

**INFLATION AND THE
INTEREST RATE IN 1991**

*Maria Jetcheva
Roumen Avramov
Valentin Tchavdarov*

March 1992 г.

Contents

INFLATION MEASUREMENT	1
I. Consumer price indexes and retail price indexes	1
II. Producer price indexes - National Statistics Institute	2
III. Producer price indexes - Agency for Economic Coordination & Development	4
IV. Real interest rate - Methodology of Calculation	7
SOME TENDENCIES IN THE 1991 INFLATION	8
I. Consumer prices	8
II. Producer prices	9
1. Structural changes in industrial current expenditures	9
2. Dynamics of producer prices	11
III. Price dynamics and real interest rate	12
1. Real interest rate and deposits dynamics	12
2. Real interest rate and credits dynamics	15

INFLATION MEASUREMENT

The issue of precisely measuring the inflation process is one of growing practical and political importance. It is obvious that the most widespread conclusions in the media and among politicians are made on the basis of consumer price indexes which are not representative of the real scope and intensity of the inflationary process. Thus, incorrect generalizations proliferate and misleading steps are undertaken by economic policy-makers.

The aim of this analysis of the Agency for Economic Coordination & Development (AECD) is to fix the parameters of the inflation process on the basis of the existing indicators and through the development of some original indexes. Special attention is devoted to real interest rates during 1991.

The impact of inflation on the various sectors of the economy could only be determined using the statistical information about the changes that occur in the entire price system. NSI is not still in a position to develop real deflators for various demand components. The export and import price indexes are published on an annual basis and are quite unreliable as well. There is an improvement in the development of CPI and RPI. The conclusions that are derived on this basis should take into account the techniques of their construction.

I. Consumer price indexes and retail price indexes

The consumer price index (CPI) indicates the change in commodities' prices or groups of commodities and services using the relative shares of the different types of household expenditures (derived from their budgets) as weights. **The retail price index (RPI)** measures the change in the retail prices of goods and services. They are measured using the actual turnover of goods and services. This is an important defect because (other things equal) the high-priced goods have larger turnover, and hence higher weight which increases the real variation in prices.

CPI and RPI are being developed since May 1990. The lack of experience causes some problems in calculating them.

Until September 1991, CPI shows the change in the price level of consumption goods for the period from the 16-th of the previous month to the 15-th of the current month. The structure of household expenditures from 1989 is used as weights in the construction of the index. This structure underwent substantial changes in 1990 and especially in 1991. From the

beginning of 1992 the weights were changed and the structure as of October 1991 is used. An index with new weights was reestimated at the AECD. The results indicate that the new weights do not substantially influence its level.

CHAIN CONSUMER PRICE INDEXES

MONTHS	Total index (NSI)	Total index (AECD)
January	113.60	112.98
February	222.90	235.82
March	150.50	149.24
April	102.50	101.45
May	100.76	100.51
June	105.89	105.29
July	108.39	108.16
August	107.50	108.69
September	103.80	103.71
October	103.27	103.04
November	105.02	104.97
December	104.92	104.82

CPI shows the change in the prices of goods and services when the structure of household budget expenditures is taken as weights. The total index, developed by the NSI, uses the structure of household expenditures as of 1989. The total index - developed by the AECD, uses the structure of household expenditures as of October, 1991.

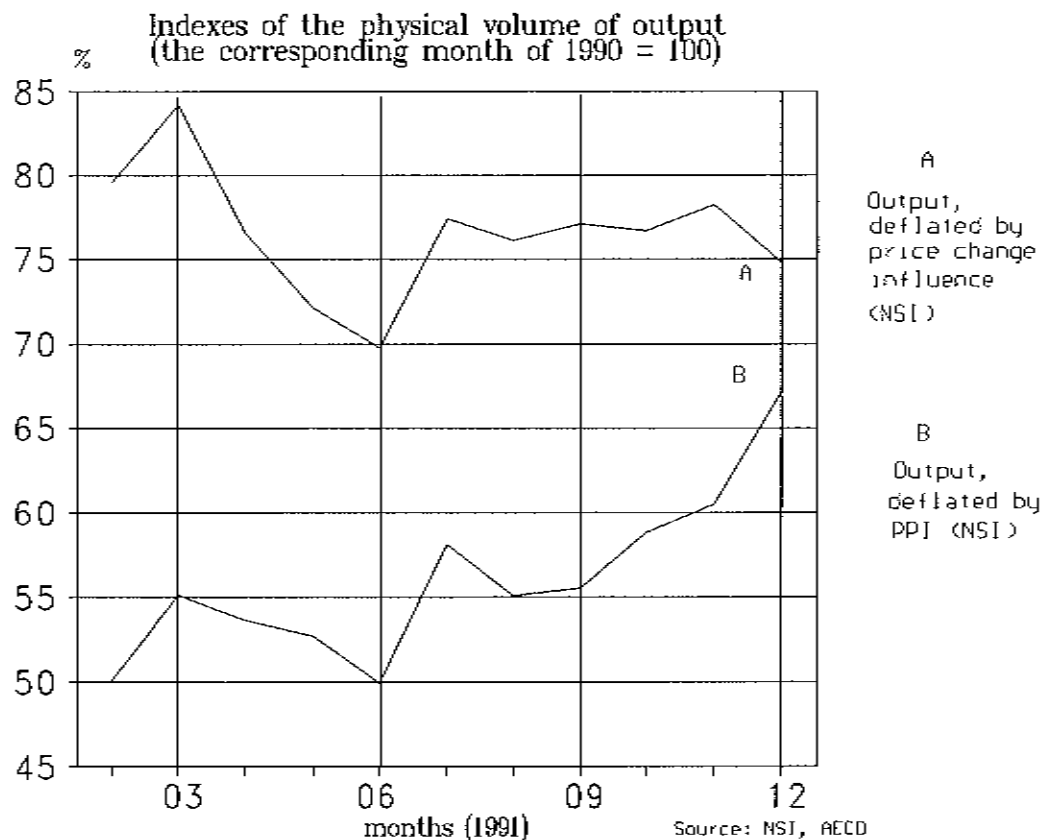
RPI bears in some sense “the reverse” problem. From May 1990 (the beginning of the work on RPI) the weights of the goods were changed twice, of the services - three times, without ensuring the proper statistical consistency. The RPI therefore does not reflect only changes in the price level.

II. Producer price indexes - National Statistics Institute

In 1991 the NSI did not publish **producer price indexes** (PPI). That is why the physical volume of output was measured indirectly and quite roughly through elimination of the price level impact on the volume of production. The indicator “price level changes influence” was estimated subjectively by the enterprises themselves, which could not always succeed in “clearing” away the impact of changes in output. According to the statisticians, this method was extremely inaccurate, unreliable and with questionable chances for implementation (particularly in the area of construction building, trade etc.).

During the last year NSI began to work on a statistically reliable PPI. It is based on about 600 groups of commodities and was published for the first time in February 1992. Unfortunately, this index was estimated on variable basis (per month of 1990). This makes it difficult to trace out the price dynamics in 1991. NSI intends to introduce a monthly chain index from the beginning of 1992.

During 1991 the index constructed on the basis of "price change influence" has increased less compared to PPI. (Their values are 393.1 and 503.1 at 1990 = 100). This means that the physical volume of output during 1991 has been overstated due to the officially used deflator.

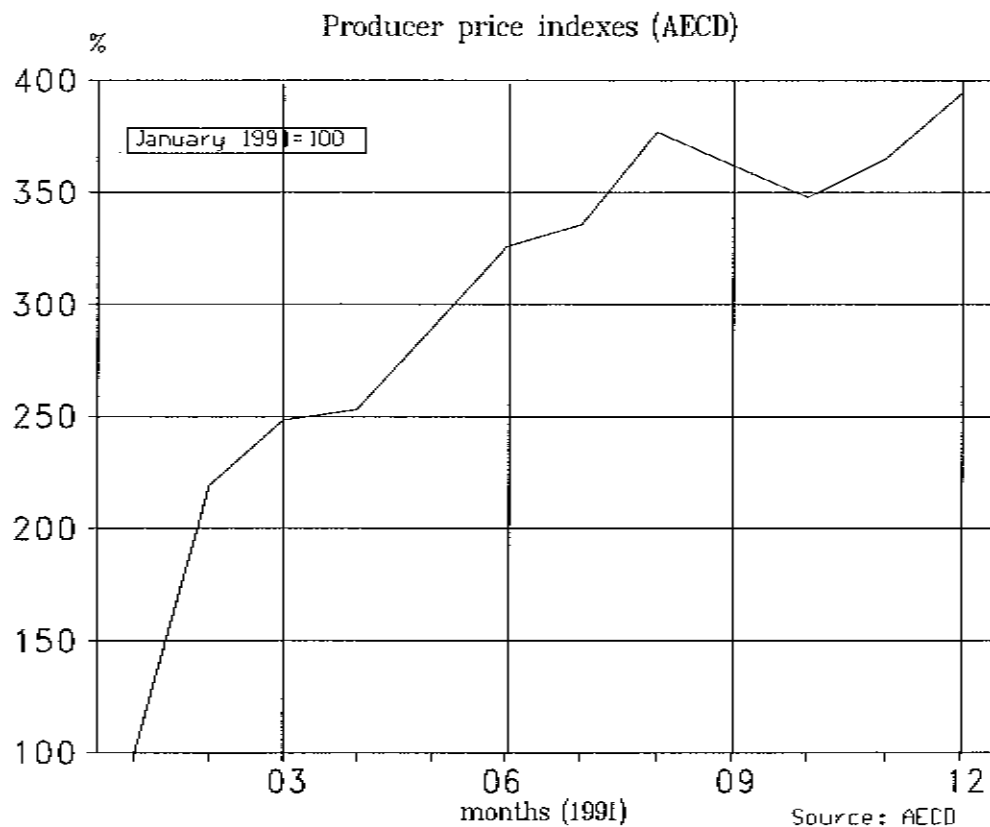


On the graph are compared the changes in the physical volume of industrial output derived: 1) by deflating with the nominal value of industrial output with "price change influence" (used as the official deflator in 1991) and 2) by deflating with PPI using the particular month of 1990 = 100, developed by NSI from information on the prices of 600 goods and groups of commodities.

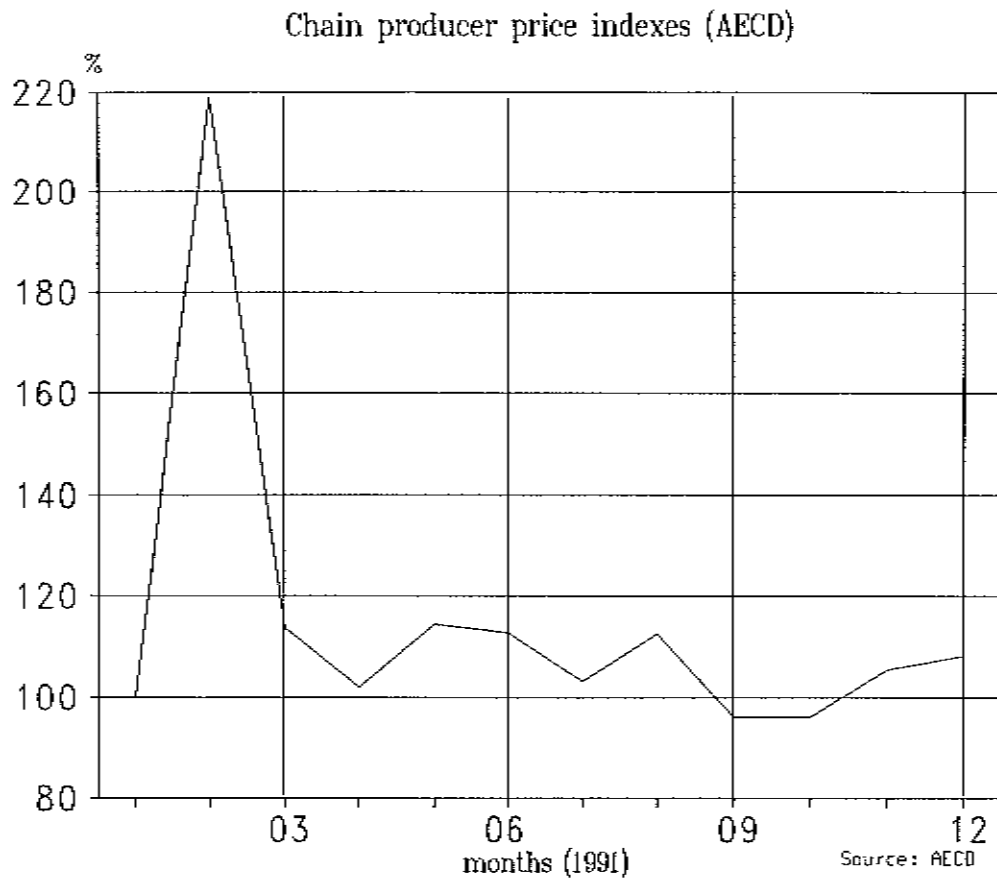
III. Producer price indexes - Agency for Economic Coordination & Development

The absence of dynamics for PPI induced AECD to develop chain indexes for every month of 1991 and a base index of output structure as of May 1991.

A necessary precondition for the construction of PPI is the presence of stable groups of goods, where data about the produced quantities and average monthly prices for every month of 1991 and January 1992 is available. This imposed an elimination of some groups of goods in the initial information provided by NSI where data is missing. A combination of 372 groups of goods was selected and it was used to estimate the PPI. The produced quantities (**May 1991**) of every group of goods were used as weights. The smaller number of groups of goods and their different weights were the reason for the different price indexes in January 1992 compared to January 1991, estimated by NSI and AECD.



The graph indicates the changes in producer prices (base: January 1991 = 100). The base PPI, developed by AECD, is estimated on the basis of a total number of 372 groups of goods.



The graph indicates the changes in producer prices compared to their level from the previous month of 1991. The chain indexes of producer prices, developed by AECD, are calculated on the basis of a total number of 372 groups of goods.

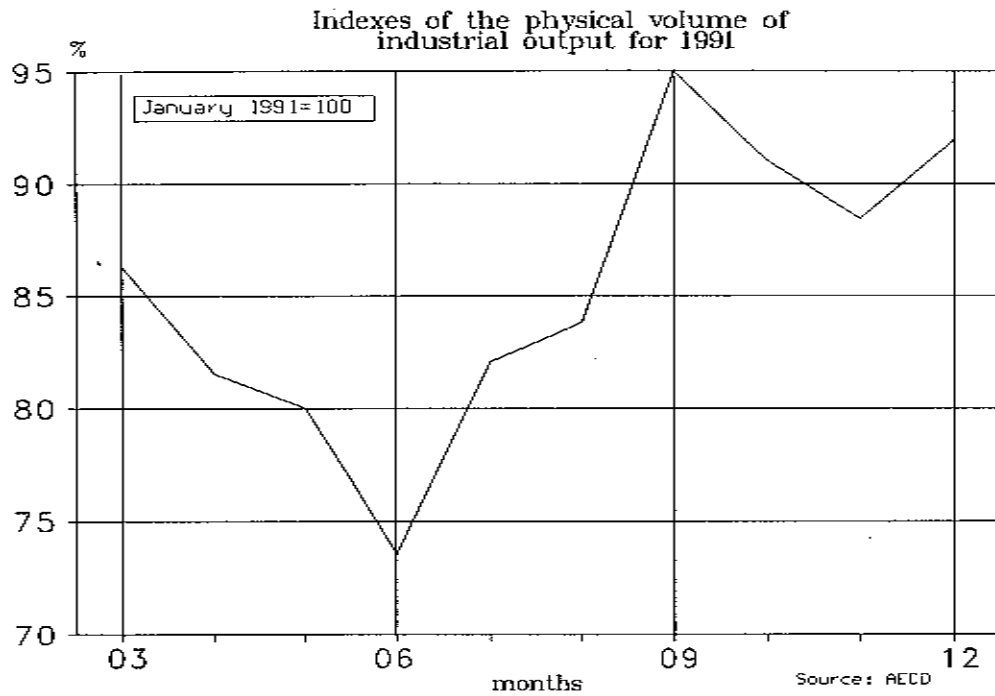
On the basis of these 372 groups of goods, AECD developed an index for the physical volume of industrial output as well. The index was calculated using the following formula:

$$\frac{\sum Q_{i1} \cdot P_i}{\sum Q_{i0} \cdot P_i}, \quad \text{where:}$$

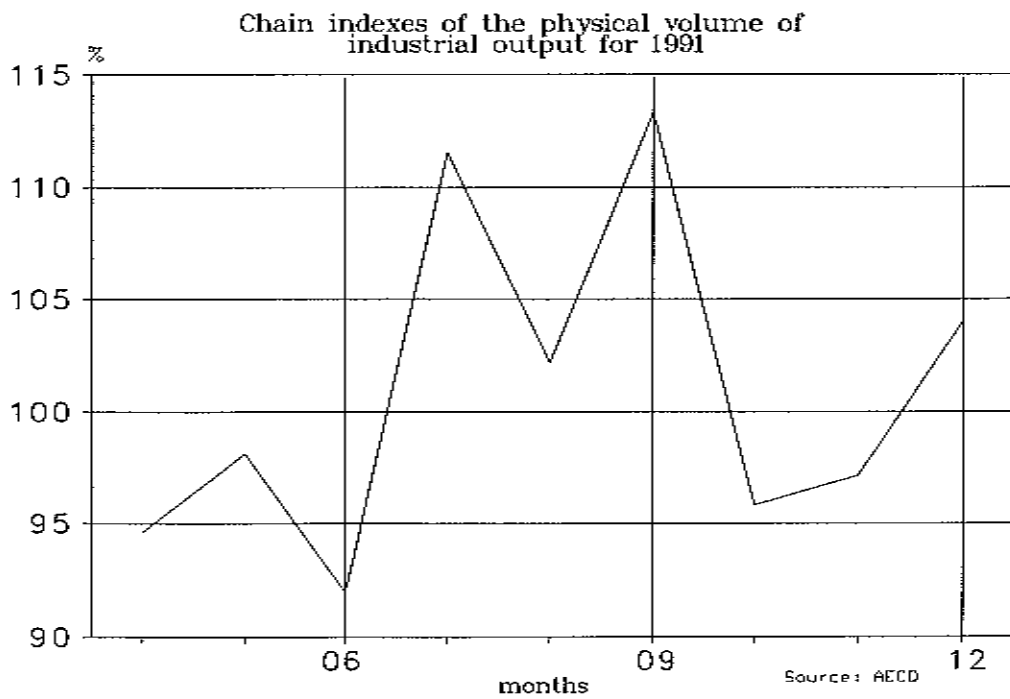
Q_{ij} - produced quantities from i -th group of goods in period j

P_i - average price of the i -th group of goods in May 1991

The total index of the physical volume of industrial output is calculated when the average weights of the indexes for the different branches of industries are made to be equal to the relative share of output in the total volume of output in May 1991. This algorithm is similar to the one used in the calculation of CPI: the indexes of the 13 groups of goods are taken as average of the relative shares of the household expenditures on every group.



The graph indicates the changes in physical volume of the industrial output (base: January 1991 = 100). The base indexes of the physical volume, developed by AECD, are estimated on the basis of a total number of 372 groups of goods.



The graph indicates the changes in physical volume of the industrial output compared to its level from the previous month of 1991. The chain indexes of the physical volume, developed by AECD, are estimated on the basis of a total number of 372 groups of goods.

IV. Real interest rate - Methodology of Calculation

The widespread opinion that the real interest rate is the difference between the nominal interest rate and the inflation rate appears to be unsuitable when there is substantial increase in the price level. In this cases, the real interest rate remains under its theoretical lower limit of - 100%. Because of this reason, Fisher's formula should be used when calculating the real interest rate:

$$r = (y - i)/(1 + i), \quad \text{where}$$

r - real interest rate

y - nominal interest rate

i - inflation rate.

The formula is applied differentially for:

1) Producers and consumers: For the producers the nominal interest rate is adjusted to inflation rate, measured by the developed by AECD PPI for the particular period. For the consumers, as indicators of the inflation rate, were used CPI and RPI. Because of the similarity of the results, the conclusions are derived on the basis of deflation with CPI as more precise indicator of inflation process.

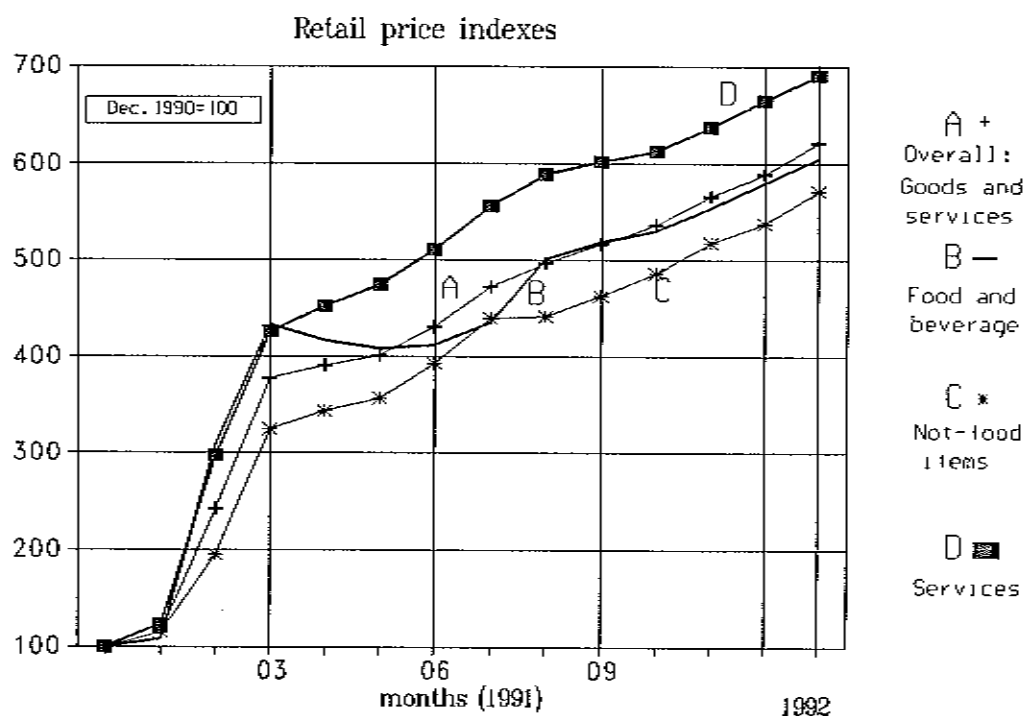
2) Deposits and credits: As nominal interest rate in the above formula, is used the provided by BNB data about average interest rate on deposits and credits. From one side, they are adjusted to the expected inflation rate (i.e. to the inflation rate from the previous month), and from other side - to the registered inflation in the particular month.

The real interest rate is calculated for each month of 1991 and also for every possible subperiod of the year. For periods longer than one month, the nominal interest rate is forecasted on the basis of the monthly interest capitalization.

SOME TENDENCIES IN THE 1991 INFLATION

I. Consumer prices

There are several important tendencies outlined in the consumer prices situation.



The graph indicates simultaneously the changes in retail prices of: goods and services (total), food and beverage, not-food items and services (base: December 1990 = 100).

1. In the initial price shock of February - March, the adaptation of foodstuffs' and services' prices caused an increase higher than the average increase of these retail prices. After March, the relative prices of foodstuffs decreased in parallel with the increase in the relative prices of services.

2. The consumer prices structure in March - December is characterized with decrease in the relative prices of foodstuffs and increase in the relative prices of home furnishing expenditures and housing. The calculation of CPI on basic goods and services (food, clothing, housing, transportation, and taxes) indicate an increase of 50.5% during March - December, which completely corresponds to the average CPI for this period.

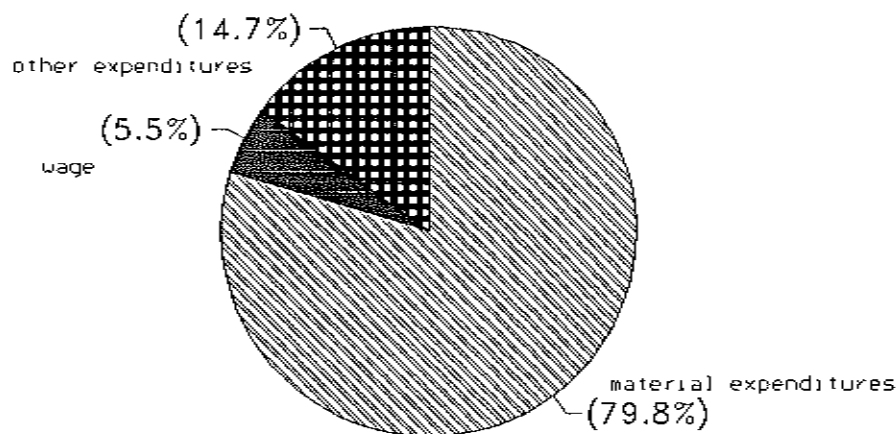
3. The dynamics of the so called "controlled prices" of 14 commodities is not representative for the total dynamics of consumer prices. The conducted experiments indicate that there is **not correlation** between the controlled prices (in the first two weeks per month) and the registered CPI per month. This means that their change for the first 14 days of the month is not representative for the inflationary process and trend in the particular month.

II. Producer prices

1. Structural changes in industrial current expenditures

As it could be expected, the inflation in 1991 is a typical cost push inflation. According to PPI, estimated by the NSI on the basis of "price change influence", for the first nine months of 1991 (compared to the same period of 1990) producer prices increased by 282%.

The contribution of every component of current expenditures in industrial PPI growth



Source: NSI, AECO

The graph indicates that from the total increase of producer prices (estimated by "price change influence"), 79.8% is due to the increase in the prices of the used raw materials, fuels, energy, etc., 5.5% is due to the nominal increase in wages in the industry, 14.7% is due to the increase in the prices of other expenditures (including: external services, social security, amortization).

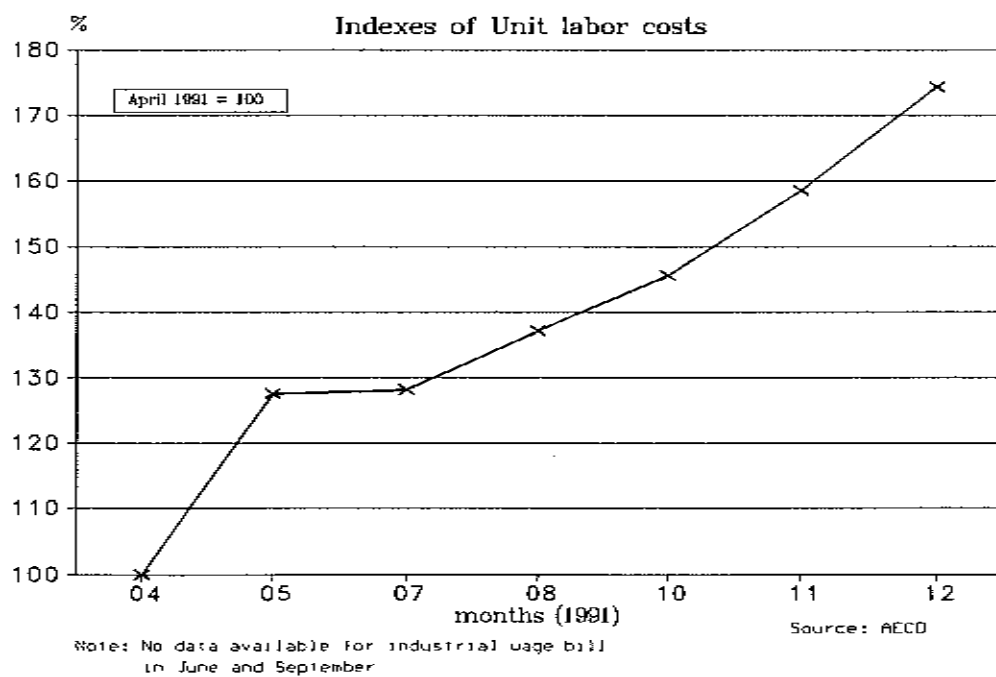
The used up materials¹ contribution to the increase in the total index is 79.8%, wage increase is 5.5%, and other expenditures'

¹ Raw materials, fuels, energy and other material expenditures used in industry are included.

prices² is 14.7%. The main contribution of the first component is due to its large relative share in the current expenditures' structure. Another factor is the higher increase in the prices of raw materials compared to those of the remaining expenditures. The fuel price index (calculated on the basis "price change influence") is 859.5%, and that of raw materials - about 400%. As a result of the different inflation rate, the share of fuels increases from about 7% to 15.6%, raw materials maintain their initial share. In the total structure of industrial expenditures, there is a sharp increase in the material expenditures (from 72.06% in 1990 to 79.59% in the first nine months of 1991).

The share of **wages** in current expenditures declined from 11.34% in 1990 to 7.69% for the first nine months of 1991. Wages, despite of their larger relative share in 1990, have a slight impact on the prices of industrial output.

After the price shock of February and March, the growth in the real wage in general outpaced the growth in industrial output (April 1991 = 100). This is reflected in the "unit labor cost" dynamics. In December its level was 74% higher than the one from April.³



The graph indicates the change in the "Unit labor costs" (base: April = 100), showing the ratio between the real wage bill and the physical volume of output.

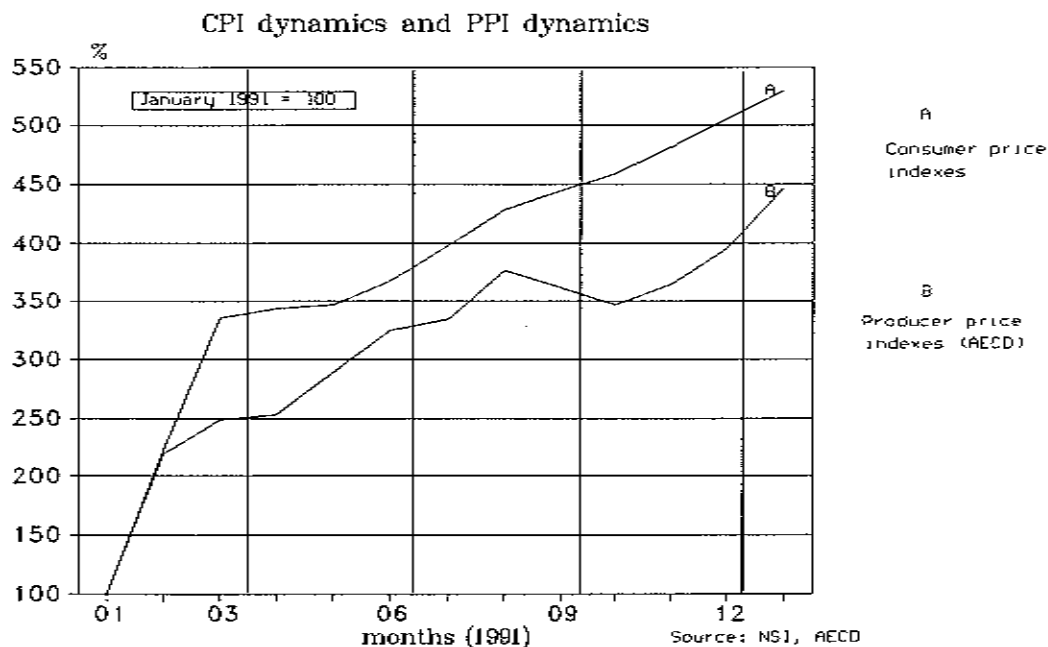
² Included are the expenditures on external services, amortization, social security, etc.

³ "Unit labor costs" measures the ratio between the real labor cost and the physical volume of manufactured output. The real labor cost is calculated by deflating wage bill in industry by CPI (April = 100). The real production is derived by deflating industrial output by PPI, calculated in the AECD (April = 100).

The information about the financial results of the enterprises show that toward the first half of 1991 the **interests on credits** for the entire economy represent 83.43% out of the total interest and 3.46% out of the total enterprises' expenditures⁴. As of the end of the first nine months of the year, these shares are 86.85% and 4.22% respectively. For the same period, the share of the industrial enterprises' financial expenses in their total expenditures is about 7%. The biggest share of the financial expenditures is attributed to the following subbranches: electricity and heating (9.3%), non-ferrous metallurgy (9.7%), machine building and metal processing (13.6%), and construction building materials (9.6%).

2. Dynamics of producer prices

The dynamics of producer prices is estimated on the basis of the AECD index.



On the graph are compared the changes in producer and consumer prices (base: January 1991=100).

1. The total producer price level has increased less than that of the consumption prices (for the period December 1991/December 1990). Meanwhile, the structure of the relative prices has underwent a radical change. The

⁴ Included are enterprises' activities (salaries, social security and bonuses, amortization, accounting value of the sold goods, material expenditures), financial expenditures (about 60% of them are interest payments), extraordinary expenditures.

“firstechelon” branches which production was systematically undervalued in the past, registered a jump in the prices between 5 - 10 times. Contrary, prices of the machine building and electronics, which prices were artificially high indicate substantially lower growth compared to the average one for the industry.

2. The dynamics of the producer prices has significant differences compared to the consumer prices. The indexes indicate an increase up to August, slight drop in September-October, and a new increase until January 1992. (According to the available data, the producer price level in December is 58.8% higher compared to the one from March and 294.4% higher compared to January). The initial price shock has had stronger impact on consumer prices, and after that PPI began to fluctuate increasingly with a tendency toward acceleration (compared to CPI) during the last months of the year.

3. Some branches, manufacturing goods and services for personal consumption, could be compared with producer and retail prices dynamics. There is a significant difference between producer and retail prices. This means that the mediating role is significant in determining the ultimate price level.

At the same time, it would be misleading to claim that producers did not take advantage of inflation as did the traders. Practically, the price processes in the spheres of production and consumption have certain autonomy. The producers do not only sell, but buy at prices different than the producer prices, so the final result is a product of developments in the relative prices and production efficiency.

III. Price dynamics and real interest rate

1. Real interest rate and deposits dynamics

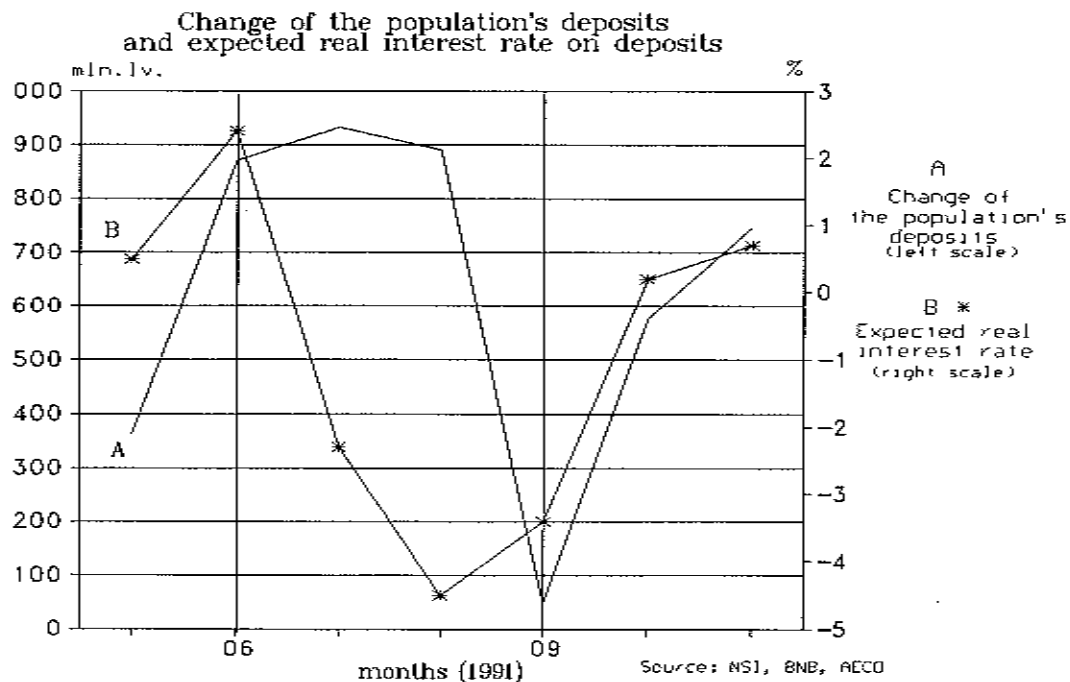
The factors determining the deposits dynamics are connected with both values of the current interest rate and expected inflation. In order to estimate the impact of population's expected inflation, was used the inflation rate from the previous month, measured by CPI.

Expected real interest rate on deposits

MONTHS	III	IV	V	VI	VII	VIII	IX	X	XI	XII
March	-53.8									
April	-68.4	-31.6								
May	-68.3	-31.2	0.5							
June	-67.5	-29.6	2.9	2.4						
July	-68.3	-31.2	0.5	0.0	-2.3					
August	-69.7	-34.3	-4.0	-4.5	-6.7	-4.5				
September	-70.7	-36.6	-7.3	-7.7	-9.9	-7.7	-3.4			
October	-70.7	-36.4	-7.1	-7.6	-9.7	-7.5	-3.3	0.2		
November	-70.4	-36.0	-6.4	-6.9	-9.0	-6.9	-2.6	0.9	0.7	
December	-70.7	-36.6	-7.2	-7.8	-9.8	-7.7	-3.5	0.0	-0.2	-0.9

The table diagonally indicates population's expected profit (+) /loss (-)/ on one month deposits (in % on deposit's volume). Columns indicate expected profit/loss on deposit for a given month from the title row to the concrete month on the front column of the table. Rows indicate expected profit/loss on deposits made during the different months of title row up to a given month from the front column.

During most months of the observed short period (April-December 1991) the changes in the real interest rate (increasing or decreasing) are accompanied by similar changes (increasing or decreasing) in the deposits.



The graph indicates simultaneously the monthly changes in the expected average interest rate on deposits and the change in the volume of population's deposits.

In April, when the expected real interest rate is highly negative (- 31.6%), the deposits remain on the same level as from March. During May and June, the expected real interest rate is positive as the population's deposits increase substantially (by 1224 mln.leva). The same situation is observed in October and November where there is a complete correspondence between the change in the expected real interest rate and the increase in population's deposits. In December, when the expected interest rate is slightly negative, deposits increase sharply which is probably due to the collected annual interest on population's deposits and the increase of population's incomes after October as a result of wage negotiations.

The lack of financial market in many cases makes deposits the only possible way of investment for the population, regardless of the interest rate. The lack of enough experience is also a reason for inadequate response of deposits to changes in real interest rate.

The impact of inflationary processes (measured by CPI) on real volume of deposits is estimated by comparison of the accumulated interest and the registered inflation rate for different periods after February 1991.

Real interest rate on deposits

MONTHS	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
February	-53.9										
March	-68.5	-31.6									
April	-68.4	-31.3	0.4								
May	-67.7	-29.8	2.7	2.2							
June	-68.5	-31.6	0.1	-0.4	-2.6						
July	-69.9	-34.7	-4.5	-4.9	-7.0	-4.6					
August	-71.0	-37.1	-8.0	-8.4	-10.4	-8.0	-3.7				
September	-71.0	-37.1	-8.0	-8.4	-10.4	-8.0	-3.7	0.0			
October	-70.8	-36.7	-7.4	-7.8	-9.8	-7.4	-3.0	0.7	0.7		
November	-71.1	-37.3	-8.2	-8.7	-10.6	-8.2	-4.0	-0.2	-0.3	-0.9	
December	-71.3	-37.8	-8.9	-9.4	-11.3	-8.9	-4.7	-1.0	-1.1	-1.7	-0.8

The table diagonally indicates population's actual profit (+)/loss (-)/ on one month deposits (in % on deposit's volume). Columns indicate actual profit/loss for a given month from the title row to the concrete month of the front column of the table. Rows indicate expected profit/loss on deposits made during the different months of the title row up to a given month from the front column.

If interest rate on deposits is capitalized monthly, a deposit, made in February increases nominally by 44.82% at the end of 1991. Hence, for

February-December period, the inflation has devaluated not only the interest on deposits but also an average 71.31% of deposits themselves. This fact is observed even if the months stricken by the price shock (February and March) are excluded. For population's deposits, made during April-December, the inflation has devaluated not only the accumulated interest (41.06%) but 8.9% of deposits, as well. In June-December, the population savings has decreased by 11.32% in real terms.

The inflation has influenced mostly deposits made in September, October, and November and kept until December 1991: till the end of the year they decreased by between 1.02% and 1.66%. There are some periods of 1991 where deposits have increased in real terms and inflation has not completely destroyed the interest income. For example, in April, May, September, and October they increased by 0.45, 2.22, 0.02, and 0.67% respectively. The real interest rate is positive during the following periods: April-June and September-October, where the real interest income is 0.05 and 0.72% respectively.

The main conclusion is that **during the entire period March-December and its subperiods, the real interest rates on population's deposits have been negative.** The interest income has not been enough high to compensate for the increase in price level and hence, a part of population savings were devaluated. During the last months of the year (from September including), the absolute value of real negative interest rates is smaller. Only in some rear cases, mainly at the end of the year, the real interests turns into slightly positive.

2. Real interest rate and credits dynamics

The **population's** behavior on credit market was highly subjected to money illusion. The high nominal interest rate on new credits was holding back its financing from the bank system. During 1991, the volume of credits for the population decreased because the repayments on the old loans outpaced the size of the received new credits. There was an abstention from new credits regardless of the expected negative real interest rates in March, April, June, August, and September. When taking credits, the real interest rate is of great importance for the entire term of its repayment; however, its rate is hard to be predicted.

Expected real interest rate on credits

MONTHS	III	IV	V	VI	VII	VIII	IX	X	XI	XII
March	-53.3									
April	-67.7	-30.8								
May	-67.2	-29.7	1.6							
June	-66.0	-27.1	5.4	3.7						
July	-66.4	-28.1	3.9	2.4	-1.4					
August	-67.6	-30.6	0.3	-1.3	-4.9	-3.6				
September	-68.4	-32.3	-2.1	-3.7	-7.1	-5.8	-2.4			
October	-68.0	-31.4	-0.8	-2.4	-5.9	-4.6	-1.1	1.3		
November	-67.4	-30.2	1.0	-0.7	-4.2	-2.8	0.7	3.2	1.8	
December	-67.2	-29.9	1.3	-0.3	-3.9	-2.5	1.0	3.5	2.1	0.3

The table diagonally indicates population's expected profit (-)/loss (+) on new one month credits (in % on credit's volume). Columns indicate expected profit/loss for a given month from the title row to the concrete month of the front column of the table. Rows indicate expected profit/loss on deposits made during the different months of the title row up to a given month from the front column.

Real interest rate on credits

MONTHS	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
February	-53.5										
March	-67.9	-30.8									
April	-67.4	-29.7	1.6								
May	-66.3	-27.4	5.0	3.3							
June	-66.7	-28.3	3.6	2.0	-1.3						
July	-67.9	-30.9	-0.2	-1.7	-4.9	-3.6					
August	-68.8	-32.8	-2.9	-4.4	-7.5	-6.2	-2.7				
September	-68.5	-32.1	-1.8	-3.3	-6.4	-5.2	-1.7	1.1			
October	-67.9	-30.9	-0.1	-1.6	-4.8	-3.5	0.1	2.9	1.8		
November	-67.8	-30.8	0.1	-1.5	-4.6	-3.3	0.2	3.1	1.9	0.2	
December	-67.7	-30.5	0.6	-1.1	-4.2	-2.9	0.6	3.5	2.4	0.6	0.4

The table diagonally indicates population's actual profit (-)/loss (+) on new one month credits (in % on credit's volume). Columns indicate actual profit/loss for a given month from the title row to the particular months of the front column of the table. Rows indicate actual profit/loss on deposits made during the different months of the title row up to a given month from the front column.

Actually, the high inflation was favorable to those who took loans. For instance, a credit received in March (maturity at the end of 1991), was supposed to be returned with 69.52% interest in real terms. There were favorable conditions for taking credit in the periods May-December, June-December, July-December, and August-September, because the real interest rate on the new credits was negative. From September till the end of the year,

the real interest on taken new credits with 3 months term is slightly positive: The real interest was between 0.64 and 3.5%.

The enterprises' behavior on the credit market was determined by the average interest rate on bank credits, which exceeds the basic interest rate. The size of the prime increased significantly at the end of 1991.

The provided by BNB data about the average interest rate on credits from commercial banks makes it possible to estimate the real level of the accrued during 1991 interest on the new credits under one particular case: **when the interest is completely capitalized without payments on principal.** In general, these are the conditions under which the enterprises took credits in worst financial condition. This real interest rate represents to some extend **the upper limit of the interest burden** for the recipients of credit. Supposably, for enterprises in better financial condition (which for example, pay on regular basis their interest) the real interest burden is smaller.

Real interest rate on credits

MONTHS	IV	V	VI	VII	VIII	IX	X	XI	XII
April	2.3								
May	-6.8	-9.0							
June	-13.5	-15.4	-7.1						
July	-12.2	-14.2	-5.8	1.4					
August	-18.4	-20.2	-12.4	-5.7	-7.0				
September	-10.8	-12.8	-4.2	3.1	1.6	9.3			
October	-2.2	-4.5	4.9	13.0	11.4	19.8	9.6		
November	-2.2	-4.5	4.9	13.0	11.4	19.8	9.6	0.0	
December	-4.7	-6.8	2.4	10.2	8.6	16.8	6.9	-2.5	-2.5

The table diagonally indicates industrial enterprises' actual profit (-)/loss (+) on new one month credits (in % on credit's volume). Columns indicate actual profit/loss for a given month from the title row to the concrete month of the front column of the table. Rows indicate actual profit/loss on deposits made during the different months of the title row up to a given month from the front column.

PPI was used as deflator of interest rates on credits. The average interest rate is positive in real terms (up to December) for the credits taken in July, August, September, and October. The real interest rate on credits taken in June (after the fourth month) is also positive. Because of the increase in producer prices at the end of the year, the credits taken in November and December are again with zero or negative real interest rate.

Producer price indexes in industry in 1991

MONTHS	Chain indexes	Base indexes
January	100.00	100.00
February	218.87	218.87
March	113.48	248.37
April	101.75	252.71
May	114.40	289.11
June	112.54	325.35
July	102.98	335.06
August	112.43	376.70
September	96.06	361.85
October	95.94	347.15
November	105.18	365.13
December	108.01	394.37
Jan. 92	113.27	446.69

Source: NSI, AECD

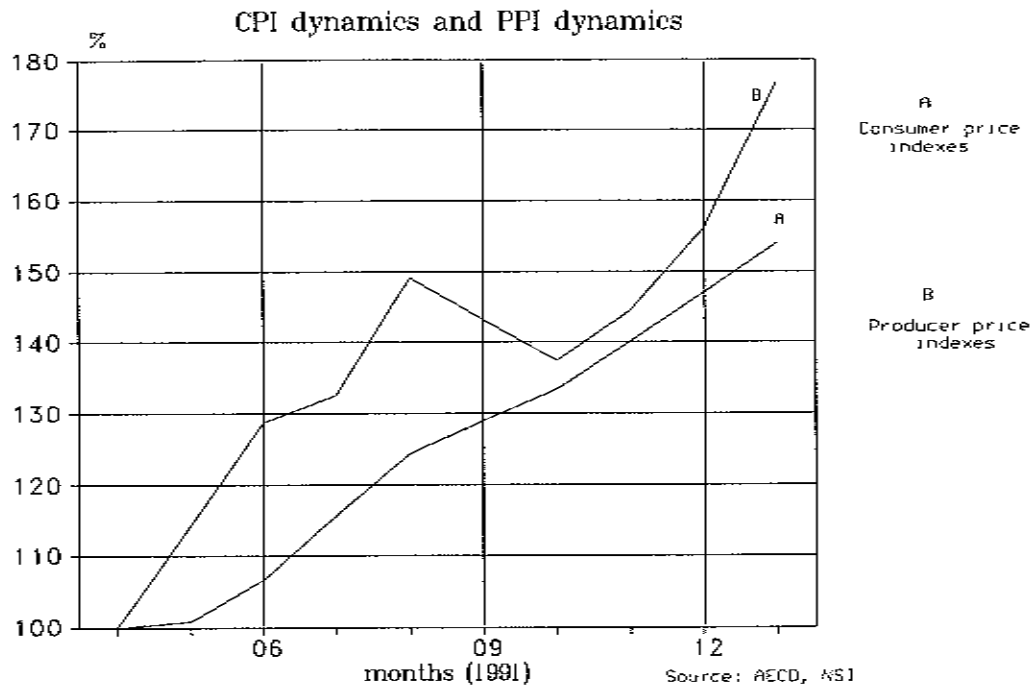
Base and chain PPI, developed by AECD, are calculated on the basis of a total number of 372 groups of goods. Because of lack of information, in the total PPI is not included the change in the prices of ferrous metallurgy.

Indexes of the physical volume of industrial output in 1991

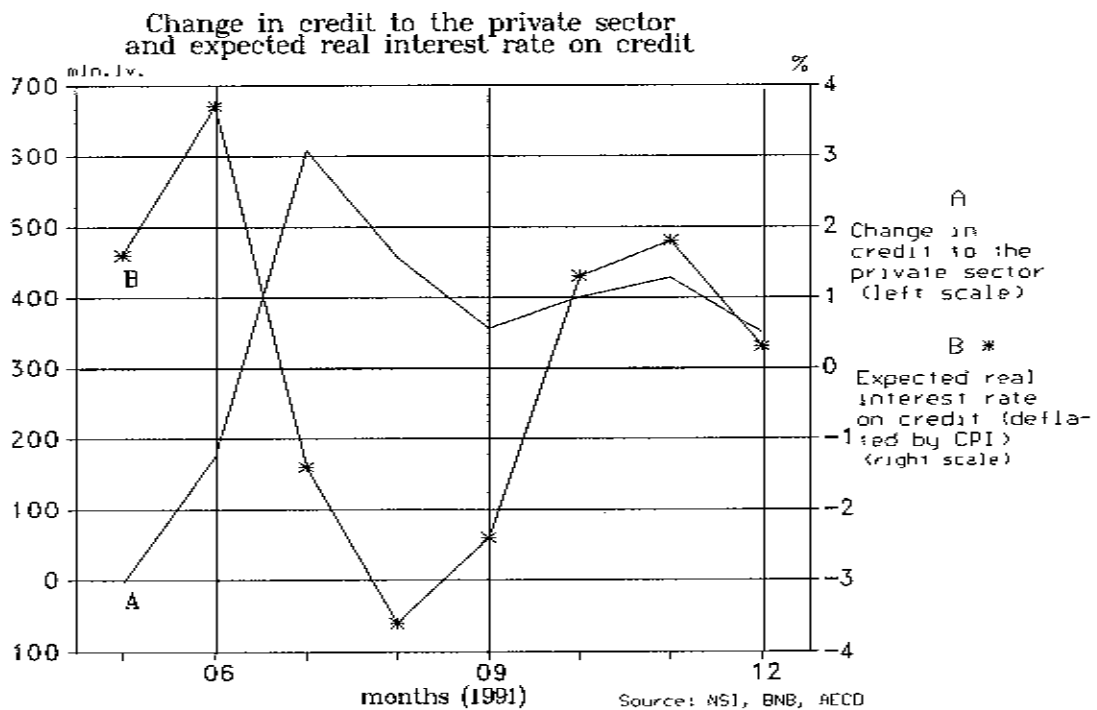
MONTHS	Chain indexes	Base indexes
January	100.00	100.00
March	86.25	86.25
April	94.58	81.57
May	98.11	80.03
June	91.94	73.58
July	111.51	82.04
August	102.17	83.83
September	113.28	94.96
October	95.85	91.03
November	91.17	88.45
December	103.94	91.94
Jan. 92	72.52	66.68

Source: NSI, AECD.

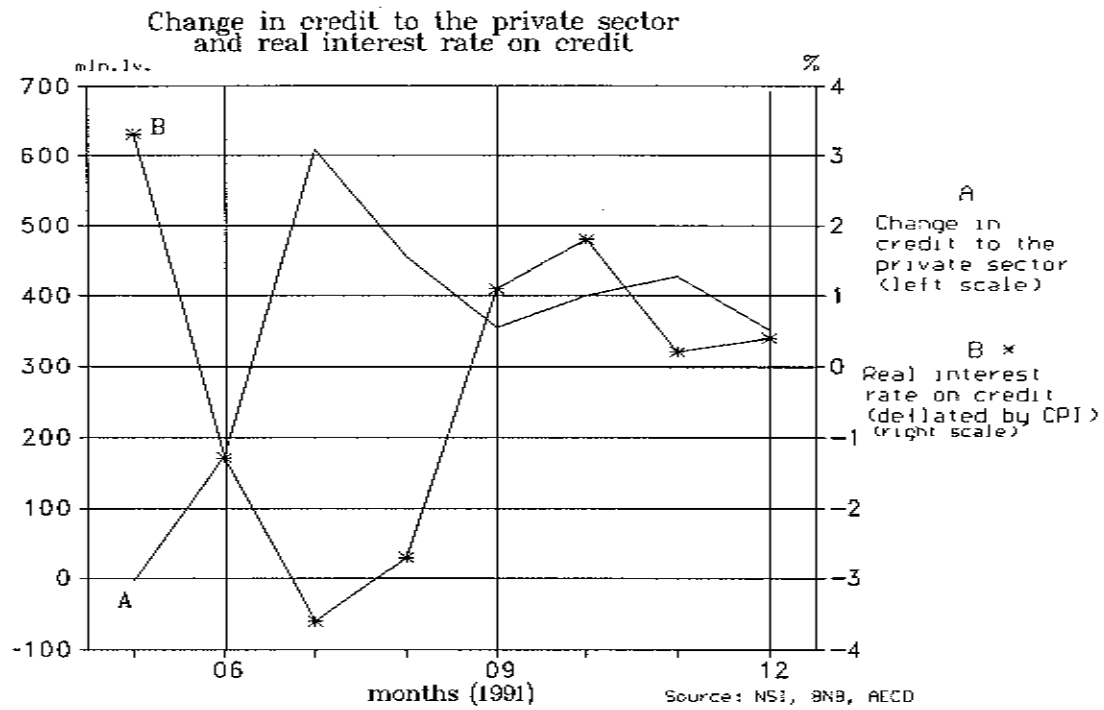
Base and chain indexes of the physical volume of industrial output is developed on the basis of a total number of 372 groups of goods. Because of lack of information, in the total index is not included the change in the physical volume of output of ferrous metallurgy.



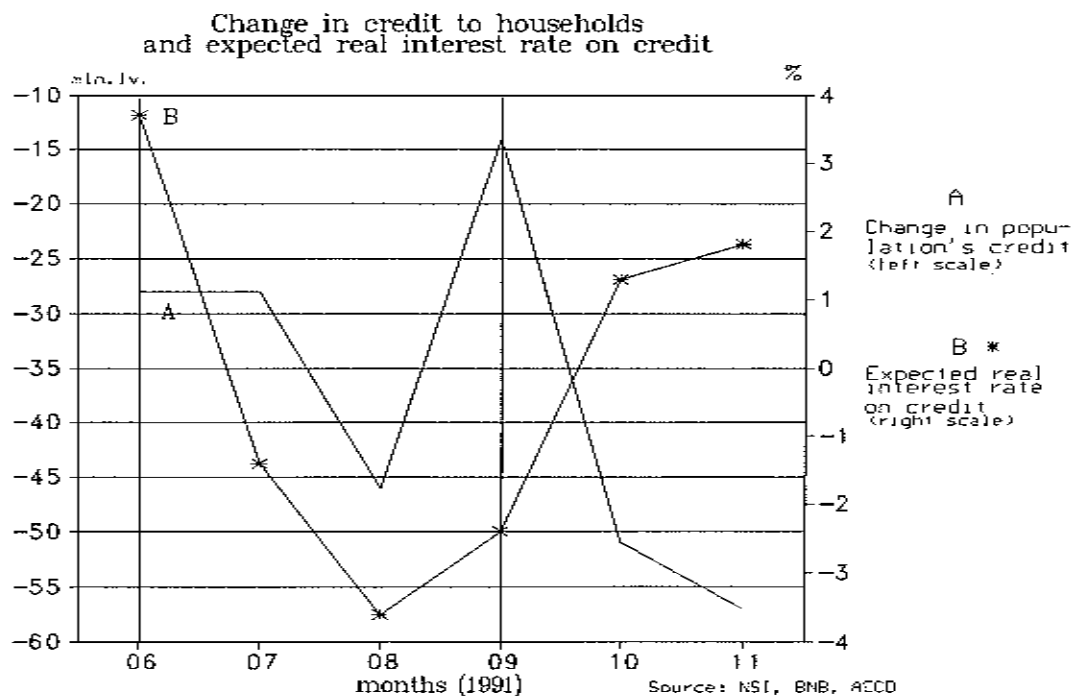
On the graph are compared the changes in producer prices (developed by AECD) and consumer prices (base: April = 100)



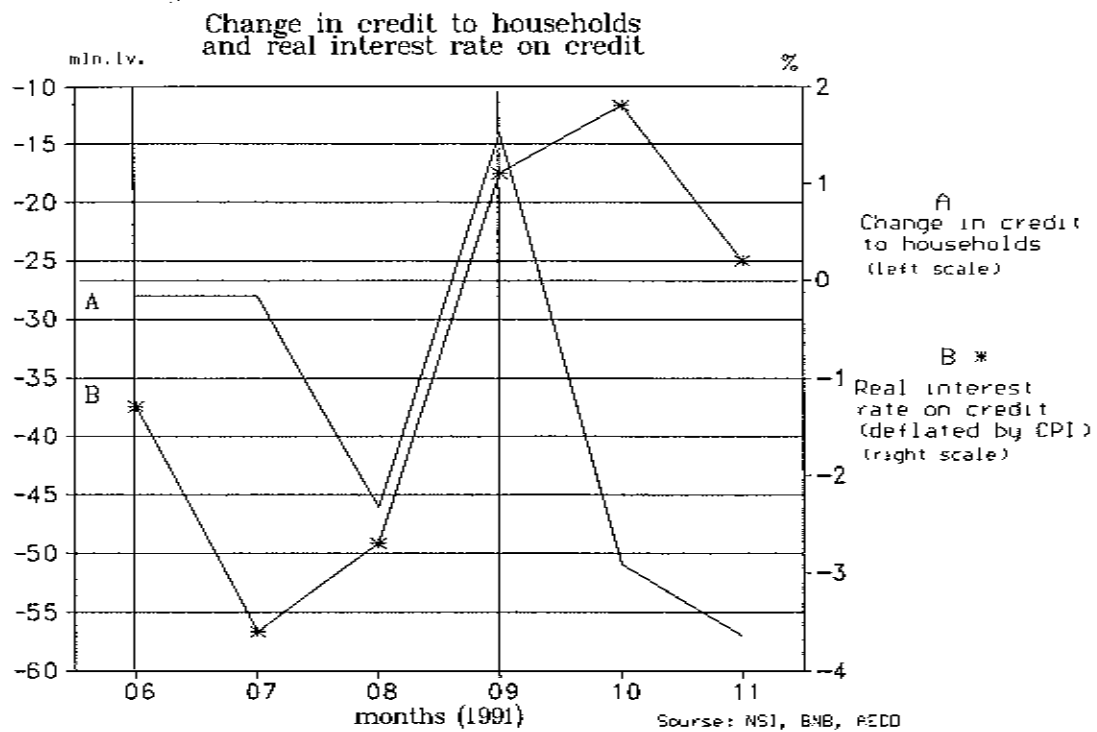
On the graph are compared simultaneously the monthly increase in credits for the private sector (including for the population) in 1991 and the expected real interest rate. The expected real interest rate on credits is calculated by adjustment of the nominal interest rate with the inflation (measured by CPI) from the previous month.



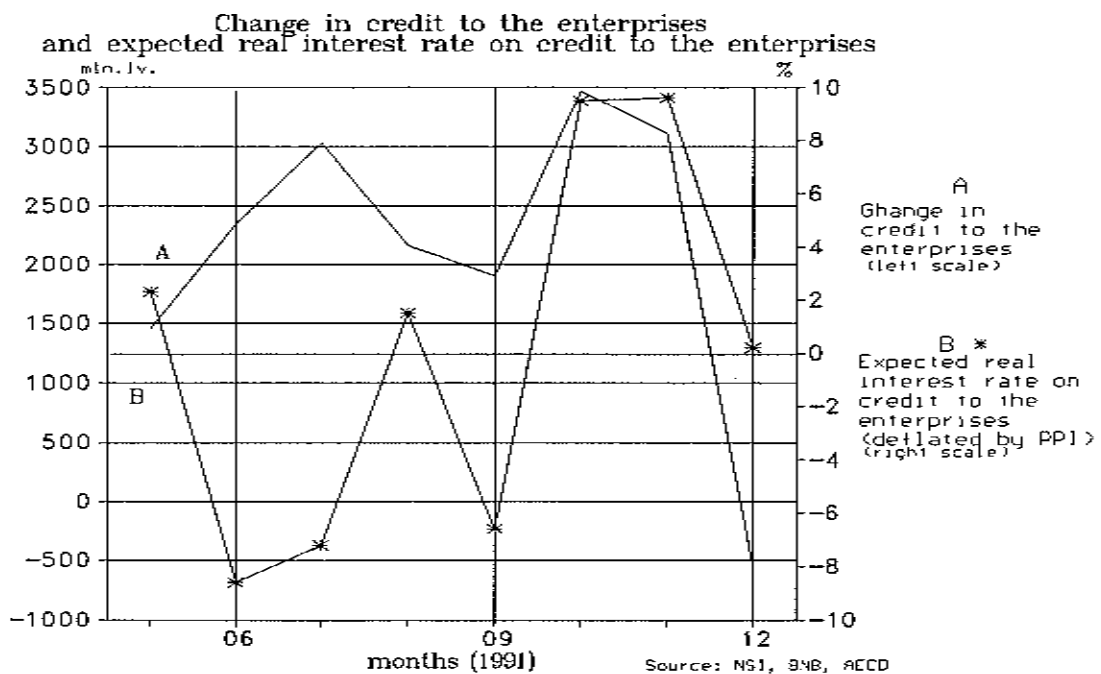
On the graph are compared the monthly increase in credits for the private sector (including for the population) in 1991 and the actual real interest rate.



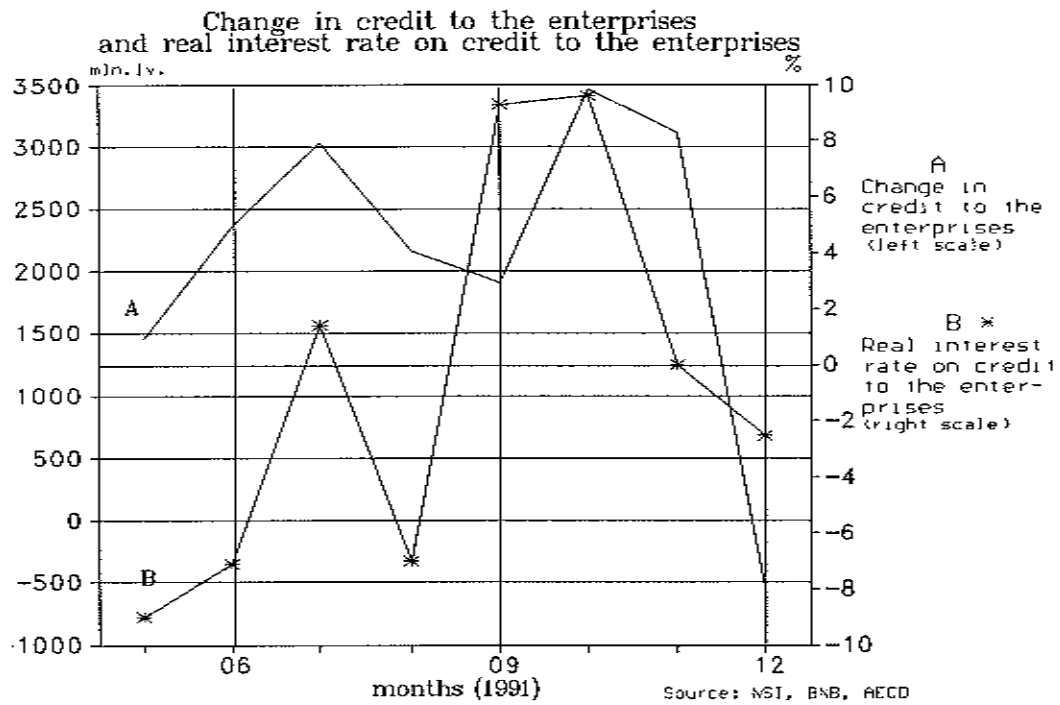
The graph indicates the relationship between the change in the volume of credits for the population and the expected monthly real interest rate in 1991. The expected real interest rate is calculated by adjusting the nominal interest rate on credits with the inflation (measured by CPI) from the previous month.



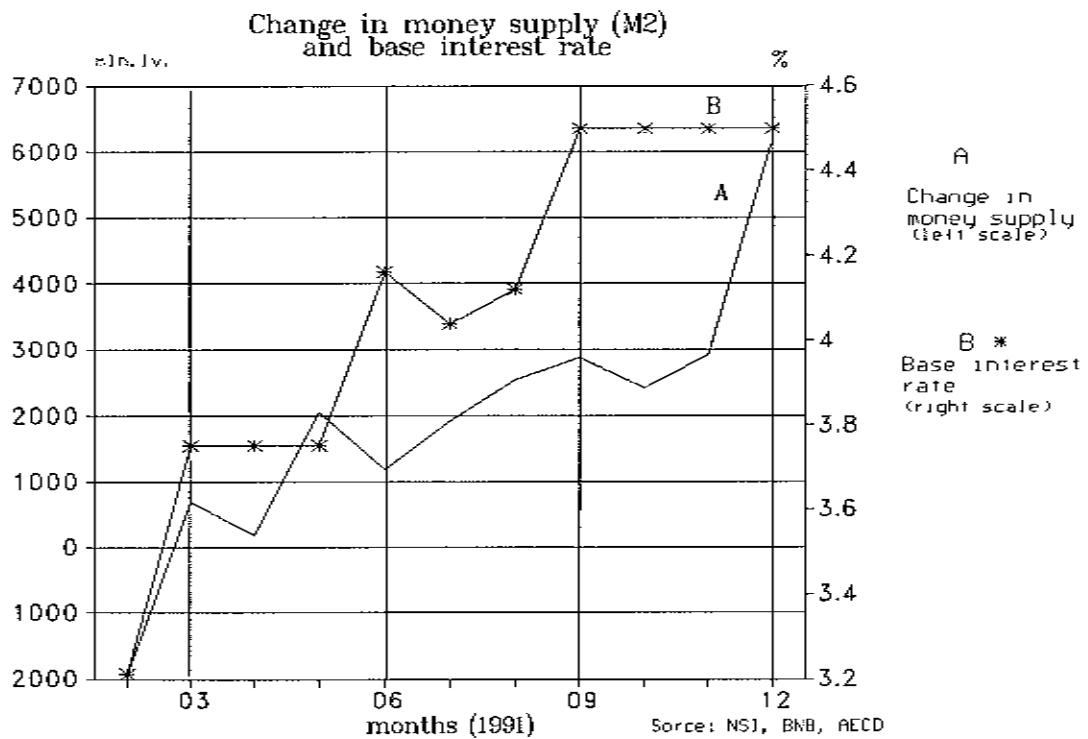
The graph indicates the relationship between the change in the volume credits for the population and the registered monthly real interest rate in 1991.



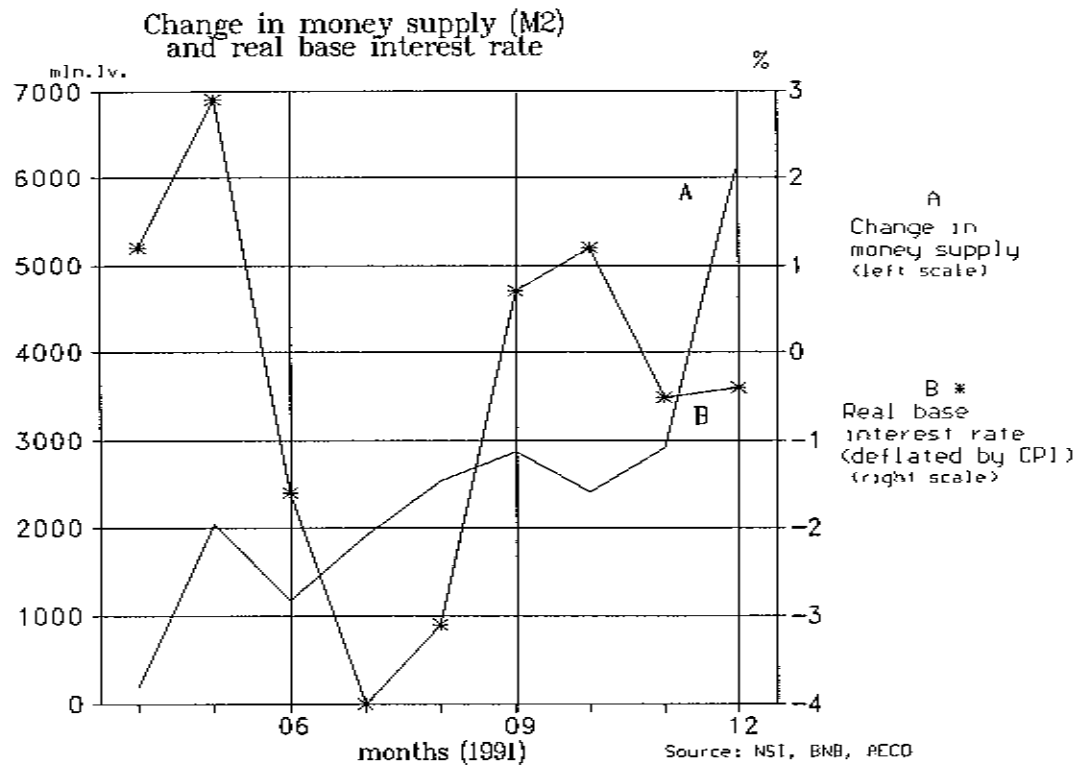
The graph indicates simultaneously the change in the volume of credits for the enterprises and the expected monthly real interest rate in 1991. The expected real interest rate is calculated by adjusting the nominal interest rate on credits with the inflation (measured by PPI) from the previous month.



The graph indicates the relationship between the change in the volume credits for the enterprises and the registered monthly real interest rate in 1991.



Graphically is indicates the relationship between the increase in the money aggregate (M2) (only the component in leva) and the basic interest rate.



The graph indicates simultaneously the increase in the money aggregate (M2) (only the component in leva) and the real basic interest rate, derived by adjusting the basic interest rate with CPI.

A E C D Paper Series

Policy Paper Series

1. On the Pace of the Economic Reform and Economic Policy Objectives by the End of 1991 (June, 1991).
2. R. Avramov (ed.) - Economic Stabilization in Bulgaria in 1992 (June, 1992).

Working Paper Series

1. M. Nenova - The 1991 Budget and Some Policy Implications in 1992 (March, 1992).
2. M. Zhecheva, R. Avramov, V. Chavdarov - Inflation and the Interest Rate in 1991 (March, 1992).
3. St. Barzashki - Employment and Unemployment in the Process of Stabilization (March, 1992).
4. N. Georgiev, N. Gospodinov - Monetary Policy: Mechanisms and Outcomes (March, 1992).
5. R. Injova - Privatization in Bulgaria (July, 1992).
6. M. Zhecheva, N. Mileva - Price Controls and Inflation in Bulgaria, 1991 - 1992. (November 1992).

Business Survey Series

1. "The Year of the Iron Sheep" - Business Survey of the Bulgarian Economy in 1991 (December, 1991).
2. 1992 Annual Report on the State of the Bulgarian Economy (December, 1992).
3. Monthly Business Surveys - Since October 1991.
4. Quarterly Business Surveys - Since I Quarter 1992.