 per cent of GNP on average) was central to the industrialization policy and the major factor of development.

Development was of the extensive type considering that growth of employment accounted for 70 per cent of the growth of GNP and the increase in productivity per worker for only 30 per cent during the 1947-80 period, in spite of a massive investment.   The number of employed people rose from 1.132 million in 1947 to 5.798 million in 1980.   At the same time, the population structure was changed.   The share of the agricultural population in the total population declined from 67 per cent (1948) to 29 per cent (1981) and urban population increased from 21 per cent to 48 per cent.

As a result the total GNP increased from 1947 to 1980 more than 7 times and GNP per caput nearly 5 times.   Manufacturing production increased 15 times and per caput around 10 times, agricultural output by 2.5 times and 1.7 times per head (Federal Statistical Office 1981).

In spite of spectacular growth, among the fastest in the world, Yugoslav development, especially from the mid-1960s, faced serious problems.

Firstly, wide disparities in income and productivity between regions still exist. Differences in GDP per caput and other per caput measures have even increased. Secondly, from the mid-1960s instability increased. Typical cyclical investment behaviour was accompanied in the 1970s by external disturbances. Thirdly, unemployment increased from 159 thousand in 1960 to 789 thousand in 1980 (5.4 per cent and 13.5 per cent of labour force respectively). A large amount of underemployment also exists (1.2 million people) (Svetlik, 1983: 9), while workers abroad account for more than 1 million. Fourthly, inflation has been the most serious problem during the last decades. The retail prices increased 2.6 per cent per year in the 1950s, 11.1 per cent in the 1960s, 19.9 per cent between 1971-74 and 16.7 per cent per year in the 1974-79 period (Popov, 1987: 39).

In the late 1970s and early 1980s Yugoslavia was faced with gradual deterioration of its economic situation. The inadequate measures of annual economic policy can be labelled as causes of emerging economic problems: inefficient use of resources, distorted prices, overvaluation of domestic currency, a negative real interest rate (Vujovic, Labus, Biocic, Stjepanovic, 1986: I). However, the causes of the crisis seem to be deeper: a tendency toward autarchy (Lydall, 1984: 287), the lack of encouraging agricultural development and development of small and middle scale enterprises (including private sector) (Pusic, 1987: 168), the weakness of regional aid (Lydall, 1984: 287), foreign exchange bottle-necks, exchange rate policy, the tendency toward foreign borrowing, structural imbalances, institutional rigidities, etc.

These factors produced balance of payment problems (great foreign debt, foreign exchange imbalances, involuntary cuts in import) and consequently led to a sharp slowdown in domestic economic activity. Gross domestic product increased only 0.9 per cent on average between 1981 and 1987 (with a drop of 1 per cent in 1983 and 0.5 per cent in 1987) coupled with an increase in unemployment (17.2 per cent and 16.4 per cent share of unemployment in the total labour force in 1986 and 1987, respectively), 9.2 per cent on average decrease in investment activity between 1981 and 1985, a rapid increase in retail prices from 30.4 per cent (1980) to 75.7 per cent (1985) 88.1 per cent (1986) and 118.4 per cent (1987) (Hadzic, 1986: 181, Statistical Yearbook 1988).

2. Institutional Development

The Yugoslav socio-economic system is based on two fundamental relations and institutions: on the freely associated labour, utilization and management of the socially owned means of production and on self-management (Maksimovic, 1983: 155). At the same time, social ownership represents the material basis of associated labour. Together with self-management, social ownership determines the way of utilization, allocation and distribution of the results of economic activity. Therefore, social ownership and self-management also determine the socialist character of the socio-economic system.

However, socialist development in Yugoslavia began with state ownership and with state organization of the economy. There was a number of reasons for this sort of beginning. Immediately after the Second World War the working class and society were not developed to directly manage the economy. Socialist society and the economic system were in danger of so-called capitalist restoration. It was suitable to concentrate and centralize rapidly, limiting development factors in an attempt to industrialize a backward economy.

In the early 1950s the state began to transfer its authority to economic unities, organized in a self-managed way. As a number of foreign analysts pointed out the unique constant in institutional development was continual changes. Thus, it is useful to separate several sub-periods in the post-war development. It seems appropriate to distinguish the 'Visible Hand' period from 1952 to 1965, the 'Market Self-Management' period from 1965 to 1972 (1974) and 'Social Planning' which has operated to the present day (Estrin 1983: 57).[4]

The 'Visible Hand' period (1952-65) was characterized by a compromise between Soviet-type development strategy with rapid accumulation and industrialization, and introducing elements of market self-management. Strong central determination of the aggregate sectoral balances and a certain degree of decentralization for detailed allocation existed. The Basic Law of Workers' Self-Management was inaugurated in 1950 and established the increasing role of workers in the decision-making process. Central planning,

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[4]. This periodization uses the fundamental changes of the socio-economic system as the basis, but it is important to bear in mind that this is a simplification of reality. Sirc (1979), Horvat (1971), Saphir (1986) and Bajt (1986) have offered alternative approaches.

price and income policies, fiscal and monetary policies remained firmly in the hand of the state. But, in 1956 central planning was limited to the planning of basic proportions. At the same time, reforms of prices and the exchange rate were made to strengthen market signals and to allow enterprises to make their own plans.

The 'Market Self-Management' (1965-74) coincided with the new Constitution (1963) and Economic Reforms (1965). Although the Reforms were inadequately prepared and not fully implemented the resulting economic environment was characterized by a liberalized market and increased autonomy of enterprises. The strategy was intended to achieve international competitiveness of the Yugoslav economy. The centralized accumulation and allocation of investment was dismantled. The allocation of investment functioned through the banking mechanism. The emphasis in development was on productivity with the introduction of high technology and capital intensity. However, the Reforms neglected the capital and foreign exchange market and both capital and foreign exchange continued to be allocated administratively (Martin & Tyson in Ramet (ed.), 1985: 186).

The 'Social Planning' period (1974 onwards) started with Constitutional Amendments, which defined the Basic Organization of Associated Labour (BOAL) as the economic unit and gave it full freedom to arrange management structure, to choose the Organization of Associated Labour (OAL-association of BOAL), to determine price and income distribution (Prout, 1985: 56,59). These changes led to atomization of enterprises. The confederative tendencies, based also on the constitutional changes, represented a parallel process of disintegration, which led to the weakening of the unity of the Yugoslav market. In the planning process consensus among territorial units was required and the so-called social compacts and self-management agreements were used as bases for plans. Instead of greater macroeconomic control, more efficient planning and strengthening of workers' self-management (which were aims of the reforms) possibilities for administrative interventions and influences of political subjects were opened.

The system of fixing prices is of great importance for the proposed research. In the 1945-52 period all prices were administratively (centrally) determined. Price distortions discriminated against private farmers in favour of the socialist sector and favoured prices of industrial products. In the period 1958-65 prices were formed through registration with the Federal Price Office. The criteria were supply-demand relationship, monopoly

position and the social significance of the product. In the 1965 Reforms the intention was that the criteria for price determination would be the world price. Since 1967 most prices were kept under control. An attempt to further dismantle control was unsuccessful. In the early 1970s through constitutional amendments prices started to be determined by social compacts. Price control was regulated in different levels of the socio-political communities (Lydall, 1984: 256-9). Since 1980, following the establishment of 'communities for prices',[5] a substantial part of the power for price fixing and controls had been transferred from the federal to the republican, provincial and regional levels. This has contributed to important regional differences in prices which have only partially reflected market influences. Frequently modification to the price regimes has been operated mainly by shifting various goods and services from one control category to another and by imposing temporary selective or generalized price freezes (OECD, 1987: 68).

The system for determination of personal incomes is specific. There is no labour market. Thus, personal incomes are not based on the bargaining between employers and employees. Besides, workers are both employers and employees at the same time. The cost of labour to a new entrant is the level of personal income in similar existing enterprises. Personal income is usually determined by work performed on the basis of the planned value, which takes into account several criteria and on the basis of confronting the anticipated and achieved income of the enterprise. Since 1965 Reforms personal incomes were administratively determined and after that freely determined by enterprises. In addition, one of the major goals of the 1966-70 Federal Plan was to increase personal incomes. With the reforms of the early 1970s personal incomes were determined by social agreements and several criteria of income distribution based on the law (Sirc, 1979: 137-40). In principle levels and growth rates of personal income should conform broadly with the overall objectives of, firstly, a distribution of income conducive to high rates of profit (accumulation), in order to promote self-financing of investment and, secondly, the annual guidelines in the Economic Resolution.

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[5]. These price communities are composed of representatives of producers, the Chambers of Economy and Commerce, and regional and local authorities. The establishment of 'communities for prices' encouraged oligopolistic price fixing on the basis of the cost of the least efficient producers (OECD, 1984: 13).

As with prices, determination of personal incomes is based on sectoral agreements, but mainly at the Republican and local levels and also involves governments, trade unions and chambers of commerce (OECD, 1982: 38).

Different analysts point out a number of failures of actual institutional environment: the reduction in size of economic units and confederalization as disintegrative tendencies (Ramet (ed.) 1985: 78); the weakness of the private sector, agriculture and overemphasized administrative interventions (Moore, 1980: 164); failures of social ownership (Maksimovic, 1983: 164); inadequate economic policy (Vujovic, et al., 1986: I); a too materialistic orientation of workers and egalitarianism at the same time (Ramet (ed.) 1985: 82, 85).

3. Models of the Self-Managed Economy

The Yugoslav socio-economic system, as a specific mode of socialist transition, was the subject of a number of researchers, some of whom developed models of the self-managed economy. Strictly speaking, those models are specific to the economic and political realities of Yugoslavia, but they are also useful tools for a better understanding of functioning economic units and the economic system.

Frequently, a self-managed firm is defined as a production unit in which the labour force as a whole takes all economic decisions through the democratic process (Estrin, 1983: 12). This group is named a collective. It has an entrepreneurial role and therefore receives the surplus of revenue over costs which is distributed among the members of the collective.

The models focus on various major problems. Firstly, the determination of an assumption which gives a more or less realistic pattern to the analysis. There are in fact several assumptions: the labour force is homogeneous and capital stock is borrowed for which the collective pays the market determined interest rate; maximization of average earnings per head (Estrin, 1983: 12) or the laissez-faire markets (Lydall, 1984: 278,284), with no labour market; techniques are given, there is maximization of security rather than maximization of personal income.

Secondly, the question is what is (are) maximization function(s). The maximization of income per head was first proposed by Ward (1958) and strongly justified by Vanek (1971). Estrin stated that the identification of

the labour force's entrepreneurial role requires that the objective remains to have a surplus for every entrepreneur, or average earnings per head (Estrin, 1983: 12). Some analysts argue that the assumption of income maximization is restrictive and rather proposes employment security and collective consumption (Law 1977, Berman 1977, Smith 1982). Although such models give better insight into behaviour under self-management they do not give many testable hypotheses for the system as a whole. World Bank experts used assumption of profit maximization in their CGE model, similar to the 'realistic model of the Yugoslav self-managed firm' proposed by Horvat (1967) (World Bank 1983, annex: 3).

Thirdly, self-management analysts point to different implications of a firm's behaviour. Prout argued that maximization of personal income per head induced a bias towards capital intensity. In other words, workers, who are simultaneously employers, are not motivated to employ new workers, who would join them in income distribution. Thus, for any given output the self-managed firm tends to employ more capital per unit of labour than the perfectly competitive capitalist firm.[6] (Prout, 1985: 124). Vanek (1970) and Horvat (1982) stated that self-managed enterprises would be more efficient than the capitalist or state socialist firm. The argument is based on the assumption that workers would be motivated to do better and be more efficient due to self-management. But as Lydall argued organizational efficiency depends on other factors besides motivation: that is, the system of incentives and the system of management (Lydall, 1984: 235).

Broadly speaking, it is possible to distinguish three approaches to modelling a self-managed economy: the 'labour school', the 'capital school' and the 'general model'. The 'labour school' [7] derives argumentation from the model of Vanek (1970) and Ireland & Law (1982), which predict the emergence of income differentials because of institutional weakness in the operation of the markets. The point is that labour immobilities are associated with the fact that workers participate in the residual surplus. In this system inter-firm income differentials are based on different economic circumstances in which firms operate. The differentials will not be eliminated because the

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[6]. Prout limited such behaviour to the case where entrepreneurial profit is positive. He concluded that in the long-run the self-managed firm acted in the same way as the capitalist one.

[7]. Horvat (1971), Dirlam & Plumner (1973), Wichtel (1972), Estrin (1983).

collective can restrict entry to maintain its own income. Adequate economic policies include encouragement of labour mobility, anti-trust measures, dismantling entry barriers (Estrin & Svejnar, 1983: 2, Bonin & Putterman, 1987: 116).

The 'capital school' [8] stresses capital, instead of labour immobilities, in particular the scarcity of capital in Yugoslav conditions, inefficiencies in its rationing and the determination of interest rates below the market clearing rate (Estrin & Svejnar, 1983: 3). The main point of the approach is inadequacy of capital rationing, whereby firms do not pay the full opportunity costs for capital in use, which previously were allocated administratively. In the self-management conditions monopoly rent, which is the product of such capital allocation, may be (and usually is) distributed as a part of personal incomes, in addition to the normal remuneration. Therefore, income differences occur because of inter-firm differences in the marginal capital products. As Vanek (1973) concluded, self-managed firms would operate optimally only in the case of full external financing of investment. The economic policies consistent with the 'capital school' include appropriate capital pricing policies in the short-run and the efficient allocation of capital in the long-run (Vanek, 1977: 239,251).

No one has considered the relative explanatory power of the two schools empirically. The reason is that hypotheses are observationally equivalent. Both schools predict association between incomes and capital-labour ratios, the sole empirical test thus far applied, but in the 'labour school' it is non-causal. The variables are the subjects of choice and depend on a set of factors. As Estrin and Svejnar estimated both hypotheses (labour school's that capital demand is equal to capital supply and capital school's about capital rationing) have to be rejected in favour of a more general model. The general analytical framework includes both hypotheses and they conclude that incomes vary with prices, productive efficiency, average firm's size and rate of interest (negatively). Empirical tests support a strong conclusion of the 'labour school' and partly support the factors proposed by the 'capital school' (Estrin & Svejnar, 1983: 24).

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[8]. Milenkovitch (1971), Vanek (1973), World Bank (1983), Vanek & Jovicic (1975).

4. Wage-Push Inflation in a Self-Managed Market
    Economy - An Explanation

Without doubt inflation in Yugoslavia, as in other less developed countries, became a continual characteristic of development, influenced by a number of factors. As mentioned earlier, the inflation rate accelerated from 2.6 per cent per annum in the 1950s, 11.1 per cent in the 1960s, 19.9 per cent between 1971-74 and 15.7 per cent between 1974-79 to a high 57.9 per cent inflation rate per annum in the period 1969-87. Bonin and Putterman showed that, although higher than in the Soviet-type economies and developed market economies, the Yugoslav inflation is quite similar to those of other middle income Mediterranean countries (Bonin & Putterman, 1987: 110). However, inflation rates in the 1980s were considerably higher than earlier and higher than in the countries mentioned above.

Some of the domestic causes of the Yugoslav inflation usually mentioned are demand, cost-push, monetary and structural factors: over-investment, government deficit, expansionary monetary policy, workers' incomes, rising material costs, imperfect market structure and administratively determined prices, and factors within the system. For proposed research the most interesting are the so-called systemic factors, endemic to self-management, accompanied by the influence of particular Yugoslav policy failures, and specifically related to personal incomes.

Theoretically speaking, wage-push inflation occurs when there are imperfections on both the labour and the goods market. The conditions are a strong trade union and the oligopolistic/monopolistic position of producers. Then an increase in wages influences an increase in prices, and consequently the new increase in wages occurs in an attempt to defend real wage increase. The parallel flow is an increase in wages and prices of other non-ruling sectors in an attempt to equalize incomes. Hence, as Bonin and Putterman state, a casual observer might conclude that inflation is an inevitable outcome of giving power to workers to set their own wages (Bonin & Putterman, 1987: 111). This position produces an equal outcome to the influential trade unions' position in forming wages in the capitalist market economy. Possibilities for a monopolistic/oligopolistic position on the goods market exist in a self-managed economy as well. In addition, there are tendencies for inter-sectoral equalization of personal incomes according to the strong equalization bias ('equal earnings for equal work') in a socialist society.

It can be added that in a self-managed economy the influence of expectations of future inflation is stronger than in developed market economies because of the higher rate of inflation experienced earlier.

As some authors point out, however, there is a flaw in this argument. Wage-setting power is only effective to the extent that there is some way to pay the wages. In other words, workers can tend to increase personal incomes and pass on the increase in prices to the customers since they have market power. They can do this as they are the workers who earn income, are interested in their increase and at the same time are entrepreneurs who determine prices. Authors, as a matter of fact, argue that evidence shows that much of the earning expansion is not a result of market power but of the behaviour which Kornai labelled 'soft budget constraints' (Bonin & Putterman, 1987: 111).

Firstly, in the Yugoslav economy there are several stabilizing 'systemic elements' on the supply side. Prices are determined subjectively in the situation of uncertainties and indecision as to what the price system should be. There is no clear and adequate basis for determining personal incomes in a self-managed economy. In a self-managed environment a tendency toward equalization of personal incomes exists. The maximization of personal incomes in the firm may lead to capital intensity bias, for example to a decrease in the rate of growth of employment. Second, failures in Yugoslav economic policy also may lead to wage-push inflation. The inconsistent use of the relationship between personal incomes and productivity may give inflationary pressure. In the Yugoslav economy values of factors are not a result of their availability. Inadequate development policies influence the dual market and quasi market of labour. It is important to bear in mind that the attempt is made to detect mechanisms for wage-push inflation in the self-management economy, and not to prove that personal incomes are unique or are the strongest inflationary factor.

On the theoretical level Lydall shows that with free entry, but with imperfection in product and capital markets, prices will be fixed at 'entry price' and will not vary with the state of demand. This price is determined by the cost structure of a new firm. But, because of lack of existence of the labour market, costs of labour will be determined by personal incomes of workers in existing firms of a similar size. Thus, in this environment the general level of prices is potentially highly unstable. If the general price level depends on the average level of nominal incomes and nominal incomes on

the price level, a change in one of those variables will affect the spiral of changes in the same direction (Lydall, 1984: 254-5). Prout shows that most studies of the Yugoslav inflation show a good correlation fit between prices and personal incomes growth. Although it is difficult to determine the cause, once the process is under way the spiral of prices-personal incomes has to continue. (Prout, 1985: 204).

There is no clear and adequate basis for determining personal incomes. In addition, the Yugoslav wage system is unsatisfactory. Consequently, firms will determine personal incomes as high as they can. The formula used for income distribution is that income is determined by 'work and results of work'. The first part of the formula includes a statement about the egalitarian bias in socialism 'equal pay for equal work'. The problem with the second part of the formula is unclear, because the concept of marginal product is not officially accepted (Lydall, 1984: 238). The contradiction between the divergent principles combined with a tendency to increase personal incomes stimulates wage inflation.

The tendency toward equalization of personal incomes dismantles income differences and influences a parallel inflationary flow.[9] The inter-sectoral and inter-firm differences in personal incomes occur because of: past (mature) labour, monopoly, capital and land differences, a different position in the price system (if it is an administered formed price), etc. In spite of 1965 reforms, the effort to encourage different levels of income to correspond with different levels of efficiency, a strong tradition of egalitarianism existed.[10] Hence, as a result inter-firm and inter-sectoral differences in personal incomes tend to be diminished and inter-skill differentials tend to be annulled (Prout, 1985: 148-50).

Tyson (1980) found the explanation for the co-existence of wage-push inflation and increasing unemployment in both the self-management theory and in Yugoslav practice. Workers in profitable sectors may raise their earnings, although there are those who are unemployed who wish to work for lower personal income. This occurs because they do not want to lower their own incomes. The argument is the same as that given by Nove: there is no

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[9]. First W - P - W' and then W' - W''.

[10]. It is in fact the wrongly interpreted Marxist formula 'from each to his ability to each according to his need', because it refers to future communism, not to socialism as its transitory period.

material interest in employing extra labour if the effect is to diminish net revenue per worker. It can be interpreted as the prevailing short-run interests of workers instead of a long-run interest in the society (Nove, 1983: 138). Tyson suggests that this tendency may be strengthened by regional and sectoral segmentation. She also argues that workers in less successful sectors and firms may increase earnings by imitating the profitable ones. The 'soft budget constraints' (bank, government, enterprise to enterprise loans) are the basis for such behaviour (Bonin & Putterman, 1987: 112).

The statement that personal incomes ought to increase as rapidly as productivity increases, is based upon the fact that personal incomes are production costs and income for consumption at the same time. A slower increase in personal incomes permits a higher growth rate of accumulation and consequently faster development, but the expansion of consumption and investment on this basis are suppressed in the long run. On the contrary, a faster increase in personal incomes stimulates consumption and development on this basis, but it leads to a slower increase in accumulation as the source of investment. Therefore, either a too fast or too slow increase in personal incomes leads to a retardation of development. This proposition also depends on the time horizon (in the long-run more and in the short-run less strict) and on factors of productivity growth (increase in the quality of the labour force, increase in the capital-labour ratio and increase in the efficiency of capital and labour) (Popov, 1987: 29-36). Income policy in Yugoslavia after the 1965 reforms encourage growth of personal incomes (in an attempt to raise the standard of living, not taking into account the rate of productivity growth). Later, the determination of personal incomes became subject to social compacts where productivity growth was just one of the criteria (besides the increase in value added, efficiency of labour and capital implementation, etc.).

A number of authors point out the irrational economization of resources in the Yugoslav economy. In a strategy of rapid industrialization with the lack of capital, in spite of capital scarcity, it was artificially a cheap factor. The rate of interest was constantly below its real price and obligation of firms to pay for borrowed capital to them was dismantled (Popov, 1987: 40). On the other hand, labour, although plentiful, was expensive because of the direct taxation system (the basis for taxation was

the mass of personal incomes of employed workers) and because of constant pressure to increase personal incomes (Prout, 1985: 129).

World inflation also accelerates the Yugoslav inflation through the wage-push mechanism.[11] The pressure for the increase of personal incomes may be initiated by world inflation as an independent factor of price increase in the Yugoslav economy. It is a well-known situation that workers tend to defend their own real personal incomes (standard of living) by increasing wages (and prices consequently), because of price increases influenced by world inflation (Lydall, 1984: 287). In addition, it can be argued that foreign exchange bottle-necks prevailed over the stabilization attempt through the import of 'wage goods' (food). The policy of continual devaluation of domestic currency in the 1980s (prescribed by the IMF) also produced an increase in import prices. Consequently, there was an increase in wages (and prices), in the workers' attempt to defend real personal incomes.

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[11]. The increase in prices of oil and other raw materials, in the 1970s was a major cause of inflation in Yugoslavia, as well as in other European economies.

III THE WAGE-PUSH INFLATION IN YUGOSLAVIA - FINDINGS

The worker's control over income distribution is a corner-stone of self-management. Although there are tendencies to limit the role of workers in distribution (government control, bureaucratic and political influences) the strong workers' position provides an opportunity for personal incomes to increase irrationally. It means first an increase in personal incomes higher than the increase in productivity, then the increased share of personal income in total income, while shares of accumulation and amortization decrease, or an increase in personal incomes in spite of losses and bad economic results. If there is a monopolistic position on the market and/or an inadequate institutional environment and/or if mistakes are made in economic policy, then an increase in personal incomes would be turned into an increase in prices.[12]

It has been argued that inflation is one of the main characteristics of the self-managed economic system. It cannot be said, however, that inflation is a product of self-management per se. Inflation is a consequence of several influences: a misuse of self-management, failures in economic policy, negative external influences and internal disturbances (which are inevitable in a rapid development process).

Institutional conditions after the 1965 reforms might produce wage-push inflation. On the other hand the decision-making process started to take place on the level of enterprises. On the other hand one of the main goals of economic policy became the growth in the standard of living.

It was thought that, after the mid 1960s, wage-push factors were the strongest in generating inflation. In the 1970s the mixture of factors existed, but after 1974, and especially after 1979, external shock caused a higher rate of inflation than previously. In the 1980s externally caused inflation accelerated because of inadequate economic policies. The inflation problem, therefore, became a dangerous element in Yugoslav development.

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[12]. The mechanism of wage-push inflation in the self-managed economy explained earlier is different from the wage-push mechanism in a capitalist economy. In the self-managed economy the wage-push inflation is based on differentials between productivity and income per worker among sectors, while in a capitalist economy the wage-push occurs in a conflict between employers and trade unions.

The first condition for the wage-push mechanism is for real wages to increase more rapidly than productivity. If this happens, it produces a decrease in accumulation or an increase in the balance of payments deficit.

The imperfect market is the second condition for the wage-push inflation, for example the monopolistic position on both market: the labour force (or institutional condition with similar result) and the goods market. Thus an autonomous increase in personal incomes affects an increase in prices.

The passive role of monetary policy is the third condition. The nominally higher domestic product is possible to realize by the increase in monetary mass. In other words, an expansive monetary policy makes possible the wage-push inflation.

The wage-push approach usually applies several indicators to test the wage-push inflation. Firstly, the comparison between the productivity rate of growth and the rate of growth of personal incomes. Secondly, if the rate of growth of real personal incomes is higher than the productivity rate of growth, especially when domestic product, industrial production and employment increase at the rate lower than long-run trends. So, the growth of personal incomes in recession is a sign of cost-caused inflation. Thirdly, a constant increase in prices with an increase in unemployment is an indicator of cost-caused inflation. Thus, a negative excess in the labour force (the increase in unemployment) is not related to demand-pull inflation. Fourthly, the tendency of both the rate of profit and accumulation to decrease can be used as an indicator. Therefore, the share of the wage cost in total cost increases while the share of accumulation and profit decreases in the wage-push inflation.

The third chapter of this paper highlights certain features of previous analyses about: the relation between wages, productivity and inflation, the relation between unemployment, wages and inflation, the inter-sectoral differences in personal incomes and the share of personal incomes in gross domestic product (income). Then the wage-push inflation (from empirical evidence and by own computation) is examined in the 1965-85 period (and further back where statistical data are available) considering several moments: the relation between personal incomes, productivity and inflation (including a version of adjusted Selden's model), the relation between unemployment, personal incomes and inflation (including estimation of the Phillips curve in the Yugoslav conditions), inter-sectoral differences in

personal incomes and the share of personal incomes in gross domestic product (income). It is important to bear in mind that this analysis focuses on personal incomes as the cause of inflation. A more complete analysis requires consideration of other aspects. So, this study identifies features only of the role of personal incomes, as the complex of interrelations between factors is lacking.

1. The Influence of Personal Incomes on Inflation in
   Yugoslavia - Previous Analyses

Some authors, like Prout, stated that the excessive personal income distribution played an important role in generating inflation. There were no measures to limit price increase (although it was subject to price control). Thus, a firm might determine a higher price in order to make the income higher for the distribution of savings and personal incomes (Prout, 1985: 205). Estrin (1983) showed that prices, efficiency, rate of interest, scale of output and market power determined personal income. He proved that between 70-90 per cent of the variance in earnings could be explained by those variables (Bonin & Putterman, 1987: 116).

The previous empirical analyses of Yugoslav inflation are grouped according to different aspects. Firstly, the relation between wages, productivity and inflation. Then, the relation between unemployment, wages and inflation. Lastly, the share of wages in gross domestic product (income) and the inter-sectoral differences of wages.

A number of researchers have stated that wage-push inflation has always existed in the Yugoslav economy, especially in the second half of the 1960s and in the first part of the 1970s. According to Sirc, the main factors of wage-push inflation are the workers' decisions about income distribution, administered inflation[13] and the political attempt to create a standard of living higher than before. In 1965 the cost of living rose by 33 per cent and personal incomes by 40 per cent; in the following five years personal income rose by 19 per cent per year, the cost of living by 11 per cent per year and productivity 5 per cent. Between 1971 and 1975 personal incomes

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[13]. It was the increase in prices in 1965, a so-called adjustment, necessary to alter the price structure.

rose by 21.4 per cent per annum, the cost of living by 19.6 per cent per year and productivity 3 per cent on average. Sirc concluded that the main inflationary harm was done in the first five years, when personal incomes were rising by about 3 per cent per year in excess of productivity and the rise in prices must have been to a large extent a feedback from personal incomes (Sirc, 1979: 129).

World Bank experts pointed out that the wage-push inflation continued at the beginning of the second half of the 1970s. Net nominal personal incomes rose faster than the cost of living, especially in comparison with stagnant productivity growth. They noted that the discrepancy between the rise of personal incomes and the productivity increase exerted pressure on production costs. These, accompanied by a voluntary reduction of accumulation, could only be sustained if passed on in higher prices. It was stressed that personal incomes and productivity increased in parallel, but the less efficient and loss-making enterprises increased their personal incomes too (World Bank, 1979: 114-18).

Popov estimated the relationship between increase in personal incomes and productivity in the post-war period. She demonstrated that the difference between increase in personal incomes and productivity started in 1957, with the peak in 1971. The dramatic change began during the 1980s: productivity declined, but real personal incomes declined more. She concluded that the difference was illogical in economic terms,[14] so the movement in opposite directions during the 1980s was inevitable. According to Popov, real personal incomes increased illogically, as their increase was followed by an increase in production and productivity, on the basis of declining investment efficiency with high unemployment and a large number of sub-employed (Popov, 1987: 32-7).

A number of economists have also judged the wage-push inflation in Yugoslavia on the basis of the comparison between personal incomes and productivity. Horvat (1969) stated that inflation in Yugoslavia was determined predominantly by supply. He explained that the institutional system produced movement in opposite directions between production and prices. On the basis of the econometric analysis he proved that 80 per cent of Yugoslav inflation could be explained by the rise in personal incomes.

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[14]. It is important to bear in mind that the difference was illogical, taking into account increase in productivity, inefficiency of work and sources, but not considering standard of living and its attained level.

Mencinger (1970) tested a few well-known models of inflation in the Yugoslav environment. He found that 1 per cent increase of income produced 0.4 per cent increase in prices, then that personal incomes influenced prices more than prices influenced incomes. Bajt (1971) estimated the relation between the productivity rise with demand and nominal supply. He concluded that the main factor of inflation was a disproportionate increase in personal incomes institutionalized during the long period.

After the 1965 reforms there was a tendency towards a rapid increase in unemployment as a result of an attempt in economic policy to intensify development. It was theoretically proved that even self-managed enterprises tend to increase the capital-labour ratio because of a tendency to increase the mass of personal incomes in enterprise. The Phillips curve is a well-known theoretical model for analyzing the relationship between unemployment, wages and inflation.

Prout argued, as did other economists, that the lower rate of employment growth in the post-reform period was due to the tendency of self-managed firms to maximize personal income growth per worker by opting for high productivity and low employment growth. However, he concluded that statistical evidence for this assertion is rather inconclusive (Prout, 1985: 129). He noted that on one hand the problem of unemployment was more serious than registered unemployment showed. The reason was underemployment or dissatisfied employment in the private agriculture sector. On the other hand dimensions of the unemployment problem varied sharply from region to region.[15]

Prout also noted the substantial degree of inelasticity in the employment change to short-term changes in effective demand. A number of employed in a firm is fixed because of guaranteed job security. As a result, the real personal incomes fluctuate to a much greater extent in the Yugoslav economy than in a trade union dominated capitalism. A comparison of the annual rates of increase in the cost of living and average personal incomes with the annual rate of growth of social sector employment suggested that the burden of adjustment was mainly borne by employment in the 1966-67 recession, by real personal incomes in the 1972-73 recession and in the recession which began in 1979 (Prout, 1985: 202).

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[15]. At the beginning of the 1980s there was 22.6 per cent unemployment in Macedonia, one of the underdeveloped republics, and even 28 per cent in Kosovo. At the same time, in Slovenia, the most developed republic, there was practically no unemployment (1.3 per cent).

Contrary to the statement about self-managed systemic cause of unemployment, Bartlett (1984) argued that the main cause of Yugoslav unemployment has been structural, namely, the preservation of large urban-rural income differentials in the context of rapid industrialization and urbanization of a poor peasant economy. The unemployment problem was typical for dualistic development, and might be attributed as much to the weaknesses of the non-socialist rural sector as to the failings of the self-managed industrial firms. Unemployment also varied across regions. These structural features suggested that the Yugoslav economic problems might be largely similar to the predictions of Ward's or Estrin's analyses. They pointed to systemic problems as the main cause of failure.[16] (Bonin & Putterman, 1987: 118, 119).

Mencinger (1970) tested the relevance of the Phillips curve to the Yugoslav environment. According to him, this model could not be applied to the Yugoslav conditions, because the market of labour force did not exist. Unemployment might influence personal incomes only indirectly. Moreover, the anti-inflationary policy derived from the model is not acceptable in a socialist economy.[17] The natural rate of unemployment, which he computed, was equal to 10.5 per cent. It showed that other factors in the determination of personal incomes (except unemployment) were important. The equation of the Phillips curve was $sWt= 0.53 - 4.99 Ut$ (sWt- variation of personal incomes and Ut- unemployment).

A number of economists pointed out that the inter-sectoral differences of personal incomes played an important role in generating inflation.

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[16]. One can point to the argument than an unsatisfactory supply of wage goods (foods) was a major cause of inflation, on the basis of the structural imbalance between industrial and agricultural development. Several factors support this statement: faster industrial than agricultural development (Appendices 10, 11), the declining share of agricultural production in the gross domestic product (from around 40 per cent in 1953 to around 12 per cent in 1985), the declining share of the rural in total population and the declining share of the agricultural in total employment. Consequently, the increase in agricultural producers' prices was more rapid than the increase in prices of industrial producers (Appendix 7). There are limitations, though, to this argument. Firstly, the imbalance of industry to agriculture has to be analyzed together with other structural imbalances. Secondly, the structural imbalances existed through more than 30 years of post-war development, but the rate of inflation largely varied through sub-periods. So, one can conclude that structural causes were a constant, but weak inflationary factor.

[17]. It means that the increase in unemployment is not acceptable as a measure to stabilize the economy.

Personal incomes increased in the ruling sectors and other sectors tended to follow them. Prout argued that the intra-skill differences (between sectors) were high and the inter-skill differences were low. In 1972 the range of earnings of one unskilled workers in twenty-one industrial branches was 1:3.7. The absence of a contractual wage in the Yugoslav economy meant that the returns appropriated by labour consisted of more than just a return to workers' skill and effort. Thus, personal incomes also reflected the varying degrees of capital intensity, imperfect market structure, inadequate price formation and regional differences. At the same time, the average inter-skill differentials were narrow, reflecting a bias towards egalitarianism[18] (Prout, 1985: 122, 146, 150).

Popov compared (1972) the rank order of unskilled personal income level in twenty-two industrial branches with the rank order of fixed capital per worker and concentration ratios. The industries with the highest average unskilled incomes had amongst the highest capital-labour and concentration ratios. The capital and product market imperfections contributed to the income differentials.

Estrin (1981) showed that the capital intensity and concentration explained significantly more than 70 per cent of the inter-industries earnings dispersion. Regional factors had a negligible contribution, according to him, as the intra-republican differentials were greater than inter-republican ones.

Lydall noted on the one hand that differentials between the private and social sector of agriculture were as important as the differentials between regions. He pointed to the negligible accumulation of private capital in the economy, the political system and self-management itself as influential factors. Those factors reduced earnings differentials within enterprises. The earnings inequality increased slightly from 1964 to 1967, but by 1971 it had returned approximately to the 1964 position and later it declined. Lydall concluded that the change in price ratios during the 1965 reforms, which intended to bring Yugoslavian prices closer to world prices, was the main reason for the widening dispersion between 1964 and 1967. Then he concluded that the dispersion in Yugoslavia was not very different from other

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[18]. The social agreement recommended that, for example, earnings varied between 135 per cent for semi-skilled workers and 390 per cent for workers with a postgraduate degree, in comparison with the average earnings of unskilled labour.

countries (for example the Netherlands and the UK) (Lydall, 1984: 194, 201, 202).

The share of personal income in the gross domestic product and income over time may be a useful analytical tool to research the role of personal income in the wage-push inflation. The increase in this share may indicate possible reasons for wage-push inflation. By contrast, a decrease in the share might indicate a lower possibility for the wage-push inflation.

Jovic (1976) demonstrated that in the period between 1960-72 the growth of nominal personal incomes was higher than the sum of growth rate of productivity and prices. Consequently, the distribution of national income was in favour of personal incomes, with a falling share of accumulation. The share of personal incomes in the social product in this period rose from 28.1 per cent to 36 per cent with the peak in 1970 (37.1 per cent). The share of personal incomes in national income, at the same time, increased from 30.6 per cent to 40.6 per cent with the peak in 1970 (41.4 per cent) (Jovic, 1976: 206-8).

Jokic (1988) pointed out the dramatic change of the share of personal incomes in total personal receipts during the 1980s. The share declined from 51.1 per cent in 1982 to 48.2 per cent in 1986. At the same time, the share of private entrepreneurship, remittances from workers employed abroad, and the interest on savings increased. Thus, real personal incomes declined more than real personal consumption[19] (Jokic, 1988: 29).

2. Personal Incomes, Productivity, Inflation

We argued earlier that the optimal rate of growth of real personal incomes is the same as productivity rate of growth in the long-run. In other words, the optimal rate of growth of real personal incomes enables an increase in demand without a decrease in accumulation and without the increase in the balance of payment deficit. The assumption is a constant (non-declining) rate of accumulation, if the share of the accumulation in national income is constant. This assumption will be realized if the capital coefficient is

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[19]. Real personal income per worker declined 3.3 per cent in 1982, 10.3 per cent in 1983, 6.1 per cent in 1984 and rose 2.8 per cent in 1985. At the same time, total personal consumption declined 0.1 per cent in 1982, 1.7 per cent in 1983, 1 per cent in 1984 and 0 per cent in 1985.

constant in the period under consideration only. If the capital coefficient increases, the optimal real personal incomes rate of growth will be lower, and if capital coefficient decreases, optimal rate of growth of personal incomes will be higher.

The rates of productivity and personal incomes growth can differ in the short run. For example, if the prices of imported materials fall, the rise in personal incomes, which will be more rapid than in productivity, will not lead to an increase in the cost of production and to a decrease in accumulation. If the demand abroad increases, then a slower increase in personal incomes than in productivity would also not lead to declining consumption and investment. The limited differences in the increase of productivity and personal incomes may even stimulate economic development. To be more precise, the flexibility of personal incomes is important for annual adjustment to changing conditions (for full capacity utilization and optimal allocation of resources). So, it is not useful to tie the growth of personal incomes to productivity growth in the short run, because it could limit development.

The period under consideration 1965-85 is divided into sub-periods for analytical purposes: 1965(/6)-71, 1972-78, 1979-85. It is important to consider various points. First, the sub-periods were determined according to institutional changes and changes in economic performance. Then, the analysis is focused on the differences between the 1979-85 period and the previous one. Finally, the trends in personal incomes, productivity and inflation growth over period(s) are analysed, and a version of Selden's model (a regression where retail prices are dependent, and productivity and personal incomes independent variables) is used.

The net nominal personal incomes per worker increased in the whole period 1965-87 more than 347 times (index 34715.7 in Table 3.1) or 24.6 per cent on average per annum. At the same time, real personal incomes increased 1.3 times only (index 130.7) or 1.2 per cent per annum. Productivity increased, however, less than 1.3 times (index 127.5) or 1.1 per cent on average. For the whole period, real personal incomes increased on average 9.1 per cent faster than productivity did. Considering that efficiency of used material sources declined around 1.8 per cent on average per year,[20] then

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[20]. Or declined 1.5 per cent per year, 1.1 per cent per annum and 3.0 per cent per annum in the sub-periods respectively (Popov, 1987: 32).

real personal incomes increased more than 9.1 per cent above the optimal rate of growth.

It can be seen from Figures 3.1 and 3.2 that the discrepancy between growth of real personal incomes and productivity growth has occurred from the very beginning. It increased, with peaks in 1971, 1977 and 1978. At the same time 1978 was a turning point, when there began to be a decline in real personal incomes, the decline deepening as productivity decreased. From 1983 to 1985 the discrepancy in favour of productivity still existed. From 1984 real personal incomes started to increase while productivity continued to decline. In October 1986 wages were frozen. Thus, the trend of declining real personal incomes continued in parallel with a fall in productivity.

Table 3.1

Personal incomes, productivity, inflation
(Indices)

Year	Nominal pers. incomes per worker (1)		Real pers. incomes per worker (2)		Productivity (3)		Retail prices (4)		Cost of living (5)	
1965	100.0	138.5	100.0	102.7	100.1	100.1	100.0	129.5	100.0	134.6
1966	138.3	138.3	112.7	112.7	109.0	109.0	122.8	122.8	122.8	122.8
1967	157.1	113.6	119.6	106.1	110.7	101.6	131.2	106.8	131.3	106.9
1968	172.0	109.5	124.3	104.0	114.0	102.9	136.8	104.3	137.8	105.0
1969	197.6	114.9	132.8	106.8	121.6	106.7	146.8	107.3	148.9	108.0
1970	234.1	118.4	141.8	106.8	124.1	102.1	160.9	109.6	164.6	110.6
1971	285.8	122.1	151.3	106.0	129.4	104.2	185.2	115.1	190.3	115.6
1972	334.5	117.0	151.3	100.7	130.8	101.1	214.0	115.6	221.9	116.6
1973	386.6	115.6	146.0	96.5	139.5	106.7	253.9	118.6	265.6	119.7
1974	494.4	127.9	154.0	105.4	137.7	98.7	328.7	129.5	321.3	121.0
1975	610.6	123.5	152.9	99.3	135.7	98.5	414.9	126.2	399.9	124.4
1976	705.4	115.5	157.7	103.1	141.4	104.2	453.9	109.4	446.2	111.6
1977	837.7	118.8	162.4	103.0	145.0	102.6	514.2	113.3	513.2	115.0
1978	1012.7	120.9	171.4	105.6	148.5	102.4	583.1	113.4	486.6	114.3
1979	1219.8	120.5	170.9	99.7	145.4	97.9	710.8	121.9	706.2	120.4
1980	1470.2	120.5	158.7	92.9	142.8	98.2	926.9	130.4	920.2	130.3
1981	1964.9	132.5	149.7	94.3	139.9	98.0	1353.3	146.0	1294.7	140.7
1982	2502.8	127.4	147.6	98.6	136.7	97.7	1752.5	129.5	1705.2	131.7
1983	3164.4	126.0	132.3	89.6	132.9	97.2	2434.3	138.9	2395.8	140.5
1984	4551.7	143.8	122.8	92.8	131.6	99.9	3814.6	156.7	3646.3	152.2
1985	8114.0	178.3	127.5	103.9	130.2	99.0	6702.2	175.7	6326.4	173.5
1986	16893.3	208.2	140.2	110.0	129.8	99.7	12606.8	188.1	11963.2	189.1
1987	34715.7	205.5	130.7	93.2	127.5	98.2	27533.2	218.4	26354.9	220.3

Notes: Personal incomes per worker are net personal incomes. Productivity includes productivity of socialized sector.

Sources: (1) and (2) - Statistical yearbook of Yugoslavia, Federal statistical office.
(3), (4) and (5) - OECD Economic surveys of Yugoslavia.

Table 3.2 gives a better idea of the movement of personal incomes, productivity and inflation. There is a sharp discrepancy between, on the one hand, periods 1965-71, 1972-78 and, on the other hand, 1979-85, 1985-87. In the post-reform period 1965-71, real personal incomes grew sharply by 7.1 per cent per year, higher than in other periods, as a result of institutional changes (decision-making about income distribution started on a firm level and a policy to increase the standard of living was initiated. Productivity

FIGURE 3.1.

REAL PER. INC. & PRODUCTIVITY

REAL PER. INC. & PRODUCTIVITY

RATE OF GROWTH

CURRENT YEAR

□ REAL PER. INC. P.W.   + PRODUCTIVITY

FIGURE 3.2.

NOM. PERS. INC., RETAIL PRICES & PROD.

RATE OF GROWTH (Thousands)

CURRENT YEAR

□ NOM. PERS. INCOME   + PRODUCTIVITY   ◇ RETAIL PRICES
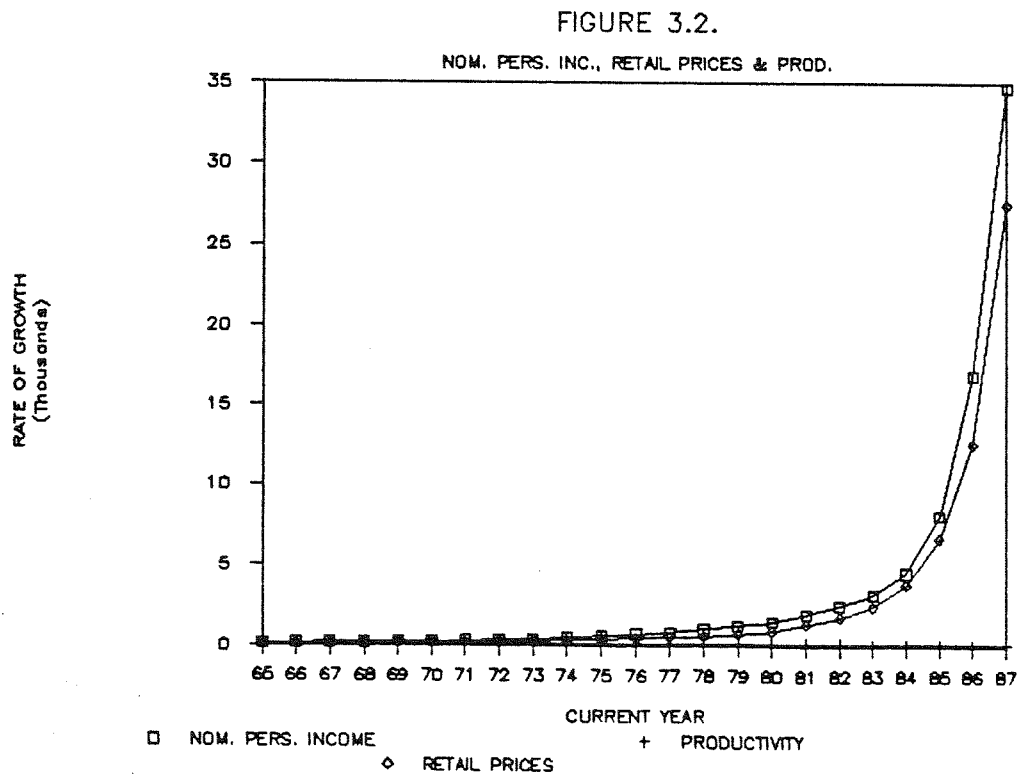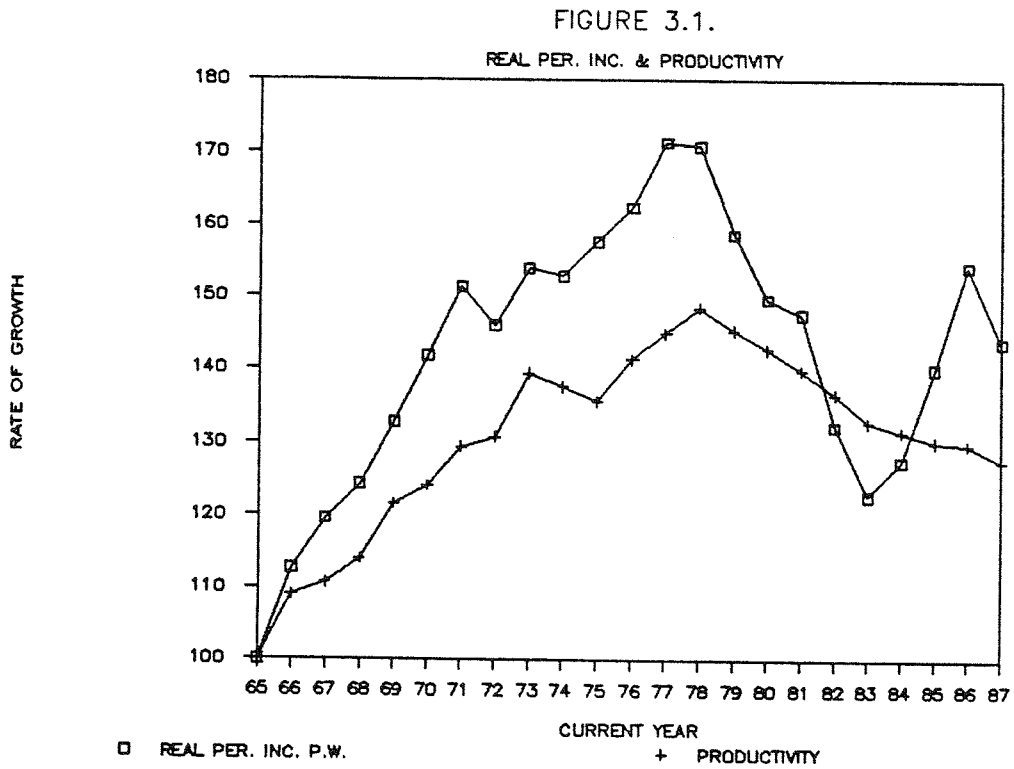
increased 4.4 per cent per year, more than in later periods, as a result of the orientation towards modernization and intensive development (and as a result of a sharp increase in real personal incomes, which provided a greater motivation to work). It is important to bear in mind that the decline in efficiency of used material sources started in this period (1.5 per cent per year). Thus, a 61 per cent higher increase in real personal incomes than the productivity increase was due both to an accumulation and an increase in unemployment.

Table 3.2

Personal incomes, productivity, inflation
(Average rate of growth in %)

Period	Nominal per.inc. per w.	Real per.inc. per w.	Productivity	Retail prices	Cost of living
1965-1985	24.6	1.2	1.3	23.4	23.0
1965-1971	19.1	7.1	4.4	10.8	11.3
1972-1978	20.3	2.7	2.1	18.2	17.6
1979-1985	37.1	-3.6	-1.8	45.3	44.1
1965-1987	3.5	1.2	1.1	29.1	28.8
1985-1987	106.8	1.2	-1.0	102.7	104.1

In the period 1972-78 the rate of growth of retail prices was nearly doubled (from 10.8 per cent to 18.2 per cent per year). Real personal incomes increased 2.7 per cent per year or 28.6 per cent higher than productivity increased (2.1 per cent). One can conclude, taking into account the decline in the efficiency of used material sources of 1.1 per cent per year, that the institutional changes of the 1970s did not improve the efficiency of used material and labour sources. The stagnation and fall of real personal incomes were inevitable.[21] They were postponed, though, by an increase in borrowing abroad.

Prices rapidly increased 45.3 per cent per year in the period 1979-85 as a result of internal disturbances and external shock. Personal incomes could not adjust in time. Although they nominally increased 37.1 per cent

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[21]. Because of investment inefficiency, the irrationality of entrepreneurship, disturbances in the economic structure, autarchy etc.

per year, in real terms personal incomes fell rapidly (3.6 per cent per year) to the minimum in 1984, a level equal to that of 1968. Productivity also fell, but less than real personal incomes (1.8 per cent per year). The movement was in favour of productivity for the first time, even though it was on the decline. It can be interpreted as a trend of adjustment that real personal incomes should go to the limits of the movement in productivity and efficiency of used material sources. It could also be added that a decrease in efficiency of used material sources was more serious (3 per cent per year). The movement of variables under consideration during the 1980s can support the theoretical proposition that in the long-run real personal incomes have to move in a similar pattern to productivity. The increase in real personal incomes in 1985 (3.9 per cent) and 1986 (10 per cent) points to a similar movement in the previous period. In the situation of a high level of inflation it is a sign that the policy of indexation has started. In October 1987, however, personal incomes were frozen, so in 1987 real personal incomes actually fell in comparison with the previous year.

An adjusted version of Selden's model is used to support earlier findings.[22] Inflation is caused by the connection between price growth and growth of production according to this model. Thus, from $pt = h(prodt \; yt)$, (pt-rate of growth of prices, prodt - rate of growth of productivity and yt-rate of growth of incomes) the linear regression $pt = ao + a1 \; prodt + a2 \; yt$ (ao, al, a2 are regression coefficients) can be derived.

The regression: $PRET = ao + a1W + a2PROD$; $PRET = bo + b1W$; $PRET = co + c1PROD$ are used (PRET-rate of growth of retail prices, W- rate of growth of nominal wages per person in social sector, PROD- rate of growth of productivity). The same periodization is used.

The computation gives the following results:[23]

Period 1966-85 $PRET = 1.59 + 1.00W - 1.65PROD$ $R^2 = 0.90$

(0.56) (10.90) (-4.08)   DW = 1.91

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[22]. Selden 'Cost-Push versus Demand-Pull Inflation 1955-57' Journal of Political Economy. This model was used by Mencinger (1970) and by Jovic (1976) to analyse the Yugoslav inflation.

[23]. In the brackets, T-values of the coefficient were given. The rate of growth of retail prices is used in the regression, which gives certain limitations to the explanatory power of the results. The use of retail prices of industrial products could avoid the shortcomings, but they were not available.

These results are satisfactory. The coefficients show the expected signs: al- positive and a2- negative. At 5 per cent level of significance al and a2 are different from zero, but ao is not significant. The high value of the coefficient of determination points to a good fit in the regression. The value of the Durbin-Wotson statistic is near to 2 and out of the indeterminate zone, so we can conclude that there is no autocorrelation. It can be said that over the whole period retail prices were elastic on the change in wages and that a 1 per cent increase (decrease) in wages produced a 1 per cent increase (decrease) in prices. Productivity also influences retail prices, but negatively. The elasticity of productivity is even higher than 1. It can be concluded that personal incomes influenced retail prices seriously and caused inflation. Productivity influenced inflation in opposite directions, but had an even stronger effect. However, it is important to use those results carefully, because, as we have seen throughout the whole period, serious changes occurred. These changes influenced different results of the regression over the subperiods (Appendix 1).

The partial regression of wages over retail prices gives reasonable results (Appendix 1). The wages elasticity of prices is positive and stable over the sub-periods and it seems to point to the strong influence of wages over prices. It points, though, to a relatively strong and changeable influence of omitted productivity.

The estimation of the partial regression of productivity over retail prices points to a need to use the results with caution. The elasticity of productivity over prices is negative and stable, and especially strong in the third period. A high level of the constant in the second and third periods points to the influence of omitted variables.

3. Unemployment, Wages and Inflation

We stressed earlier that one of the main problems of the self-managed economy was the increasing and high rate of unemployment, specially in the post-1965 reforms period. Several authors pointed to the attempt to intensify development as a reason for the growth of job seekers. Other authors pointed to the tendency to increase the capital-labour ratio into firms, in an attempt to increase personal earnings. A few economists argued that guaranteed job security produced a fixed level of employment in firms. Thus, a self-managed

firm would adjust to the new conditions by varying wages but not employment. The Phillips curve defines the long-run inverse relation between nominal wages and unemployment. An effort to apply it to Yugoslav conditions did not give satisfactory results.

Several comments can be derived from Tables 3.3 and 3.4 and Figure 3.3. Registered unemployment was 5.9 per cent of the total labour force in the whole period. It increased constantly after 1965 (at 7.4 per cent per year), and accelerated in the second half of the 1970s, in parallel with the worsening economic performance in this period. Unemployment became a serious problem in the 1980s, on average 8.8 per cent with a further increase to 10 per cent in 1986 and 1987. Total unemployment, including registered unemployment and workers' emigration, increased rapidly in 1966 as a result of the great wave of emigration. It was caused on the one hand by an increasing demand for a labour force in Western Europe (predominantly Germany) and, on the other hand, by pressure from the falling demand for labour in Yugoslavia. Modernization in a number of firms even meant discharging a number of workers. Total unemployment amounted on average to 12.6 per cent of the labour force (at a rate of 9.2 per cent per year). In the first period the figure was 9.6 per cent (with growth as much as 29.5 per cent per year) and from the mid-1970s around 15-16 per cent. From the mid-1970s, domestic unemployment (and sub-employment) increased. However, as a result of economic problems and a declining demand for a labour force in Western Europe, workers' emigration declined. Together they produced stagnation in total unemployment (from 1978 to 1986). In 1987 total unemployment even declined (in spite of the increase in registered unemployment) as a result of the fall in workers' emigration.

Table 3.3

Unemployment
(Indices)

Year	Regist. unempl.	Indices		Total unempl.	Indices	
1965	2.7	100.1	-	2.9	100.0	-
1966	3.0	111.1	111.1	13.3	458.6	458.6
1867	3.0	115.9	104.3	6.4	228.7	48.1
1968	3.5	130.3	122.4	8.4	279.3	126.6
1969	3.6	125.8	96.6	10.1	348.3	124.7
1970	3.6	115.4	91.7	12.5	431.0	123.8
1971	3.3	115.4	100.0	13.7	472.4	109.6
1972	3.5	125.3	108.6	14.8	510.3	109.0
1973	4.2	152.0	121.3	16.4	565.5	110.8
1974	4.9	178.3	117.3	16.3	562.1	99.3
1975	5.9	214.8	120.5	16.2	558.6	99.4
1976	6.9	252.6	117.6	16.4	565.5	101.2
1977	7.6	278.4	110.2	16.5	569.0	100.6
1978	7.9	292.3	105.0	16.5	569.0	100.0
1979	8.2	303.1	103.7	16.7	575.9	101.2
1980	8.4	312.2	103.0	16.6	572.4	99.4
1981	8.2	321.9	103.1	16.0	551.7	96.4
1982	8.6	343.2	106.6	16.3	562.1	101.9
1983	9.0	362.4	105.6	15.3	527.6	93.9
1984	9.5	388.1	107.1	17.1	589.7	118.8
1985	10.0	414.1	106.7	16.8	579.3	98.2
1986	10.1	418.2	101.0	17.2	593.2	102.4
1987	10.0	414.0	99.0	16.4	565.3	95.3

Notes: Unemployment as percentage of total labour force

Source: OECD, Economic surveys of Yugoslavia.

Table 3.4

Unemployment
(Average rate of growth in %)

Period	Regst. unempl.	Rate of growth	Total unempl.	Rate of growth
1965-1985	5.9	7.4	12.6	9.2
1965-1971	3.2	2.4	9.6	29.5
1872-1978	5.8	15.2	11.2	1.8
1979-1985	8.8	5.3	16.4	0.1
1965-1987	6.3	6.7	13.0	8.2
1985-1987	10.0	0.0·	16.8	-0.5

The fact that an increase in prices was running parallel to an increase in unemployment (especially until the mid-1970s) seems to prove that Yugoslav inflation was of a cost-push sort (the third condition for the wage-push inflation, as discussed at the end of Chapter 2). The comparison between nominal wages, inflation and unemployment over the sub-periods under consideration seems to suggest that in the Yugoslav conditions wage determination was predominantly autonomous. As a matter of fact, it is very

FIGURE 3.3.

UNEMPLOYMENT, WAGES, RETAIL PRICES

□ TOTAL UNEMPLOYMENT   + REGIS. UNEMPLYMENT
◊ NOMINAL WAGES   △ RETAIL PRICES
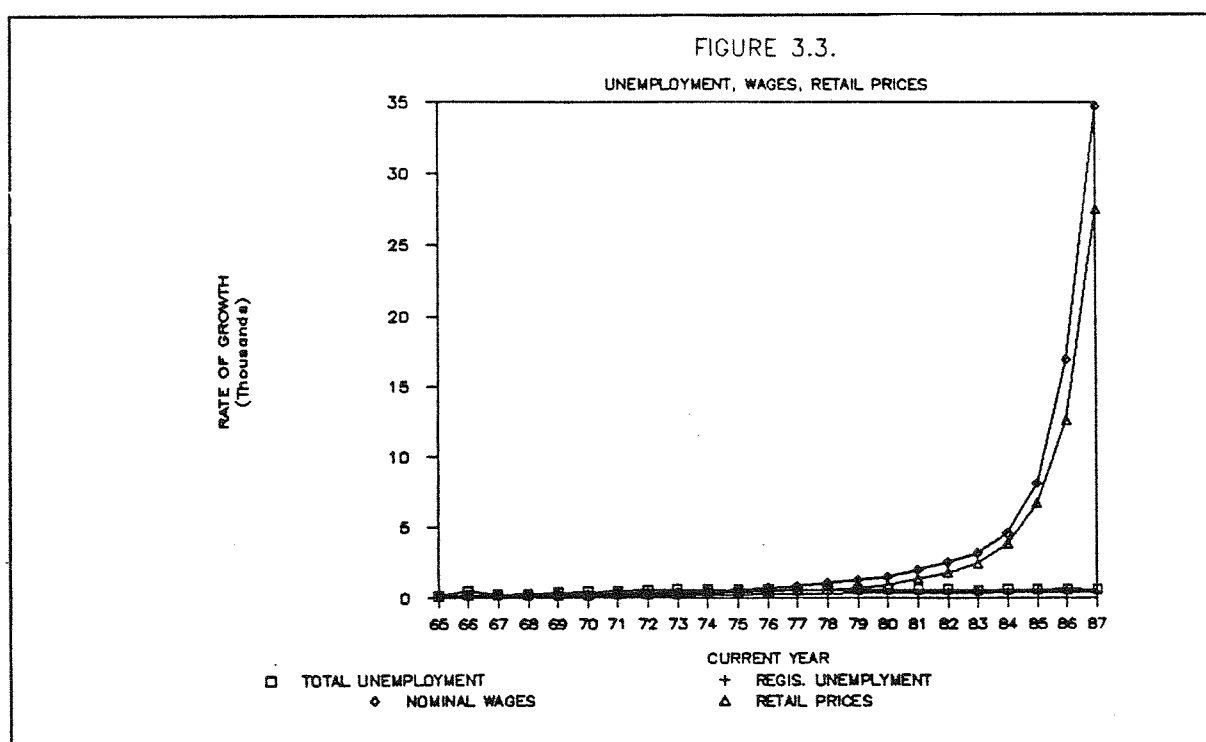
difficult to derive the influence of unemployment over wages, and consequently over inflation. So, one can say that the inverse relation between unemployment and nominal wages did not exist. In the mid-1970s an increase in unemployment parallel with a declining increase (not decrease) in retail prices (and less in nominal wages) was registered only. It seems to prove the findings that the Phillips curve in Yugoslav conditions is not an appropriate model.

A version of regression derived from the Phillips model has been tested to clarify this statement. The same periodization, as in the previous part of the analysis, is used. First, the influence of unemployment over wages is estimated in linear regression $W = do + d1WP + d2UN$ (W- rate of growth of nominal wages per worker in the social sector, WP - rate of growth of nominal wages per worker in the social sector in the previous year, UN - unregistered unemployed as a percentage of the labour force, d0, d1, d2 - coefficients).

The computation by using OLSQ[24] gives the following results:

Period 1966-1985 $W = -9.25 + 0.88WP + 2.27UN$ $R^2 = 0.54$
                      (-1.14) (3.12)   (2.21)   DW = 1.39

At 5 per cent the level of significance of the coefficients d1 and d2 are significant, the coefficient of determination is nearly bad. The result of the Durbin-Wotson statistic is in the indeterminate zone. However, the corrective method to avoid autocorrelation does not give better results. The coefficient do is high. It points to a certain omitted variable(s). The coefficient d2 is unexpectedly positive and relatively high, contrary to the Phillips model.

In the sub-periods the estimated regression does not give reasonable results in statistical terms (Appendix 2). The partial regression of unemployment over wages does not give significantly better results either (Appendix 2).

Then, the total unemployment is used as a sum of the registered unemployment and workers' emigration instead of registered unemployment. Thus, we have $W = do + d1WP + d2UNT$ (UNT- total unemployment).

Period 1966-1985 $W = -24.13 + 1.02WP + 1.76UNT$ $R = 0.54$
                      (-1.82) (3.72)   (2.18)   DW = 1.25

All the coefficients are significant at the 5 per cent level of significance; the coefficient of determination is not so good; the Durbin-

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[24]. Ordinary least square.

Wotson statistic is in the indeterminate zone. The correction by using the Cochrane-Orchut method gives a significant coefficient of determination, no autocorrelation (DW = 1.46), a higher value of d2 = 2.94, but a lower value of R^2 = 0.32.

The results for the whole period and over the sub-periods suggest a stable positive correlation between wages and total unemployment. However, the results have to be used carefully (Appendix 2). The partial regression gives results which prove the previous findings (Annex B).

Secondly, instead of the rate of growth of wages, the rate of growth of retail prices was used as the dependent variable in the linear regression: PRET = eo + e1PRETPRIV + e2UN and PRET = fo + f1PRETPRIV + f2UNT (PRET-rate of growth of retail prices, PRETPRIV- rate of growth of retail prices in previous year, UNT-registered unemployment, UNT- registered unemployment plus immigrant workers).

It can be concluded that obtained results (Appendix 2) do not differ significantly from previously, so it seems to support the earlier findings.

4.   The Share of Personal Incomes in Gross Domestic Product and Income

It was argued earlier that an increase in the share of personal income in the national income indicates a distribution in favour of personal consumption (and probably a decline in the share of profit and accumulation in national income). If the share of personal income in the gross domestic product or income declines, then personal incomes cannot produce growth of prices. An increase in the share, on the contrary, is a signal of the wage-push inflation.

From Table 3.5 and Figure 3.4 the tendency of smooth growth of the share of personal incomes in social product until 1979 can be derived. Then a sharp decrease in their share in the social product started and stopped at the level of 30.8 per cent in 1984, 1985 and 1987 (with a certain increase to 32.6 per cent in 1986). After the middle 1960s and during the 1970s income distribution was in favour of personal incomes, which proves the previous findings that strong elements of the wage-push inflation existed.

An increase in the share of personal incomes in the social product from 36.5 per cent (in 1966) to 42.4 per cent (in 1979), in the total period of thirteen years, indicates that income distribution really was a cause of

inflation. However, the share of personal incomes was declining in the 1980s and dropped in the short period to the same level as at the beginning of the 1960s. So, it is another indication that personal incomes in the 1980s could not be a serious cause of inflation. The share of accumulation of firms and individual producers increased slowly from the middle 1960s to the middle 1970s and it can be seen from Figure 3.4 that it increased again to the level of around 15 per cent in the 1980s. In the mid-1980s the share of accumulation fell to the very low level of 8.2 per cent (1986).

Table 3.5

Personal incomes and other personal receipts,
accumulation of firms and individual producers
and their share in the social product
(Billions of dinars in current prices and %)

Year	Social product	Pers. inc. & other pers. rec.	Share %	Accumulation	Share %
1965	67.3	26.2	38.9	10.7	15.9
1966	95.1	34.7	36.5	12.8	13.5
1967	103.7	39.5	38.1	13.5	13.0
1968	112.0	43.5	38.8	13.0	12.3
1969	132.0	51.3	38.9	14.0	10.6
1970	157.2	62.4	39.7	17.6	11.2
1971	204.5	80.1	39.2	30.9	15.1
1972	245.4	98.7	40.2	32.5	13.2
1973	306.4	119.6	39.0	44.9	14.7
1974	407.3	157.4	38.6	63.4	15.6
1975	503.0	203.8	40.5	74.9	14.9
1976	592.6	242.1	40.9	60.6	10.2
1977	734.3	306.5	41.7	81.8	11.1
1978	901.8	392.1	43.5	100.4	11.3
1979	1165.4	494.3	42.4	139.9	12.0
1980	1553.1	599.5	38.6	238.1	15.3
1981	2208.3	823.5	37.3	346.8	15.7
1982	2924.8	1038.7	35.2	411.3	14.1
1983	4064.2	1355.1	33.3	536.2	13.2
1984	6325.8	1948.1	30.8	965.3	15.3
1985	11284.	3476.0	30.8	1524.5	13.5
1986	22054.7	7190.7	32.6	1825.9	8.2
1987	39145.0	15174.8	30.9	-	-

Notes: Yugoslav concept

Source: Statistical yearbook of Yugoslavia, Federal Statistical Office

From Table 3.6 and Figure 3.5 one can observe a tendency in the share of net wages and salaries in total incomes received by households to decline in the late 1960s. This tendency might be explained by the parallel growth of receipts from social security and other welfare funds and by net transfers from abroad (remittances from workers employed abroad). During the 1970s this share was more or less stable at around 73-75 per cent, but in the 1980s a sharp fall took place (with the lowest level at 58.2 per cent in 1985). Over that period, as we have seen, real personal incomes declined sharply.

FIGURE 3.4.

PERS.INC. & ACC. IN SOC. PROD.
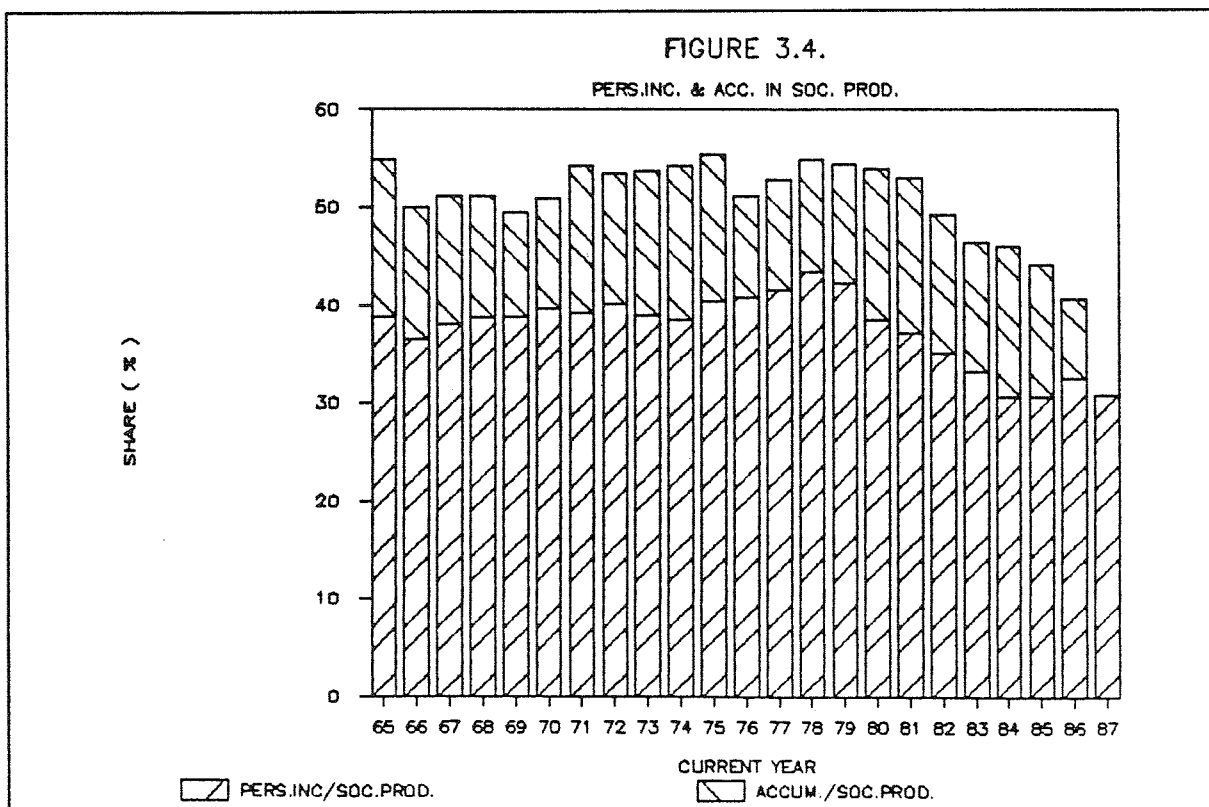
Table 3.6

Net wages and salaries and their share in
total incomes received by household
(Billions of dinars in current prices and %)

Year	Net wages and salaries	Total inc. received by household	Share %
1965	-	-	83.4
1966	-	-	82.7
1967	-	-	83.5
1968	61.7	74.7	82.6
1969	72.7	89.4	81.3
1970	86.8	108.7	79.9
1971	109.2	139.8	78.1
1972	131.2	173.4	75.7
1973	157.0	213.5	73.5
1974	203.4	272.8	74.6
1975	206.3	344.4	75.6
1976	317.0	413.3	76.7
1977	392.2	516.3	76.0
1978	465.8	638.7	72.9
1979	588.7	800.4	73.6
1980	746.2	1052.8	70.9
1981	069.6	1461.6	73.2
1982	402.5	1997.0	70.2
1983	1876.9	2962.8	63.3
1984	2733.5	4347.3	62.6
1985	4793.0	8294.8	58.2
1986	9891.3	16528.2	60.8

Note: Yugoslav concept

Source: Statistical yearbook of Yugoslavia, Federal Statistical Office

On the other side, net bank interest increased sharply (as a product of the increase in savings deposits, predominantly in foreign currency, and as a product of the increase in the rate of interest), and receipts from other activities of the people attempting to defend their achieved standard of living).

FIGURE 3.5.

WAGES&SALL IN TOTAL HOUS. INCOMES
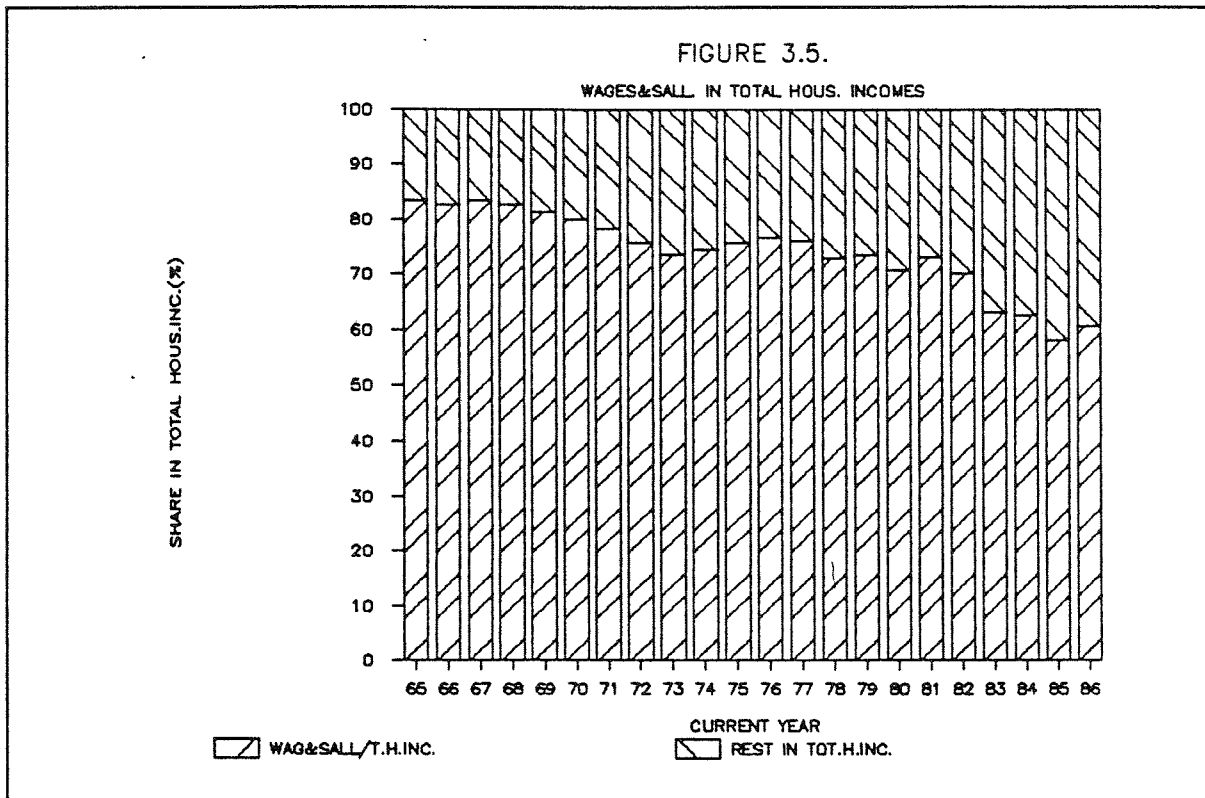
5. Inter-Sectoral Differences in Personal Incomes

The inter-sectoral differentials in personal incomes play an important role in generating inflation. In the wage-push mechanism the leading sectors raise their personal incomes and the first wave of inflation starts. When other sectors raise their own personal incomes (and prices), in an attempt towards equalization, the second wave of inflation takes place. The previous analyses pointed out inter-sectoral differentials as the cause of inflation in Yugoslavia. In the Yugoslav conditions these differences may occur because of the differences in capital-labour ratios (and consequently, the productivity and income differentials) and because of liberal decision-making about income distribution on the level of enterprises.

Table 3.7

Personal incomes per worker in economic and non-economic
activities
(Indices)

Year	Total		Economic activities		Non-economic activities	
	Nominal	Real	Nominal	Real	Nominal	Real
1965	100.0	100.0	100.0	100.0	100.0	100.0
1966	138.4	112.7	139.2	113.4	131.5	107.1
1967	157.1	119.6	157.2	119.9	154.7	117.9
1968	172.8	124.3	172.1	124.9	167.6	121.4
1969	197.6	132.8	198.6	133.8	190.3	128.0
1970	234.1	141.8	352.2	142.8	225.9	136.9
1971	285.8	150.3	288.5	152.2	273.8	144.0
1972	334.5	151.3	337.8	153.2	321.5	145.8
1973	386.6	146.0	391.5	148.8	359.3	163.3
1974	494.4	154.0	499.4	156.2	459.6	143.4
1975	610.6	152.9	614.5	154.2	600.0	145.2
1876	705.4	157.7	707.5	158.8	679.6	151.8
1977	837.7	162.4	839.6	163.2	817.9	158.9
1978	1012.7	171.4	1012.7	172.1	995.9	169.0
1979	1219.8	170.9	1222.8	171.6	1191.8	167.3
1980	1470.2	158.7	1477.4	160.2	1417.2	153.6
1981	1964.9	149.7	1944.3	152.2	1807.0	137.5
1982	2502.8	147.6	2541.6	150.2	2296.6	135.7
1983	3164.4	132.3	3223.6	134.8	2859.0	119.6
1984	4551.4	122.8	4638.8	125.9	4109.4	111.3
1985	8114.0	127.5	8250.9	129.9	7400.9	116.1
1986	16893.3	140.2	17102.0	142.3	15753.0	131.0
1987	34715.7	130.7	35127.0	132.8	32386.4	122.8

Source: Statistical yearbook of Yugoslavia, Federal Statistical Office

First, the differentials in personal incomes between two global sectors,
economic and non-economic, are analysed from Table 3.7 and the Figure 3.6.
It is important to bear in mind that the level of personal incomes in the non-
economic activities was constantly higher than the level in economic
activities as a whole. In 1965 this discrepancy was 22.5 per cent in favour
of the former. In 1970 it was less than 17.7 per cent, and in 1975 there was
a further drop to 15.5 per cent. In 1980, it rose again to approximately the
level of the previous decade (17.6 per cent). In 1985 personal incomes in the
non-economic sector were 10.0 per cent higher than in economic activities.
Thus, one can point to a faster increase in personal incomes in economic

activities (this is also clear from Figure 3.6).

Personal incomes in the economic activities grew faster (in both nominal and real terms) than average, contrary to personal incomes in the non-economic activities. In the 1980s when real personal incomes declined, personal incomes in non-economic activities declined faster. Therefore, one can conclude that in the period before the 1980s, when the increase in personal incomes influenced inflation, the increase in personal incomes in the economic activities played a more influential role in generating inflation.[25]

From Table 3.8 it can be seen that the most rapid growth in the last two decades was in the manufacture of fur and leather products, electrical machinery and apparatus, coal extraction and shipbuilding. In all branches the increase was more than 90 times the previous figure. The slowest growth was in coal processing, well below average. The discrepancy between the fastest and the slowest branches was about 40 per cent, so there are large differentials. In the first sub-period the smallest discrepancy existed

FIGURE 3.6.

THE GROWTH OF REAL PERS. INC. P. WORKER
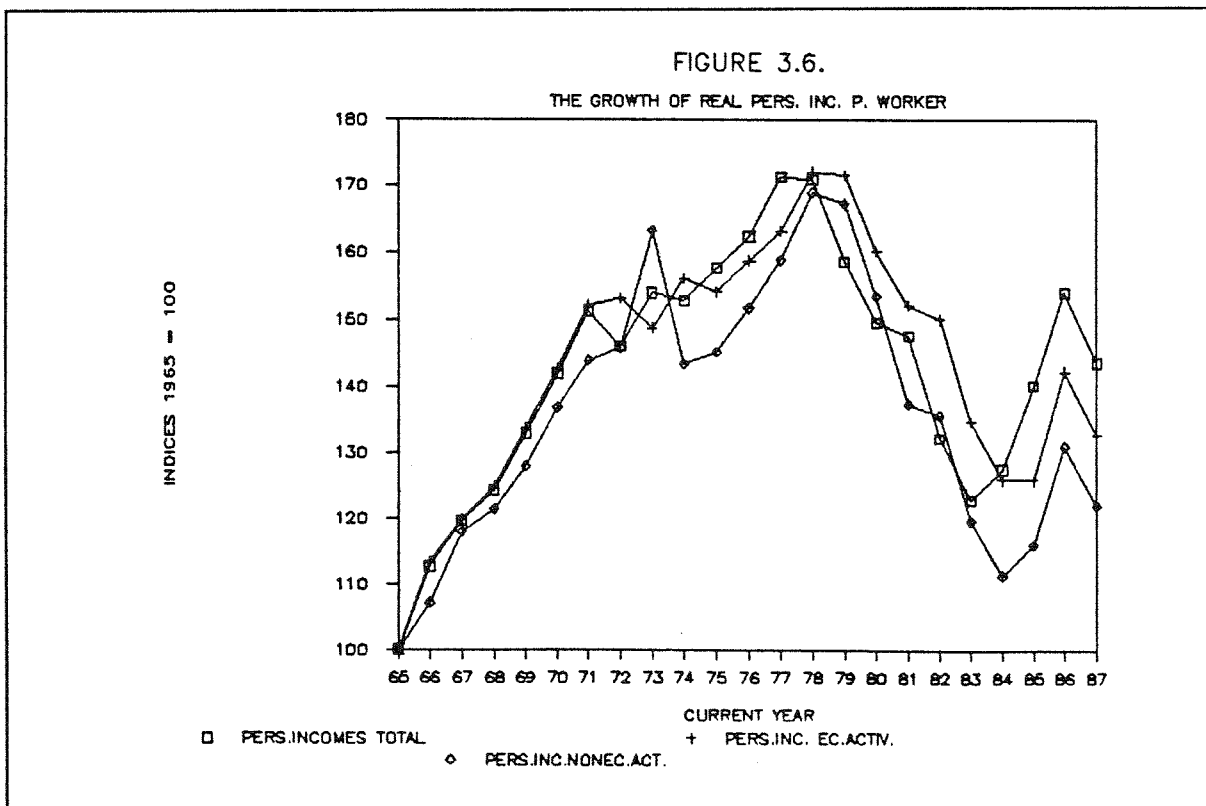
[25]. The same situation occurred in 1985, when real personal incomes in economic activities increased 33.3 per cent, while in the non-economic activities they rose by 23.2 per cent.

between the branches mentioned above (18 per cent). The coefficient of variations (6.34 only) suggests that the smallest discrepancy among all 34 branches existed in the second period. The coefficient of variation is relatively stable over the sub-periods. The highest differentials between branches (and also among all branches) existed during the 1980s, as is to be expected. The coefficient of variation was (8.84) above its average value (8.36) and the differentials between the increase in personal incomes in shipbuilding and printing and publishing was as large as 43.5 per cent.

One can note that personal incomes in industry increased more than 80 times, or even 48 times faster than productivity, which increased 1.6 times. At the same time, the inter-branch differentials in productivity were higher than in personal incomes. The coefficient of variation for the whole period was 32.4 per cent (8.36 per cent in personal incomes). In the sub-periods the coefficient of productivity variation changed from 11.3 per cent in the 1971-74 period to 24.3 per cent in the period 1965-71. From Table 3.8 the tendency to move in the same direction as productivity and personal incomes in the branches cannot be derived. On the contrary, it could be that they are moving in the opposite direction. It seems that the industrial branches with the highest increase in personal incomes raised their personal incomes independently of economic performance. Therefore, the monopolistic position on the market (and a privileged position in the system of forming prices) predominantly determines personal incomes and prices. If this is what happened, then the inter-branches and inter-sectoral differentials strongly influenced the increase in prices.

Table 3.8

Growth of nominal personal incomes per worker and productivity by branches
(Indices)

Sector	1965 - 1985 (1)	(2)	1965 - 1971 (1)	(2)	1971 - 1974 (1)	(2)	1974 - 1979 (1)	(2)	1979 - 1985 (1)	(2)
(A)										
Coal extract.	9312.0	159.7	248.3	119.4	198.6	102.8	233.6	111.0	808.1	117.2
Shipbuilding	9006.8	171.7	2722.7	151.5	162.4	112.4	228.8	78.0	859.4	129.3
Manuf. of el. mach. & app.	9099.4	196.9	281.0	139.4	171.1	113.7	251.8	118.6	751.7	104.8
Manuf. of leather & fur	9459.0	108.0	269.8	104.1	172.7	86.5	253.2	119.1	801.9	100.8
(B)										
Coal process.	6629.8	210.8	239.4	114.7	187.7	95.7	201.0	98.6	733.6	194.8
Crude petrol. refineries	7210.6	145.5	296.9	155.6	170.5	101.3	223.8	133.7	636.4	69.0
Iron ore min.	7156.5	89.8	248.7	118.7	182.4	115.8	214.8	78.6	744.5	83.2
Iron & steel	7174.7	153.5	254.4	125.1	179.7	108.9	224.6	107.2	699.1	105.1
Printing, pub.	7067.9	145.5	285.0	127.7	143.8	106.1	287.0	106.0	598.8	101.3
Average of 34 branches	8024.9	167.3	273.1	133.4	177.9	111.3	234.8	11.2	708.6	103.1
Coef. of var.	8.4	32.4	7.1	24.3	6.3	11.3	7.3	15.6	8.8	19.7

Note: (1) - Personal incomes, (2) - Productivity

Source: Statistical yearbook of Yugoslavia, Federal Statistical Office

CONCLUSION

This piece of research focuses on the wage-push element of Yugoslav inflation, especially during the current decade. There are three levels of analysis. The theoretical analysis points out that wages played a different role in the different theoretical approaches to the inflation. In the wage-push explanation, wages were labelled as a central factor in generating inflation. The wage-push explanation is used as a general theoretical framework for analyzing the proposed question. The analysis of the Yugoslav practice proves that in the model of the self-managed market economy a strong wage-push inflation element exists. One can even expect that growth of wages is the main contributor to generating inflation. The third, empirical level of the analysis proves that wage growth was the strongest factor of the inflation from the mid-1960s to the mid-1970s. From the late 1970s, though, it could be only a propagating factor. In other words, other factors were stronger.

The analysis shows that the wage-push explanation was a realistic explanation of Yugoslav inflation in the 1960s and 1970s. We used the same indicators as are usually used in the wage-push approach. The examination points out, however, that the wage-push mechanism is not a realistic explanation of inflation in the 1980s. Therefore, real personal incomes cannot be central to the stabilization policy. The measures to overcome other internal and external imbalances could be more powerful.

The analysis has certain limitations. It is not possible to conclude precisely how influential the wage-push element was, as other factors were not considered, in particular, in the 1980s, when other factors were even more important than the wage-push one. The sequence and composition of inflation factors cannot be considered either. Certain problems arise out of the failure of the wage-push approach, when it is used as a general theoretical framework. The nature of the statistical data used in the analysis complicates the findings. A more complex analysis of the wage-push inflation in Yugoslavia would require research into other causes of inflation and their interlinks.

The comparison between theoretical explanations of the inflation, in the first chapter, concentrates on several questions. First, the question of full employment. One can distinguish between the classical model, arguing that self-regulation with full employment is possible, and the Keynesian model,

arguing that equilibrium exists with underemployment. Secondly, the question of the inflation mechanism. The classics stated that only short-term disturbances of prices are possible. The Keynesian and the monetarist models of inflation are of a demand-pull character. The role of money in the explanation is different, though. The structuralist model is a mixture of the cost-push and the sectoral demand-pull explanation. The main cause of inflation in the cost-push model is the growth in wages or profit. The classics proposed self-regulation, the monetarist deregulation policy. Keynesians proposed an active government role. The structuralists recommended a development policy for overcoming structural imbalances. The cost-push approach recommended the control of wages and a policy for dismantling the oligopolistic/monopolistic elements in an economy.

The development tendencies, institutional framework, models of market self-managed economy and possibility for the wage-push inflation in the Yugoslav economy are analysed in the second chapter of the paper. Yugoslavia experienced rapid socio-economic growth in the post-war period. It was an extensive industrialization process, based on rapid investment and employment growth. Failures, though, in the development process, especially from the mid-1960s (regional differences, instability, unemployment and inflation) cumulated in the deep economic crisis of the 1980s.

Frequent changes were a characteristic of the institutional development. It can be argued that during the so-called 'market self-management' period (1965-74) the Yugoslav economy was closer to a market-plan socialist model than before or after. Price formation and personal income determination were not fully regulated mechanisms. Certain shortcomings in economic policy could also generate inflation.

Inflation was a constant feature of the development, with acceleration in the rate of growth. One cannot say that inflation is the product of self-management per se. Inflation is the consequence of several influences. Firstly, certain shortcomings in the system. Then, failures of economic policy, misuse of self-management, negative external influences and internal disturbances inevitable in a rapid development process. The wage-push inflation element occurred both as institutional and economic-political failures. Workers in firms tended to increase their personal incomes, not their employment, because a short-term perspective prevailed. The mechanisms of the personal income formation and prices determination are not defined precisely, so a subjective element in the determination occurs. From the

1960s workers decided independently about both prices and personal incomes (with a certain limitation as the tendency toward government control and bureaucratic and political influences existed). Consequently, the worker's role in the decision-making process is more influential than in the market systems, even with a strong trade union. Market imperfections give a monopolistic or oligopolistic position to the firms. Some of the sectors and branches have a privileged position in price determination (as a part of development incentives). A strong bias towards egalitarianism exists. Economic policy in the post-1965 reform period initiated standard of living growth as one of the main goals. Development policy underpriced capital, although it is a scarce factor. These elements 'opened the door' to the wage-push mechanism. Collectives were motivated to increase personal incomes. It was possible to increase personal incomes by increasing prices (not necessarily considering achieved economic performances). Other of the firms did the same in an attempt to equalize personal incomes ('soft budget constraints' were the basis for behaviour like this).

In the third chapter, previous empirical analyses are reviewed. They point out that after the mid-1960s wage-push factors were strong in generating inflation. Empirical evidence and our computations support these findings. First, it is argued that from 1965 until 1979 real personal incomes increased faster than productivity, and therefore irrationally. During the 1980s real personal incomes declined more than productivity. This supports the theoretical proposition that real personal incomes and productivity have to move in a similar fashion in the long run. Computation, by using an adjusted version of the Selden's model, shows a strong positive correlation between the growth of nominal wages and inflation growth and an even stronger (but unstable) negative correlation between productivity and inflation. It supports the previous findings.

Secondly, the relation between unemployment, wages and inflation is analysed. it seems to suggest that in the Yugoslav conditions wages were determined mainly autonomously. In other words, wages are not connected with unemployment. Computation by using an adjusted Phillips model suggests that in Yugoslavia the trend of wages growth (and inflation) ran parallel to the trend of unemployment growth, contrary to the Phillips model.

Thirdly, on the basis of the increasing share of personal incomes in the GDP (income) it was concluded that the distribution favoured personal consumption over a long term. It points to the wage-push element. In the

1980s this share declined. So, personal incomes could not be the cause of inflation in this period. The rapidly declining share of personal incomes in total household receipts over this period supports this statement.

Finally, on the basis of the faster increase (and a slower decline in the 1980s) of personal incomes for economic activities as opposed to non-economic activities, it was concluded that the inflationary influence of the former was greater. The comparison in the inter-branches differentials in personal incomes was the basis for concluding that great differentials were not based on the differentials of economic performance. Consequently, the differentials were the product of market imperfections (and/or the systemic and/or economic-political failures) and might produce inflation.

Generally speaking, theoretical and empirical analysis support the statement that the wage-push element was a strong element of inflation in Yugoslav conditions from 1965 until the mid-1970s. Research (using wage-push indicators) suggests, though, that during the second half of the 1970s the wage-push element was not so influential. External causes of inflation (deterioration of terms of trade) prevailed in this period. At the beginning of the 1980s, the wage-push element was not significant at all, so, the causes of inflation then were external (foreign exchange bottle-necks, world inflation, exchange rate policy) and internal (the inadequate economic policy, institutional rigidities, structural imbalances). Wages adjusted to the current level of inflation with a certain time-lag. The policy of indexation, the wages growth rate and inflation growth rate started in 1985, but it stopped between October 1987 and May 1988 (by freezing both wages and prices). It was the policy of indexation that made room again for the wage-push inflation in the Yugoslav economy.

BIBLIOGRAPHY

Allesandrini S. & Dallago B. (1987) <u>The Unofficial Economy</u>. Aldershot: Gower.
Bajt A. (1971) <u>Inlacija osobnih dohotkov. Descriptivna medsektorska analiza (Wage-Push Inflation. A Descriptive Inter-sectoral Analysis)</u>, Ljubljana: Economski institut Pravne fakultete (Economic Institute, Faculty of Law).
Bajt A. (1986) 'Economic Growth and Factor Substitution : What Happened to the Yugoslav Miracle? Some Comments', <u>The Economic Journal</u>. December: pp. 1084-88.
Ball R.J. & Doyle P. (eds) (1970) <u>Inflation</u>. London. Penguin Modern Economics.
Bartlett W. (1984) <u>Unemployment, Migration and Industrialization in Yugoslavia 1958-1982</u>. European University Institute, Department of Economics. Working paper No. 90.
Berman P.J., Oettinger A.G. & Read W.H. (1977) <u>High and Low Politics: Information Resources for the 1980s</u>. Cambridge, Mass: Harvard University Press.
Bicanic I. (1987) 'The Inequality Impact of the Unofficial Economy in Yugoslavia' in Allesandrini S. & Dallago B. (1987) pp. 323-37.
Bonin J.P. & Putterman L. (1987) <u>The Economics of Cooperation and the Labour-Managed Economy</u>. London: Harvard Academic Publishers. pp. 110c, 111-12, 116, 118-19.
Burger W. (1984) <u>Yugoslavia's Economic Crisis: The Price of Over-Expansion</u>. The Hague: ISS.
Cirovic M. (1982) <u>Novac i stabilizacija (Money and Stabilization)</u>. Actual Administration.
Conway P. (1987) <u>Economic Shocks and Structural Adjustments: Turkey after 1973</u>. Amsterdam: North Holland.
Dirlam J.B. and Plumner J.C. (1973). <u>An Introduction to the Yugoslav Economy</u>. Merril.
Dornbusch R. & Fisher S. (1985) <u>Macroeconomics</u>. 3rd ed. Auckland: McGraw Hill. pp. 376, 384, 389.
Dubey V. (1975) <u>Yugoslavia, Development with Decentralization</u>. Washington DC: The World Bank.
Dunn W.N. & Obradovic J. (1978) <u>Workers' Self-Management and Organizational Power</u>. Pittsburgh: Pittsburgh Press. p. 30.
<u>Economic Surveys of Yugoslavia</u> (1972) Paris: OECD.
<u>Economic Surveys of Yugoslavia</u> (1973) Paris: OECD.
<u>Economic Surveys of Yugoslavia</u> (1979-81) Paris: OECD.
<u>Economic Surveys of Yugoslavia</u> (1982) Paris: OECD. p. 38.
<u>Economic Surveys of Yugoslavia</u> (1984) Paris: OECD. p. 13.
<u>Economic Surveys of Yugoslavia</u> (1986) Paris: OECD.
<u>Economic Surveys of Yugoslavia</u> (1987) Paris: OECD. p. 68.
Estrin S. (1981) 'Income Dispersion in a Self-Managed Economy'. <u>Economica</u>. Vol. 48. pp. 181-94.
Estrin S. (1983) <u>Self-Management Economic Theory and Yugoslav Practice</u>. Cambridge: Cambridge University Press. p. 12.
Estrin S. & Svejnar J. (1983) <u>Age Determination under Self-Management: Theory and Evidence from Yugoslavia</u>. Warwick University. Economic Research Paper. No. 243. pp. 2, 3, 24.
Federal Statistical Office (1981) <u>Statistical Yearbook of Yugoslavia</u>. Belgrade: BIGZ.
Federal Statistical Office (1988) <u>Statistical Yearbook of Yugoslavia</u>. Belgrade: BIGZ.
Fisher (1911) 'The Purchasing Power of Money' in Jovic (1976) p. 31.

Friedman I.S. (1968) 'Developing Countries in the Past Twenty Years; Growth Transformation and Problems' in Dornbusch & Fisher (1985) p. 423.

Friedman J. (1968) Education for Regional Planning in Developing Countries.

Friedman M. (1968) 'Dollars and deficits' in Griffith-Jones (1981) p. 3.

Friedman M. (1970) The Counter-Revolution in Monetary Theory. London: Institute of Economic Affairs.

Friedman R.R., Gilbert N. & Sherer M. (1987) Modern Welfare States: a Comparative View of Trends and Prospects. Brighton: Harvester Press.

Gemmel N. (ed.) (1987) Surveys in Development Economics. Oxford: Basil Blackwell.

Glyn A. & Sutcliffe B. (1972) Capitalism in Crisis. New York: Pantheon Books. p. 179.

Griffith-Jones S. (1981) Articles on monetarism. Editorial. IDS Bulletin. Vol. 13. December. p. 3.

Hadzic M. (1986) 'Reserves and Perspectives in Managing Development' Viewpoints 5-6. p. 181.

Hagger (1964) 'The Theory of Inflation. A Review' in Jovic (1976). pp. 43, 74.

Horvat B. (1967). 'Struktura privrede i investicije' (Economic Structure and Investment). Ekonomika (Economics). No. 1-2.

Horvat B (1971) 'Yugoslav Economic Policy in the Post-War Period; Problems, Ideas, Institutional Development'. America Economic Review. No. 61. pp. 69-169.

Horvat B. (1982) The Political Economy of Socialism: a Marxist Social Theory. Armonk, New York: M.E. Sharpe.

Hudson J. (1982) Inflation: A Theoretical Survey and Synthesis. London: Allen & Unwin.

Ireland N.J. & Law P.J. (1982) The Economics of Labour-Managed Enterprises. London. Croom-Helm.

Jovic S. (1976) Analiza Inflacije u Yugoslaviji (The Analysis of Yugoslav Inflation). Belgrade: Tanjug. pp. 10, 19, 29, 43, 86, 206-8.

Jokic Z. (1988) Licni dohoci i inflacije' (Personal Incomes and Inflation). Ekonomska Politika (Economic Policy). No. 187714. p. 29.

Keynes J.J. (1940) 'How to Pay for the War. A Radical Plan for the Chancellor of the Exchequer' in Ball R.J. & Doyle P. (eds) (1970).

Killick T. (1981) 'Inflation in Developing Countries: an Interpretive Survey.' ODI Review. No. 1. pp. 1-17.

King J.R. (1979) Stabilization Policy in an African Setting. London: Heinemann. pp. 7, 52.

Kirkpatrick C. & Nixon F. (1987) 'Inflation and Stabilization Policy in LDCs' in Gemmel N. (ed.) (1987) pp. 172-98.

Knight P.T. (1984) Financial Discipline and Structural Adjustment in Yugoslavia. Washington DC: World Bank.

Law A. (1977) Preferential Tariffs for the LDCs: Some Principles and Prospects.

Law P.J. (1977) Sales and Profit-Input Ratios in the Firm's Objective Function. Coventry: University of Warwick. Dept of Economics.

Lydall H. (1984) Yugoslav Socialism: Theory and Practice. Oxford: Clarendon Press. pp. 194, 201-2, 235, 238, 254-9, 278, 284, 287.

Maksimov I. (1983) 'Social Ownership in the Yugoslav Self-Management System' Economic Analysis and Workers' Management. Vol. XVII. No. 2. pp. 155-76.

Martin & Tyson (1985) 'Can Titoism Survive Tito? Economic Problems and Policy Choices Confronting Tito's Successors' in Ramet P. (ed.) (1985) pp. 184-205.

Mencinger J. (1970) Inflacija, Provera modelov izvora (Inflation, Checking the Models). Llubljana: Ekonomski institut Pravne fakultete (Economic Institute, Faculty of Law).

Milenkovitch D. (1971) <u>Plan and Market in Yugoslav Economic Thought</u>. New Haven: Yale University Press.

Moore J.H. (1980) <u>Growth with Self-Management: Yugoslav Industrialization 1952-75</u>. Stanford University: Hoover Institution Press. p. 164.

Nove A. (1983) <u>The Economics of Feasible Socialism</u>. London: Allen & Unwin. p. 138.

Phelps E.S. (1967) 'The Phillips Curve, Expectation of Inflation and Optimal Employment over Time' <u>Economica</u>. August.

Phillips A.W. (1958) 'The Phillips Curve' in Dornbusch & Fischer (1985) p. 386, 396.

Phillips A.W. (1958) 'The Relation between Unemployment and the Rate of Change of Money Wages in the United Kingdom, 1861-1957'. <u>Economica</u>. November.

Popov S. (1972) 'Intersectoral Relations of Personal Incomes'. <u>Yugoslav Survey</u>. Vol. 13. No. 2. pp. 63-80.

Popov S. (1987) 'Equalization of Personal Incomes and Labor Productivity: Growth Pace and the Yugoslav Economic Crisis' <u>Economic Thought</u>. No. 3. December. pp. 29-36, 39, 40.

Prout C. (1985) <u>Market Socialism in Yugoslavia</u>. Oxford: Oxford University Press. pp. 56, 59, 122, 124, 129, 146, 148-50, 202, 204, 205.

Pusic E. (1987) 'The Development of the Welfare State in Yugoslavia' in Friedman R.R., Gilbert N., & Sherer M. (1987) pp. 151-73.

Ramet P. (ed.) (1985) <u>Yugoslavia in the 1980s</u>. Boulder: Westview Press. pp. 78, 82, 85, 186.

Rowthorn B. (1980) 'Capitalism, Conflict and Inflation' <u>Essays in Political Economy</u>. London: Lawrence & Wishart.

Sacks S.R. (1983) <u>Self-Management and Efficiency: the Large Corporation in Yugoslavia</u>. London: Allen & Unwin.

Sapir A. (1986) 'Economic Growth and Factor Substitution: What Happened to the Yugoslav Miracle? Further Comments.' <u>The Economic Journal</u>. December. pp. 1089-90.

Schultze C.L. (1959) 'Recent Inflation in the United States'. Study Paper No. 1, in Lindauer J. (ed.) (1968) <u>Macroeconomic readings</u>. New York: Free Press.

Singleton F. & Carter B. (1982) <u>The Economy of Yugoslavia</u>. London: Croom Helm.

Sirc L.J. (1979) <u>The Yugoslav Economy under Self-Management</u>. Basingstoke: The Macmillan Press. pp. 129, 137-40.

Stojanovic R. (1982) <u>The Functioning of the Yugoslav Economy</u>. Armonk, New York: M.E. Sharpe.

Svetlik I. (1983) 'From Welfare State to Welfare Society - a Case of Employment'. Paper from conference, Baden/Vienna. 25 Sept.-1 Oct. <u>Can there be a New Welfare State: Social Options towards shaping an Uncertain Future</u>. p. 9.

Taylor L. (1987) <u>The Real Wages, Output and Inflation in the Semi-Industrialized World</u>. Delhi: Delhi School of Economics.

Turk I. (1986) <u>The Place of Enterprise Economics in the Self-Management System</u>. Lubljana: University of Lubljana.

Tyson L.D. (1980) <u>Yugoslavia - the Economic System and its Performance in the 1970s</u>. Berkeley: University of California.

Vanek J. (1970) <u>The General Theory of Labor-Managed Market Economies</u>. Ithaca: Cornell University Press.

Vanek J. (1971) <u>The Basic Theory of Financing Participatory Firms</u>. Ithaca: Cornell University, Department of Economics. Working Paper No. 27.

Vanek J. (1973) 'The Yugoslav Economy Viewed through the Theory of Labor Management'. <u>World Development</u>. Vol. 1. No. 9. pp. 30-56.

Vanek J. (1977) 'The Labor-Managed Economy' <u>Essays</u>. Ithaca: Cornell University Press. pp. 239, 251.

Vanek J. & Jovicic M. (1975) 'Capital Market and Income Distribution in Yugoslavia'. Quarterly Journal of Economics. Vol. 89. No. 3. pp. 432-43.

Vujovic D., Labus M., Biocic G., Stjepanovic L.J. (1986) A SAM-Based Approach to Checking Consistency of Policy Measures in Yugoslavia. Belgrade: University of Belgrade, Federal Statistical Office. Vol. I.

Ward B. (1958). 'The Firm in Ilyria: Market Syndicalism'. American Economic Review. Vol. 68.

Wichtel H.M. (1972). 'Workers Management and Inter-Industry Wage Differentials in Yugoslavia'. Journal of Political Economy. Vol. 80. No. 3. May.

World Bank (1979) Yugoslavia - Self-Management Socialism - Challenge of Development. Baltimore: The Johns Hopkins University Press. pp. 114-18.

World Bank (1983) Yugoslavia - Adjustment Policies and Development Perspectives. Washington DC: The World Bank. Annex 3.

Zukin S. (ed.) (1985) 'Beyond Marx and Tito; Theory and Practice in Yugoslav Socialism ' in Ramet P. (ed.) (1985) pp. 76-100.

Appendix 1

The Adjusted Version of Selden's Model

The regressions: PRET = ao + a1w + a2PROD; PRET = bo + b1W; PRET = co + c1PROD are used, where PRET is the rate of growth of retail prices, W is the rate of growth of nominal wages per person in social sector, and PROD is the rate of growth productivity.
Computation gives the following results:

| Period 1966-1985 | PRET = 1.59 + 1.00W - 1.65PROD | R^2 = 0.90 |
| | (0.56) (10.90) (-4.08) | DW = 1.91 |

Sub-period:

1966-1971	PRET = -2.39 + 0.74W - 0.20PROD	R^2 = 0.99
	(-2.42) (10.59) (-0.83)	DW = 2.08
1972-1978	PRET = -8.80 + 1.35 + 0.03PROD	R^2 = 0.68
	(-0.50) (1.72) (0.02)	DW = 0.81
1979-1985	PRET = 3.54 - 0.95W - 2.62PROD	R^2 = 0.90
	(0.58) (6.56) (1.59)	DW = 2.24

The partial regression of wages influence over price gives the following results:

| Period 1966-1985 | PRET = 3.20 + 1.10W | R^2 = 0.82 |
| | (0.90) (9.04) | DW = 0.86 |

Sub-period:

1966-1971	PRET = -2.41 + 0.69W	R^2 = 0.98
	(-2.56) (15.65)	DW = 1.48
1972-1978	PRET = -8.50 + 1.34W	R^2 = 0.68
	(-1.02) (3.24)	DW = 0.82
1979-1985	PRET = 7.14 + 0.94W	R^2 = 0.85
	(1.15) (5.85)	DW = 1.35

The estimation of partial regression productivity over retail prices gives the following results:

(Sub-)period:		R^2 = 0.27
1966-1985	PRET = 28.52 - 2.77PROD	DW = 0.74
	(7.32) (-2.60)	R^2 = 0.50
1966-1971	PRET = 3.60 - 1.67PROD	DW = 1.27
	(0.83) (2.00)	R^2 = 0.44
1972-1978	PRET = 21.36 - 1.66PROD	DW = 1.24
	(7.51) (1.97)	R^2 = 0.03
1979-1985	PRET = 36.62 - 2.01PROD	DW = 0.55
	(3.83) (-0.42)	

Appendix 2

Regressions Derived from the Phillips Model

The regression $W = do + d1WP + d2UN$ is used, where W is the rate of growth of nominal wages per worker in the social sector, UN is the registered unemployment as a percentage of the labour force, WP is the rate of growth of nominal wages in the previous year, and do, d1, and d2 are coefficients. Computation gives the following results.

Period 1966-1985	$W =$ -9.25 + 0.88WP + 2.27UN	$R^2 = 0.54$	
	(-1.14) (3.12) (2.21)	DW $= 1.39$	
(Sub-)period:			
1966-1971	$W =$ 26.63 + 0.32WP - 4.27UN	$R^2 = 0.27$	
	(0.11) (0.22) (0.07)	DW $= 1.94$	
1972-1978	$W =$ 20.60 - 0.08WP + 0.14UN	$R^2 = 0.01$	
	(1.58) (-0.66) (0.11)	DW $= 1.90$	
1979-1985	$W =$ -120.39 + 0.84WP + 15.14UN	$R^2 = 0.78$	
	(-1.71) (0.99) (1.51)	DW $= 1.89$	

The partial regression of unemployment over wages gives the following results:

(Sub-)period:			
1966-1985	$W =$ 5.85 + 3.16UN	$R^2 = 0.28$	
	(0.73) (2.63)	DW $= 0.83$	
1966-1971	$W =$ 78.71 - 17.81UN	$R^2 = 0.26$	
	(1.57) (-1.19)	DW $= 1.92$	
1972-1978	$W =$ 18.89 + 0.16UN	$R^2 = 0.36$	
	(2.65) (0.13)	DW $= 1.92$	
1979-1985	$W =$ -170.12 + 23.38UN	$R^2 = 0.74$	
	(-3.42) (4.12)	DW $= 1.84$	

Instead of registered unemployment, the total unemployment is used as a sum of registered unemployment and workers' emigration in regression $W = do + d1WP + 2dUNT$, where UNT equals total unemployment.

Period 1966-1985	$W =$ -24.13 + 1.02WP + 1.76UNT	$R^2 = 0.54$	
	(-1.82) (3.72) (2.18)	DW $= 1.25$	
(Sub-)period:			
1966-1971	$W =$ -19.18 + 0.47WP + 2.64UNT	$R^2 = 0.91$	
	(-2.68) (3.47) (4.66)	DW $= 1.94$	
1972-1978	$W =$ -7.31 = 0.01WP + 1.68UNT	$R^2 = 0.05$	
	(-0.11) (0.09) (0.43)	DW $= 2.17$	
1979-1985	$W =$ -155.28 + 1.82WP + 8.59UNT	$R^2 = 0.74$	
	(-1.18) (3.49) (1.06)	DW $= 2.61$	

Partial regression gives the following results:

(Sub-)period:

1966-1985	$W = -3.18 + 1.95UNT$	$R^2 = 0.16$
	(-0.20) (1.85)	$DW = 0.60$
1966-1971	$W = -6.79 + 2.45UNT$	$R^2 = 0.56$
	(-0.56) (2.23)	$DW = 0.54$
1972-1978	$W = -7.62 + 1.70UNT$	$R^2 = 0.05$
	(-0.15) (0.53)	$DW = 2.17$
1979-1985	$W = -160.01 + 11.81UNT$	$R^2 = 0.11$
	(0.72) (0.87)	$DW = 0.87$

Secondly, instead of the rate of growth of wages the rate of growth of retail prices is used as a dependent variable in linear regression:
$PRET = e_o + e_1 PRETPRIV + e_2 UN$ and $PRET = f_o + f_1 PRETPRIV + f_2 UNT$, where PRET equals rate of growth of retail prices, PRETPRIV is the rate of growth of retail prices in the previous year, UN is the registered unemployment, UNT is registered unemployment plus workers employed abroad.
The estimation gives the following results:

(Sub-)period:

1966-1985	$PRET = -8.19 + 0.82PRETPRIV + 2.37UN$	$R^2 = 0.74$
	(-1.37) (3.95) (2.07)	$DW = 1.62$
1966-1971	$PRET = -39.40 + 0.73PRETPRIV + 12.17UN$	$R^2 = 0.43$
	(-0.34) (0.85) (0.39)	$DW = 1.50$
1972-1978	$PRET = 23.12 + 0.29PRETPRIV - 1.77UN$	$R^2 = 0.27$
	(1.63) (0.65) (-0.96)	$DW = 1.96$
1979-1985	$PRET = -137.05 + 0.34PRETPRIV + 18.97UN$	$R^2 = 0.82$
	(-1.99) (0.79) (2.08)	$DW = 2.48$

The partial regression of unemployment over retail prices gives the following results:

(Sub-)period:

1966-1985	$PRET = -6.97 + 5.13UN$	$R^2 = 0.50$
	(-0.87) (4.22)	$DW = 0.70$
1966-1971	$PRET = 54.60 - 13.08UN$	$R^2 = 0.29$
	(1.59) (-1.27)	$DW = 1.79$
1972-1978	$PRET = 28.86 - 1.86UN$	$R^2 = 0.05$
	(2.75) (-1.07)	$DW = 2.17$
1979-1985	$PRET = -177.90 + 24.87UN$	$R^2 = 0.80$
	(-4.02) (4.92)	$DW = 2.15$

Using total unemployment instead of registered unemployment in the regression gives the following results:

(Sub-)period:

1966-1985	PRET= -18.12 + 0.95PRETPRIV + 1.47UNT	R^2 = 0.72
	(-1.60) (5.19) (1.79)	DW = 1.66
1966-1971	PRET= -13.13 + 0.42PRETPRIV + 1.74UNT	R^2 = 0.97
	(5.10) (6.46) (7.87)	DW = 2.92
1972-1978	PRET= 14.48 + 0.32PRETPRIV - 0.14UNT	R^2 = 0.10
	(0.16) (0.65) (0.03)	DW = 1.67
1979-1985	PRET= -56.12 + 1.05PRETPRIV + 3.80UNT	R^2 = 0.68
	(-0.37) (3.16) (0.41)	DW = 2.48

The partial regression of total unemployment over retail prices gives the following results:

(Sub-)period:

1966-1985	PRET = -21.77 + 3.17UNT	R^2 = 0.29
	(1.24) (2.69)	DW = 0.45
1966-1971	PRET = -7.73 + 1.75UNT	R^2 = 0.58
	(-0.95) (2.37)	DW = 0.62
1972-1978	PRET = 17.13 + 0.05UNT	R^2 = 0.00
	(0.20) (0.01)	DW = 1.35
1979-1985	PRET = -81.37 + 7.34	R^2 = 0.04
	(0.34) (0.51)	DW = 0.60

Appendix 3

Annual Change in Selected Macroeconomic Variables

Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1965	1.6	1.5	0.1	-11.6	- 195	1094	- 1289	34.6
1966	6.8	-2.2	9.0	4.0	- 351	1225	- 1576	22.8
1967	1.0	-0.6	1.6	- 5.3	- 454	1253	- 1707	6.9
1968	3.6	0.7	2.9	12.7	- 532	1265	- 1797	5.0
1969	10.0	3.3	6.7	10.0	- 659	1475	- 2134	8.0
1970	6.0	3.9	2.1	17.5	-1195	1678	- 2874	10.6
1971	9.0	4.8	4.2	6.5	1435	1817	- 3252	15.6
1972	5.5	4.4	1.1	6.0	- 992	2241	- 3233	16.6
1973	9.0	2.3	6.7	4.2	-1658	2853	- 4511	19.7
1974	3.5	4.8	-1.3	10.9	-3715	3805	- 7520	21.0
1975	3.9	5.4	-1.5	9.6	-3625	4072	- 7697	24.4
1976	7.7	3.5	4.2	8.1	-2489	4878	- 7367	11.6
1977	7.1	4.5	2.6	11.1	-4380	5254	- 9634	15.0
1978	7.0	4.6	2.4	13.5	-4317	5671	- 9988	14.3
1979	2.2	4.3	-2.1	6.4	-7225	6794	-14019	20.4
1980	1.4	3.2	-1.8	- 1.7	-6086	8978	-15064	30.3
1981	1.5	2.9	-2.0	- 9.8	-4828	10229	-15757	40.7
1982	0.5	2.3	-2.3	- 5.5	-3089	10247	-13336	31.7
1983	-1.3	2.0	-2.8	- 9.7	-2240	9914	-12154	40.5
1984	2.0	2.1	-0.1	- 9.4	-1739	10254	-11993	52.2
1985	0.5	2.5	-1.0	- 4.0	-1601	10622	-12223	73.5
1986	3.5	2.9	-0.3	3.5	-1452	10298	-11750	89.1
1987	-0.5	2.1	-1.8	- 4.0	-1177	11426	-12603	120.3

Note: (1) - Rate of growth of social product,
     (2) - Employment growth rate - social sector,
     (3) - Productivity growth rate,
     (4) - Rate of growth of fixed investment,
     (5) - Trade balance (US $ mill),
     (6) - Export fob,
     (7) - Import cif,
     (8) - Growth rate of cost of living,

Source: OECD, Economic surveys of Yugoslavia

Appendix 4

Social Product
(Current prices - billions of dinars)

Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1965	40.2	7.2	21.8	90.8	-	-	-	-	79.5
1966	50.5	8.1	26.6	12.4	-	-	-	-	99.0
1967	56.9	10.0	30.2	5.7	-2.3	21.5	23.7	3.0	103.7
1968	61.9	11.7	35.0	3.9	-2.8	22.3	25.1	2.2	112.0
1969	71.7	13.4	41.0	7.3	-3.5	26.3	29.7	2.0	132.0
1970	86.3	14.7	51.7	13.6	-9.7	30.4	40.1	0.6	157.2
1971	110.5	17.5	64.7	22.0	-15.0	40.6	55.6	4.9	204.5
1972	137.0	21.3	74.0	14.5	-8.0	56.0	64.1	6.6	245.4
1973	168.9	26.7	85.5	32.0	-14.6	72.3	86.8	7.8	306.3
1974	220.2	36.0	117.4	57.0	-44.7	95.1	132.8	20.6	407.2
1975	275.3	49.6	163.3	44.8	-43.6	105.2	148.8	13.7	503.0
1976	326.2	60.3	207.3	30.3	-25.9	120.9	146.7	-5.6	592.6
1977	397.8	72.6	268.0	59.1	-59.6	129.9	189.4	-3.6	734.3
1978	478.2	86.4	357.3	28.8	-73.8	146.9	200.7	15.9	901.8
1979	622.4	110.9	447.6	90.9	-128.4	200.7	329.2	22.0	1654.4
1980	818.8	143.1	545.7	185.5	-153.9	369.3	522.5	13.3	1553.1
1981	1143.3	198.2	684.9	297.7	-123.4	446.5	569.4	7.5	2208.3
1982	1510.7	260.1	854.8	372.6	-144.0	600.0	744.0	70.7	2924.8
1983	2087.8	345.1	1029.5	630.9	-98.9	851.3	950.3	69.8	4064.3
1984	3207.2	524.3	1458.4	1232.9	-159.9	1703.8	1863.6	62.9	6325.8
1985	5659.4	970.0	2608.8	2092.8	-163.3	2637.5	2773.8	90.0	11284.7
1986	11205.9	1910.0	5047.0	3948.9	-167.1	3762.1	3929.3	110.0	22054.7

Note: Yugoslav concept,

    (1) - Consumer's expenditure,
    (2) - Collective consumption,
    (3) - Gross fixed capital formation,
    (4) - Change in stocks,
    (5) - Foreign balance,
    (6) - Export of goods and services,
    (7) - Import of goods and services,
    (8) - Statistical discrepancy,
    (9) - Social product

Source: OECD, Economic surveys of Yugoslavia

Appendix 5

Social Product
(1972 prices billions of dinars)

Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1965	49.8	9.1	25.5	-	-	-	-	-	92.8
1966	50.5	9.2	26.6	-	-	-	-	-	99.0
1967	54.2	9.8	28.3	5.7	- 2.3	21.3	23.8	6.7	101.6
1968	104.6	18.1	57.9	6.6	- 4.4	39.8	44.2	5.3	188.2
1969	112.0	19.6	61.6	11.4	- 5.7	44.3	50.0	7.4	206.3
1970	121.0	20.3	69.5	18.9	-16.8	45.9	62.8	5.1	217.9
1971	131.0	20.3	72.7	26.0	-20.9	47.6	68.5	6.6	235.5
1972	137.0	21.3	74.0	14.5	- 8.0	56.0	64.1	6.6	245.4
1973	140.7	22.2	77.0	21.3	-14.7	59.8	74.1	11.1	257.7
1974	151.0	23.8	84.0	31.0	-24.9	60.4	85.3	14.6	279.7
1975	156.2	26.0	92.2	19.1	-23.6	59.3	82.9	20.0	289.9
1976	163.1	28.5	99.7	15.4	- 9.1	68.2	77.3	3.7	301.2
1977	174.6	30.6	109.1	22.1	-22.9	64.5	87.4	11.8	325.3
1978	186.8	32.5	120.6	9.7	-22.5	64.0	86.5	20.8	347.8
1979	197.1	34.0	128.3	29.0	-37.9	70.9	108.7	21.7	372.3
1980	198.5	33.7	120.7	45.5	-24.7	76.1	100.8	7.0	380.7
1981	196.5	32.1	108.9	52.0	-14.0	85.3	99.3	10.9	386.4
1982	196.3	31.8	102.9	49.5	-13.2	69.5	82.8	21.7	389.0
1983	192.9	30.2	92.9	59.7	- 4.0	66.4	70.4	12.6	384.3
1984	191.0	30.1	84.8	76.3	+ 3.5	70.7	67.3	6.9	391.8
1985	191.0	30.7	80.9	80.2	+ 7.1	76.4	69.3	4.0	393.7
1986	199.4	32.1	83.7	80.3	0.0	74.7	74.7	12.3	407.7

Note: Yugoslav concept, 1965, 1966, 1967 in 1966 prices,
    (1) - Consumers' expenditure,
    (2) - Collective consumption,
    (3) - Gross fixed capital formation,
    (4) - Change in stocks,
    (5) - Foreign balance,
    (6) - Export of goods and services,
    (7) - Import of goods and services,
    (8) - Statistical discrepancy,
    (9) - Social product

Source: OECD, Economic surveys of Yugoslavia

Appendix 6

Annual Percentage Changes in Final Domestic Demand

Year	(1)	(2)	(3)	(4)
1965	5.1	-3.6	-11.6	-1.5
1966	1.5	1.9	4.0	2.3
1967	6.6	6.5	-5.3	2.9
1968	6.5	6.0	12.7	8.2
1969	7.5	10.0	10.0	8.5
1970	8.5	5.5	17.5	11.0
1971	9.0	8.0	6.5	7.5
1972	5.5	5.6	6.0	5.5
1973	2.7	4.1	4.2	3.0
1974	7.3	7.2	10.9	8.0
1975	3.4	9.2	9.6	5.9
1976	4.4	9.2	8.1	6.1
1977	7.0	7.4	11.1	8.4
1978	7.0	5.0	13.5	9.1
1979	5.2	7.9	6.4	5.9
1980	0.7	2.7	-1.7	0.0
1981	-1.0	-4.8	-9.8	-4.5
1982	-0.1	-0.7	-5.5	-2.0
1983	-1.7	-5.1	-9.7	-4.7
1984	-1.0	-0.2	-9.4	-3.6
1985	0.0	1.0#	-4.0	-2.4
1986	4.5	4.6#	3.5	4.2
1987	-1.0	-3.0#	-4.0	-2.0

Notes: (1) - Private consumption,
      (2) - Collective consumption,
      (3) - Fixed investment,
      (4) - Final domestic demand

Source: OECD, Economic surveys of Yugoslavia

Appendix 7

Annual Percentage Rates of Increase in Prices

Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1965	42.4	14.8	4.3	6.9	16.4	6.8	5.6	34.6	37.8
1966	16.6	11.2	16.6	4.3	11.8	3.2	1.1	22.8	37.2
1967	-3.1	2.1	11.9	2.1	1.1	1.0	0.0	6.9	12.9
1968	-4.3	0.0	2.1	0.0	0.0	-2.1	0.0	5.0	10.1
1969	9.9	3.1	4.2	1.0	4.2	4.2	5.3	8.0	14.9
1970	15.0	9.0	12.0	5.0	7.0	9.0	8.0	11.6	18.0
1971	26.0	15.6	17.9	12.4	13.1	4.6	3.7	15.6	22.9
1972	24.1	11.1	10.6	6.8	12.4	6.1	56.3	16.3	16.5
1973	25.0	12.9	13.0	9.5	13.2	19.0	20.3	19.7	15.9
1974	14.2	29.7	40.6	13.0	22.1	32.6	45.7	21.0	27.6
1975	13.2	22.0	22.8	22.4	20.7	8.9	5.3	24.4	23.6
1976	14.4	6.4	5.6	13.0	5.3	4.3	2.8	11.6	15.5
1977	12.0	9.4	8.9	09.2	10.8	12.4	13.8	15.0	18.7
1978	11.6	8.2	7.9	5.9	9.8	9.0	4.7	14.3	20.9
1979	25.6	13.3	15.8	6.0	10.9	14.6	19.1	20.4	20.2
1980	35.3	27.4	34.1	12.1	21.8	19.3	19.8	30.1	20.5
1981	53.3	44.6	44.1	25.3	43.7	8.5	10.4	40.7	33.6
1982	35.3	25.0	27.2	15.6	24.7	7.3	2.1	31.7	27.4
1983	47.8	31.6	34.0	21.9	31.4	-0.3	0.0	40.5	26.4
1984	44.3	56.8	61.7	42.0	53.3	64.5	30.7	52.2	43.8
1985	60.0	81.5	85.5	80.0	72.9	6.4	4.4	73.5	78.3
1986	81.1	73.3	57.6	81.6	86.5	0.0	-8.5	89.1	108.3
1987	101.0	96.7	87.0	104.3	112.4	1.5	0.0	120.3	-

Note: (1) - Agriculture producer prices,
    (2) - Industrial producer prices,
    (3) -   "   -materials,
    (4) -   "   -capital goods,
    (5) -   "   -consumer goods,
    (6) - Export unit value,
    (7) - Import unit value,
    (8) - Cost of living,
    (9) - Wage per person - social sector

Source: OECD, Economic surveys of Yugoslavia

Appendix 8

Proportional Deployment of the Active Labour Force

Year	(1)	(2)	(3)	(4)	(5)	(6)
1965	100.0	43.7	2.7	53.6	0.2	0.7
1966	100.0	43.0	3.0	54.0	10.3	1.1
1967	100.0	42.3	3.0	54.7	3.4	1.1
1968	100.0	41.9	3.5	54.6	4.6	1.4
1969	100.0	42.2	3.6	54.2	6.5	3.0
1970	100.0	43.6	3.6	52.8	8.9	4.8
1971	100.0	45.3	3.3	51.4	10.4	5.4
1972	100.0	46.7	3.5	49.8	11.3	5.3
1973	100.0	47.7	4.2	48.1	12.2	5.9
1974	100.0	49.7	4.9	45.4	11.4	5.2
1975	100.0	52.0	5.9	42.1	10.3	4.5
1976	100.0	53.5	6.3	39.6	9.5	4.2
1977	100.0	55.7	7.6	36.7	8.9	4.1
1978	100.0	58.0	7.9	34.1	8.6	3.9
1979	100.0	60.2	8.2	31.6	8.5	3.9
1980	100.0	61.8	8.4	19.8	8.2	3.7
1981	100.0	60.4	8.2	31.4	7.8	3.4
1982	100.0	61.2	8.6	30.1	7.6	3.2
1983	100.0	61.7	9.0	29.2	7.3	3.1
1984	100.0	86.2	9.5	-	7.6	3.1
1985	100.0	62.7	10.0	-	6.8	3.4

Note: (1) - Active labour force,
     (2) - Paid employment,
     (3) - Registered unemployment,
     (4) - Other labour force of which:
     (5) - Worker emigration (net),
     (6) - Yugoslav workers employed in Germany

Source: OECD, Economic surveys of Yugoslavia

Appendix 9

Gross Fixed Investment
(Billions of dinars, current prices)

Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1965	20.5	1.7	18.8	13.3	7.3	2.1	6.7	0.5	2.4	1.2	5.3	2.4
1966	22.1	2.9	19.2	13.4	8.7	2.1	7.0	0.3	2.2	0.9	6.6	2.8
1967	30.6	5.8	24.8	22.3	8.3	2.5	11.2	0.7	4.1	2.5	7.2	2.3
1968	35.7	6.6	29.1	26.0	9.7	2.9	12.6	0.8	5.2	3.2	8.3	2.5
1969	42.3	7.4	34.8	31.2	11.0	3.3	13.6	1.4	7.2	4.3	9.5	3.0
1970	53.1	9.6	43.4	37.6	15.5	3.8	16.4	1.6	8.4	5.8	12.4	4.6
1971	65.6	13.1	52.6	46.5	19.1	4.7	21.2	2.0	9.1	7.3	15.3	5.9
1972	75.1	6.3	58.8	52.2	22.8	5.7	24.4	2.6	10.0	6.5	18.5	7.4
1973	86.7	22.3	64.4	59.7	27.0	8.3	26.3	2.7	12.8	5.8	23.1	7.7
1974	119.3	28.4	90.9	81.5	37.7	11.1	39.5	4.9	14.6	7.5	31.1	10.6
1975	163.2	30.9	132.3	114.2	49.0	12.1	64.0	4.0	21.0	9.4	39.0	13.7
1976	207.3	36.3	171.0	146.6	60.7	14.7	80.7	4.8	27.7	10.4	48.7	20.3
1977	268.0	45.7	222.3	192.5	75.5	20.8	98.0	9.3	37.0	15.9	59.8	27.2
1978	357.3	53.6	303.7	260.8	96.5	26.0	136.0	10.9	52.0	20.0	77.0	35.4
1979	447.6	71.0	376.6	319.6	128.0	31.5	157.8	13.8	65.9	28.9	103.6	46.1
1980	545.6	88.5	457.1	386.3	159.3	36.7	199.6	14.4	72.9	32.2	134.2	55.6
1981	685.0	121.6	563.4	485.7	199.3	51.2	254.6	19.3	81.2	40.5	172.5	65.7
1982	854.8	166.1	688.7	603.0	251.8	81.8	305.7	19.9	94.1	49.6	231.2	72.5
1983	1029.5	209.8	819.7	740.1	289.4	106.2	376.3	22.7	124.6	49.6	268.0	82.1
1984	1458.4	292.4	1166.0	1049.5	408.9	145.5	540.5	29.4	160.8	72.2	368.5	141.5
1985	2608.8	466.8	2142.0	1929.8	679.0	231.5	998.5	71.6	309.9	133.0	576.8	287.5
1986	5047.0	950.9	4096.1	3653.8	1393.2	411.6	1889.7	121.1	551.5	317.6	1174.1	581.4

Note: (1) - Total,
    (2) - Private sector,
    (3) - Social sector,
    (4) - Productive activity,
    (5) - Non-productive activity,
       By industry:
    (6) - Agriculture and forestry,
    (7) - Industry,
    (8) - Building,
    (9) - Transportation,
  (10) - Trade, catering, tourism,
  (11) - Housing, communal activities,
  (12) - Other social sector

Source: OECD, Economic surveys of Yugoslavia

Appendix 10

Indices of Agricultural Output (1951-55 = 100) and Production of Selected Commodities

Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1965	152	148	159	3.5	5.9	2.6	757	17.4	45.4	2010
1966	176	186	163	4.6	8.0	4.0	686	17.1	51.0	2190
1967	174	177	173	4.8	7.2	3.7	751	16.4	55.9	2141
1968	167	166	171	4.4	6.8	2.9	818	17.6	61.7	1918
1969	183	190	173	4.9	7.8	3.6	770	17.1	68.2	1820
1970	175	167	190	3.8	6.9	2.9	811	17.5	80.0	1678
1971	187	180	194	5.6	7.4	3.0	880	17.9	96.7	1747
1972	184	179	197	4.8	7.9	3.3	817	17.3	120.5	1821
1973	197	195	209	4.8	8.3	3.3	839	17.4	150.0	1919
1974	209	199	235	6.3	8.0	4.3	1000	18.2	195.1	1812
1975	203	193	235	4.4	9.4	4.2	1031	18.6	225.5	1964
1976	217	205	244	6.0	9.1	4.7	1034	18.5	260.9	1970
1977	227	212	263	5.6	9.9	5.3	1144	19.5	296.8	2056
1978	213	186	268	5.4	7.6	5.2	1237	19.7	342.0	2147
1979	225	205	270	4.5	10.1	5.9	1227	19.9	385.1	2203
1980	225	204	273	5.1	9.3	5.2	1207	19.4	415.7	2131
1981	228	206	279	4.3	9.8	6.2	1221	20.4	595.5	2384
1982	244	227	293	5.2	11.1	5.7	1244	21.1	622.4	2510
1983	240	221	284	5.5	10.7	5.7	1280	21.3	705.8	2460
1984	244	225	293	5.6	11.3	6.8	1369	22.6	808.5	2556
1985	226	204	283	4.8	9.9	6.3	1292	22.4	881.7	2551
1986	252	235	190	4.8	12.5	5.6	1285	22.8	955.3	2643

Note: (1) - Indices of total agricultural output,
   (2) - Indices of crop production,
   (3) - Indices of livestock production,
   (4) - Production of wheat (mill. metric tons),
   (5) - Production of maize   "
   (6) - Production of sugar beet "
   (7) - Production of meat (thous. metric tons),
   (8) - Forestry cuttings (mill. cubic metres),
   (9) - Number of tractors in use (thousand),
  (10) - Consumption of fertilizers (thous. metric tons)

Source: OECD, Economic surveys of Yugoslavia

Appendix 11

Industrial Production
(1970 = 100)

Year	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1965	75	86	74	72	77	52	84	79
1966	78	86	78	76	79	60	91	84
1967	77	84	77	76	76	61	88	85
1968	82	88	82	82	83	71	91	85
1969	92	93	92	91	89	86	96	91
1970	100	100	100	100	100	100	100	100
1971	110	108	110	108	109	117	107	111
1972	119	110	119	121	107	132	118	119
1973	126	117	126	132	123	146	125	126
1974	139	124	140	150	140	169	135	136
1975	147	130	149	157	154	178	142	137
1976	152	133	154	158	157	182	145	147
1977	167	139	168	171	175	206	152	160
1978	181	143	184	188	199	234	158	173
1979	195	148	200	196	219	251	172	187
1980	204	153	208	199	226	275	182	189
1981	212	158	218	214	237	301	189	195
1982	212	162	217	211	238	299	187	199
1983	215	164	219	223	235	327	189	199
1984	227	168	231	240	245	301	201	207
1985	233	177	237	252	256	309	208	203
1986	242	179	244	255	265	329	221	208
1987	243	181	245	247	259	341	231	213

Note: (1) - Total industry,
     (2) - Mining,
     (3) - Manufacturing,
     (4) - Basic metals,
     (5) - Metal products,
     (6) - Chemicals,
     (7) - Textiles,
     (8) - Food, drinks, tobacco,

Source: OECD, Economic surveys of Yugoslavia