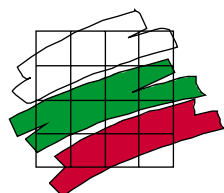


# WORKING PAPER SERIES

## **INFLATION UNDER A CURRENCY BOARD ARRANGEMENT. FACTOR ANALYSIS**

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## INTRODUCTION

Over the 1991 – end-1999 period, inflation in Bulgaria was high and unstable due to the sluggish structural reform, administrative intervention in the economy and growing shortages. These were the factors at play brought about by the indetermination of the then Bulgarian governments to undertake and implement some decisive measures that would have transformed the country's economy into a genuine market economy. All this resulted in growing disequilibria that inevitably led to the crisis-ridden situation of mid-1996 when consumer prices were steadily growing by 20.4% on a monthly basis and early-1997 when inflation in the country reached hyperinflationary levels.

The currency board arrangement of July 1997 was the only reasonable way out of the political and economic crisis the country was steadily bottoming out. One of the main goals of the currency board arrangement was to stabilise prices using the nominal anchor of a foreign exchange peg coupled with reductions in the budget deficit, rigid financial discipline, especially of state-owned enterprises (SOEs), strict supervision of the banking system and accelerated restructuring of the economy.

Since the institution of the currency board in July 1997 to end-1999, inflation amounted to 24.5%.

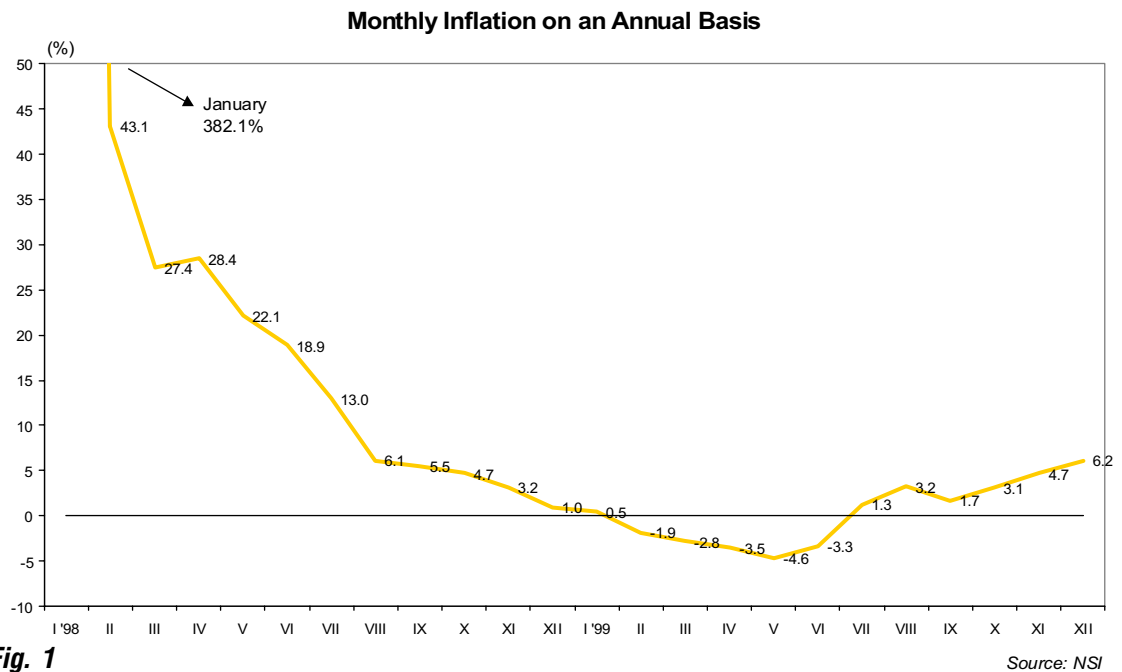
**Table 1. Inflation Following the Institution of the Currency Board**

<i>Periods</i>	<i>Inflation</i>
<i>July - December '97</i>	<i>16.2%</i>
<i>January - December '98</i>	<i>1.0%</i>
<i>January - June '99</i>	<i>-2.0%</i>
<i>July - December '99</i>	<i>8.3%</i>

*Source: The National Statistical Institute (NSI).*

The process of disinflation under the currency board arrangement can be best seen on the basis of the annual inflation indices by months (fig. 1). In end-1997, inflation took a swift downward trend, with the second 1998 half-year period and mid-1999 witnessing a decrease in the consumer price level. In the second half of 1999, inflation began to steadily rise again. The expectations were that instead of rising again, the price level would stabilise.

The paper presents a systematisation of the factors influencing the price level in Bulgaria while tracing and assessing the direction of price change under a currency board arrangement. The factors are dealt with in the sequence of their development and impact on inflation. A specific and key factor influencing the price index over the July 1997 – December 1999 period had to do with the food supply shortage in 1996 and early-1997, a factor that is first handled by the present analysis. As the relative



weight of food items in the consumer basket is rather high<sup>1</sup>, food price dynamics influences inflation in the utmost degree. The profile of the monthly inflation curve, as seen on fig. 1, was almost entirely due to the impact of this factor. To diminish its influence the government undertook counteractions to liberalise imports as early as mid-1997 striving to overcome the domestic supply shortage of some basic food products. Foreign trade liberalisation and changes in indirect taxes were another factor influencing inflation in Bulgaria over the period surveyed.

Administered price adjustments are still another factor whose impact has grown over the years, followed by international price dynamics which is the most important factor of inflation under the currency board arrangement instituted in Bulgaria.

The country's macroeconomic stabilisation following the currency board institution was a factor contributing to and fostering the increase in consumption and investment activity. The influence of demand on inflation is dealt with in Part 5 of this paper. The analysis ends up with the analyst's findings as to the correlation between money supply and inflation. It was only after the institution of the currency board in Bulgaria that this correlation has become statistically significant.

As long as inflation is a monitored macroeconomic variable under a currency board arrangement, developing a better understanding of the factors of inflation in Bulgaria means adequate forecasting. Subject to administration are only administered price adjustments and the prices of natural monopolies.

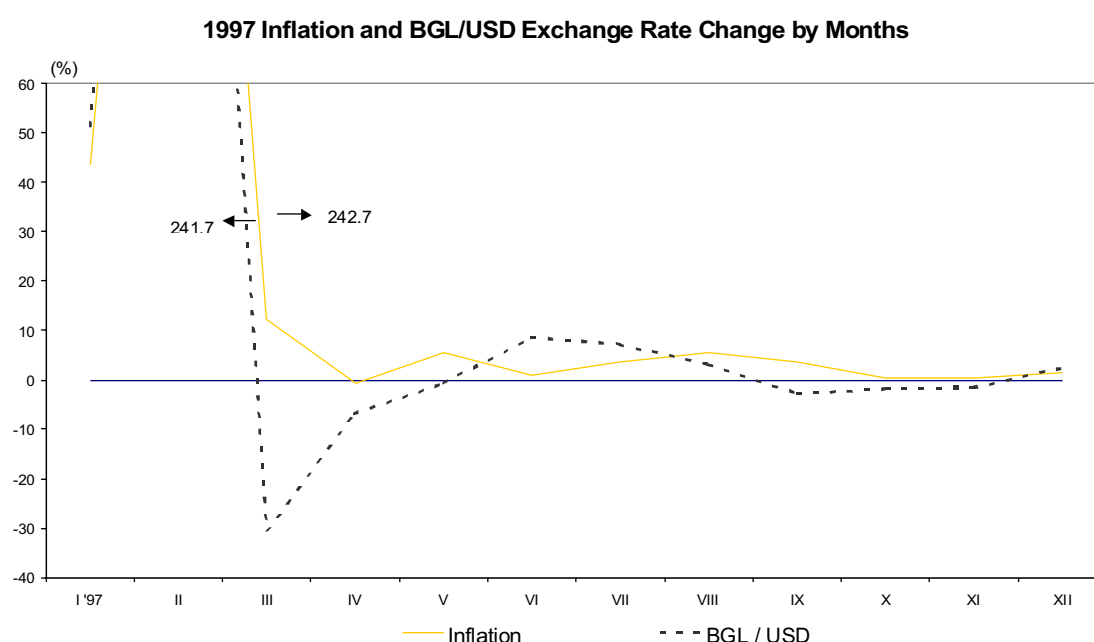
<sup>1</sup> *The weight of food items in the CPI in 1996, 1997, 1998 and 1999 amounted to 48.3%, 51.8%, 55.1% and 47.8% respectively. In 2000, the relative share of food items in the consumer basket amounted to 43.0%.*

## 1. THE 1997 SHOCK - OVERSHOOTING OF FOOD PRICES

The end- 1996 monetisation of government debt servicing was at the core of the runaway inflation and enormous depreciation of the Bulgarian currency in early 1997. In 1996, base money reported a two-fold increase, carrying on growing at a rather fast rate in early-1997 as well.

Alongside the indiscriminate money printing that ran out of control, the cereal shortage in Bulgaria of end-1995 that further deepened in 1996 proved to be another important reason behind the country's high inflation and depreciation of the Bulgarian lev.

In February 1997, the Bulgarian currency registered a 3.4-fold<sup>2</sup> depreciation against the US dollar. Following the resolution of the political crisis, the USD in March decreased significantly on a month earlier. This in turn affected the price level in April – the first month to see 0.7% deflation.



**Fig. 2**

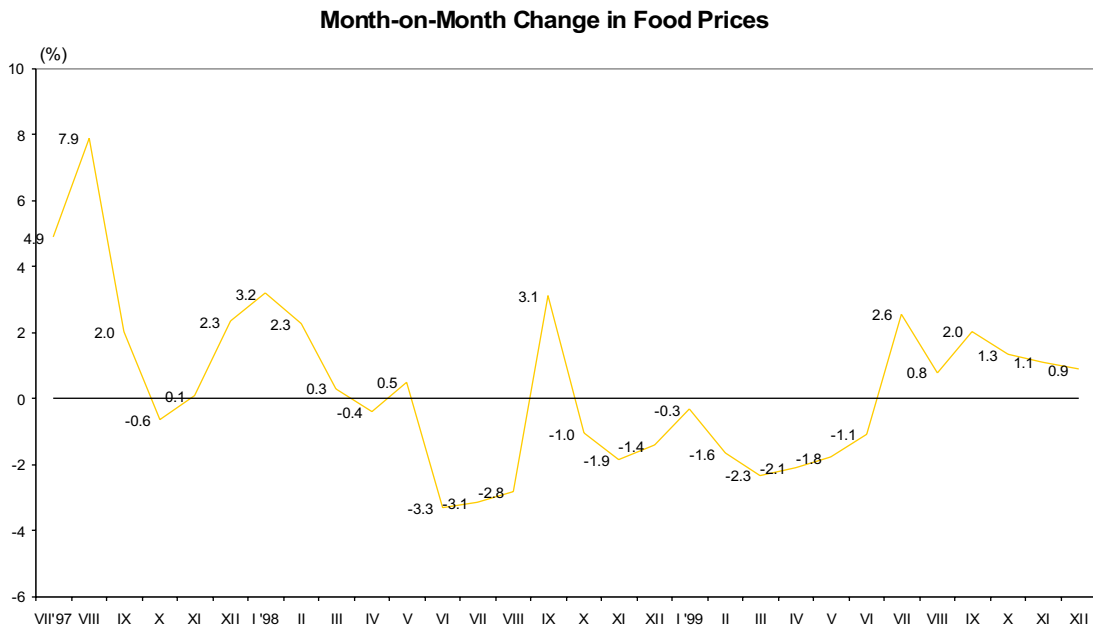
Source: BNB, NSI

The monetary policy restrictions undertaken and political stability following the early parliamentary elections curbed inflation. Monetary restrictions amounted to the elimination of all domestic assets in BNB's balance sheet and printing of money against foreign assets alone at a fixed rate of exchange. Curtailed as it was due to monetary restrictions, inflation proved to be again a purely monetary phenomenon.

The overall price level hit in the months of record high runaway inflation – January and February, remained rather high by end-1997. The price stabilisation expected did not follow as quickly as desired due to the severity of the crisis in the markets of some basic goods and services.

<sup>2</sup> The average monthly BGL exchange rate per USD ran as follows: January – BGL 698.65; February – BGL 2387.16; March – BGL 1660.07. In January and February, money supply reported a 2.7-fold increase while in February the Bulgarian lev and prices stepped down by 3.4 times.

It is noteworthy that non-food prices outstripped food price stabilisation. A major reason had to do with the shortage of cereals that occurred first in end-1995 and further deepened in 1996 due to the contradiction between the low government administered farm-gate prices and galloping inflation. Thus, food prices reported a 5.5-fold increase on average, given an average price rise of 4.9 times in January and February 1999. Following the institution of the currency board in July 1997, food prices were steadily going up throughout the period to end-year, registering a 17.5% increase. In the better half of 1998 and the first half-year period of 1999, food prices were steadily declining<sup>3</sup>.



**Fig. 3**

Source: NSI

**Table 2. Coefficients of Price Variation by Groups**

Years	Food Items		Non-Food Items		Services	
	1 <sup>st</sup> half-year period	2 <sup>nd</sup> half-year period	1 <sup>st</sup> half-year period	2 <sup>nd</sup> half-year period	1 <sup>st</sup> half-year period	2 <sup>nd</sup> half-year period
<b>1991</b>	32.1	13.9	33.9	15.1	28.4	7.6
<b>1992</b>	9.9	8.6	12.5	11.6	14.5	7.0
<b>1993</b>	6.5	7.7	8.8	9.0	11.7	6.3
<b>1994</b>	13.3	13.6	13.8	13.8	12.2	8.1
<b>1995</b>	5.2	5.9	7.4	6.2	7.1	5.3
<b>1996</b>	10.8	29.1	12.0	23.3	10.7	20.1
<b>1997</b>	34.8	6.2	35.0	6.4	39.6	10.7
<b>1998</b>	3.3	3.0	3.4	3.6	6.5	5.6
<b>1999</b>	3.6	2.5	2.9	2.7	2.4	1.8

Source: AEAf, NSI.

<sup>3</sup> Over the Jan'98 – June'99 period, the basic groups reported a price change as follows: food items – -13.3%; non-food items – -0.1% while services registered a 34.5% increase.

Food price stabilisation is best revealed in Appendix 1. Food prices in June 1999 remained higher than Jun'96 prices while dropping below their Jun'97 level, with the exception of non-tradables<sup>4</sup>. It can be thus concluded that the early-1997 food price jump had surpassed its equilibrium level due to supply shortages.

Mid-1997 (Government Ordinance No 269 of June 19, 1997) saw a number of amendments to the administrative pricing of some basic food items, as evidenced by the system of negotiated prices under which producers and importers were required to negotiate retail prices. While it is difficult to estimate precisely the impact of this particular pricing pattern, it can be said that the administrative measures implemented helped sustain a rather a high food price level in a period when international food prices had already been steadily falling. Following the repealing of the act, domestic food prices over the Sept'98 – Sept'99 period reported deflation of -8.0%. Appendix 1 provides price data in dollar terms over the same period. □

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<sup>4</sup> *The prices of non-tradables are not influenced by competitive imports. The group is dominated over by services the prices of which are lagging behind their counterparts in the developed market economies due to the low labour price in Bulgaria. Over the Jan'98 – Jun'99 period, non-tradables reported a 14.6% price rise.*

## 2. AMENDMENTS TO THE FOREIGN TRADE REGIME AND CHANGES IN TAXES

To overcome food supply shortages the Bulgarian government launched measures to liberalise foreign trade in mid-1997. In the beginning of 1998 the country's foreign trade regime was further liberalised, with the majority of export charges and bans being removed. Automatic licensing was applied only to a few food items, fuels and metals. Customs fees were also abolished. The import tax introduced in 1996 was reduced from 5% to 2% and entirely removed on January 1, 1999. Foreign trade with countries Bulgaria has signed trade arrangements was now much more liberal. Over 85% of EU and EFTA industrial imports are now duty free.

Foreign trade and price liberalisation made it possible for the structure of domestic relative prices to follow closely the dynamics and structure of international prices. Over the last 2 years international price changes have strongly influenced the country's inflation and the prices of goods defined as tradables<sup>5</sup> and potential tradables<sup>6</sup>. However, the price change in tradables and potential tradables has not always followed international price dynamics as there are some commodity groups which fall under the tradable and non-tradable heading where prices are still government monitored and regulated (e.g. coal, briquettes, propane-butane gas, medicines and tobaccos).

**Table 3. Good Covered by VAT as of January 1, 1999.**

<i>Goods</i>	<i>Price Change (%)</i>	
	<i>Jan'99.</i>	<i>Feb'99.</i>
<i>White bread</i>	4.3	1.8
<i>Bread of the Dobrudja brand</i>	3.5	1.1
<i>Bread, brown and rye</i>	4.0	1.4
<i>Milk</i>	4.0	0.6
<i>Yoghurt</i>	2.2	-0.2
<i>Cow's milk cheese</i>	-1.5	-2.1
<i>Drinking water</i>	16.6	4.8
<i>Timber for heating</i>	13.7	2.5

Source: NSI, AEF.

<sup>5</sup> The group of tradables includes all goods that do not face administrative barriers, transportation difficulties, etc. upon importation. Customs duties of and over 25% or licensing import regimes are said to be administrative barriers. All bulky goods of high transport costs or fresh unprocessed products whose quality is likely to deteriorate during transportation face transportation difficulties. Some of the commodities that fall within the tradable group are mainly food products - eggs, semi-processed meat products, citrus fruit, etc. as well as some non-food products such as household appliances, cars, electronics. The overall weight of the group within CPI amounts to 17.9%.

<sup>6</sup> „Potential“ tradables are said to be all goods, which face administrative barriers upon importation. The group encompasses poultry and pork meat, dairy products, finished food products, clothing and footwear, natural gas, medicines, etc. Their overall weight within CPI amounts to 41.0%.



Since January 1, 1999, the VAT has been reduced by 2% down to 20%. As of the same date, the tax-free transactions in goods under the previous act, has been now subject to VAT. A list of the Vat-covered goods and their percentage price change over the January – February'99 period is given in the table below.

As can be seen from the table above, the prices now covered by VAT registered an insignificant increase while cheese prices reported no rise. The higher Jan'99 inflation of 1.5% was entirely due to the higher administered prices of electricity, tobaccos, (as a result of the new excise), postal services and drinking water (now covered by VAT). The overall food price level in January 1999 reported a 0.3% decrease compared to December 1998.

Foreign trade liberalisation gave a strong impetus to domestic market competition which is indispensable to the restructuring of production and better and more effective use of resources. For a small country like Bulgaria which inherited a distinctly monopolised structure of production from the command economy, this is the only way to promote real competition in the market. The opening of the economy to foreign competition produces a positive effect on the domestic markets as it broadens the range of goods offered and sets stringent quality standards and requirements to domestic producers. □

### 3. CHANGES IN ADMINISTERED PRICES

In May and June 1997, fuel prices were freed and the administrative pricing of food items removed. The relative weight of goods and services monitored by the Council of Ministers declined from 47.9% to 14.4% in the consumer basket. The contributions of free prices (core inflation) and monitored prices to 1997 inflation amounted to 356.3% and 222.3% respectively. In 1998, the share of monitored prices in the consumer basket was 15.8%<sup>7</sup>, but given end-of-year inflation of 0.96% the share of the commodity group amounted to 1.36 percentage points while the contribution of free prices ran negative at -0.40%.

**Table 4. Administered Price Change over the January'98 – December'99 Period**

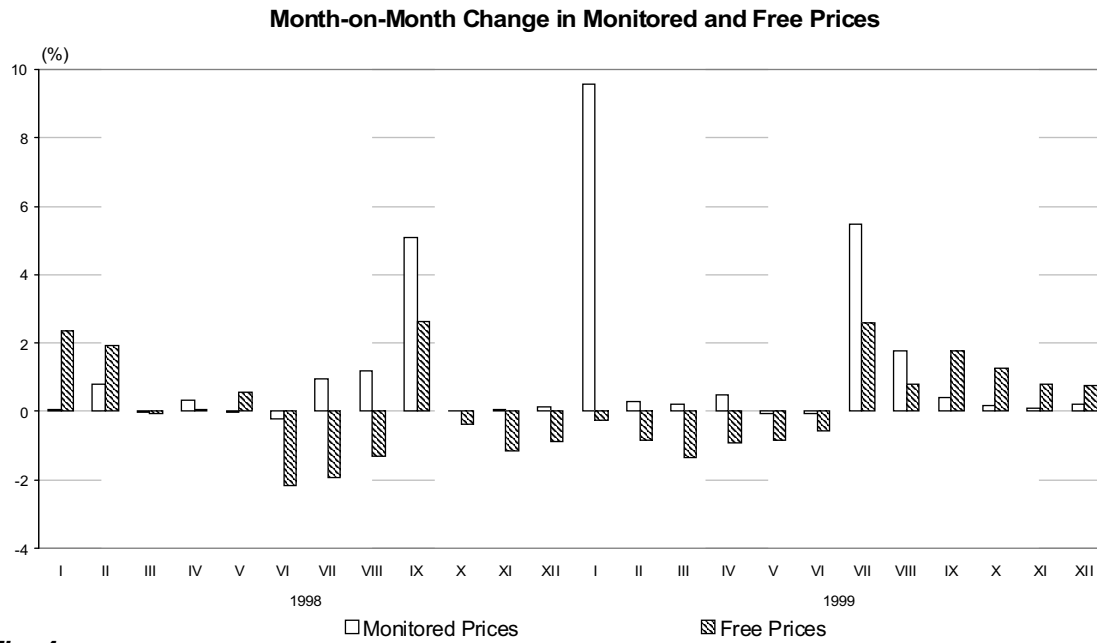
<i>Monitored Goods and Service Prices in 1998 and 1999.</i>	<i>Price Change in %</i>
<i>Cigarettes</i>	<i>29.1</i>
<i>Water supply fees</i>	<i>107.5</i>
<i>Coals</i>	<i>84.7</i>
<i>Electricity</i>	<i>25.6</i>
<i>Carbohydrogen gas (condensed)</i>	<i>12.0</i>
<i>Central heating and hot water</i>	<i>56.0</i>
<i>Propane-butane gas</i>	<i>14.3</i>
<i>Medicines and medications</i>	<i>8.0</i>
<i>Telephone and telegraph services</i>	<i>12.7</i>
<i>Postal services</i>	<i>63.7</i>

*Source: NSI, AEAF.*

In 1999, the relative share of monitored prices (goods) stepped up to 17.2%, without any change in the relevant number of goods and services being discerned. The increase was due to a weight adjustment – household money expenditures, reflecting the 1998 monitored price rise. In end-1999, monitored prices reported a contribution of some 3.53 percentage points while the contribution of free prices amounted to 2.62%.

In 1998 and the first half-year period of 1999, the administered price rises reported had a one-time effect and did not affect the prices of the remaining goods determined by supply and demand (fig. 4). Given the fixed foreign exchange rate and stable money supply, administered price changes led to an increase in the real price of the relevant goods and services, which is what the changes effected were all about. If we are to switch to the principle that consumers should pay the price of the goods and services consumed, these prices should rise gradually.

<sup>7</sup> *Their share increased as a result of some changes occurring in the structure of the consumer basket and not because more and more prices were now monitored.*

**Fig. 4***Source: NSI*

The prices of goods and services determined by supply and demand reported a relative share of over 80% in the consumer basket in the last two years. As the scope of monitored prices narrows, domestic prices are getting increasingly dependent on international price dynamics. Given the fixed foreign exchange rate and openness of the Bulgarian economy, domestic prices are being strongly affected by the prices of their counterparts traded in the international markets. □

#### 4. INFLUENCE OF INTERNATIONAL PRICE DYNAMICS

The last two years witnessed a steady decrease in the price level of raw materials and agricultural products, a decrease triggered by the financial crisis in East Asia which was also the reason behind the shrinkage in consumption. The table below highlights the estimates of the World Bank of the price change in some aggregate commodity groups.

**Table 5. Changes in International Prices (in %) by Commodity Groups over the 1997 – 1999 Period**

<b>Commodity Groups</b>	<b>1998 (1997 basis)</b>	<b>1999 (1998 basis)</b>	<b>1999 (1997 basis)</b>
<i>Petrol</i>	-31.9	38.3	-5.8
<i>Tea, coffee, cocoa</i>	-17.8	-23.6	-37.2
<i>Food</i>	-9.6	-16.0	-24.0
<i>Unprocessed raw materials</i>	-23.1	1.3	-22.1
<i>Metals</i>	-16.1	-2.0	-17.7

*Source: World Bank*

The decrease in international prices affected the level of domestic prices.

In end-1998, producer price inflation in the manufacturing sector was a bare 0.4%, stepping up, however, to 12.6% in 1999. Over the January-June 1999 period, the producer price index amounted to 1.3%. In the second half-year period of 1999 alone, the PPI reached 11.2%.

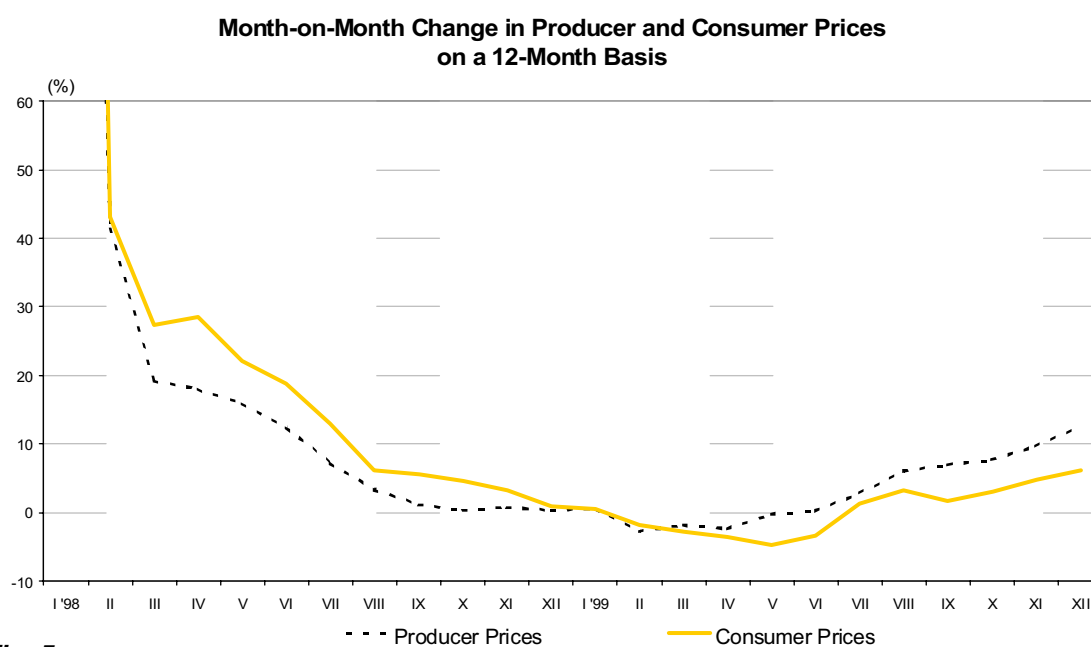
Part of the producer price rise can be attributed to the increase in some international prices over the same period. The comparison relies on the international price change in the second half-year period of 1999. For instance, international petrol prices in the same period went up by 53.2% while domestic producer prices of refined petrol products reported a respective increase of 56.4%. International metal prices stepped up by 16.7% and domestic producer prices in ferrous metallurgy (cast iron and steel) rose by 16.9% on average. In the second half-year period of 1999, the textiles and knitwear, clothing (textile and knitted) and the leather industries registered the highest increase in producer prices of 13.7%, 46.7% and 25.6% respectively.

International prices affected the domestic price level directly by the prices of imports (consumer goods) and indirectly by producer prices. In the last two years, there was a very strong correlation between the consumer price index (CPI) and the producer price index in the manufacturing sector (PPI). (See fig. 5 below.)

**Table 6. Comparison between International and Domestic Price Change**

Commodity Groups	Change in International Prices (%)	Change in Domestic Prices (%)
	1999 (at 1997 basis)	
Wheat (soft)	-33.0	-35.1
Maize	-22.9	-11.4
Beef – live weight	-0.7	-26.0
Mutton – live weight	-23.1	-0.5
Fish	-35.2	-4.6
Soy beans	-1.1	0.0
Peanuts	-53.6	-27.9
Oranges	-5.5	-8.9
Sugar	-33.1	-22.7
Wool	-29.9	-38.2

Source: NSI, World Bank

**Fig. 5**

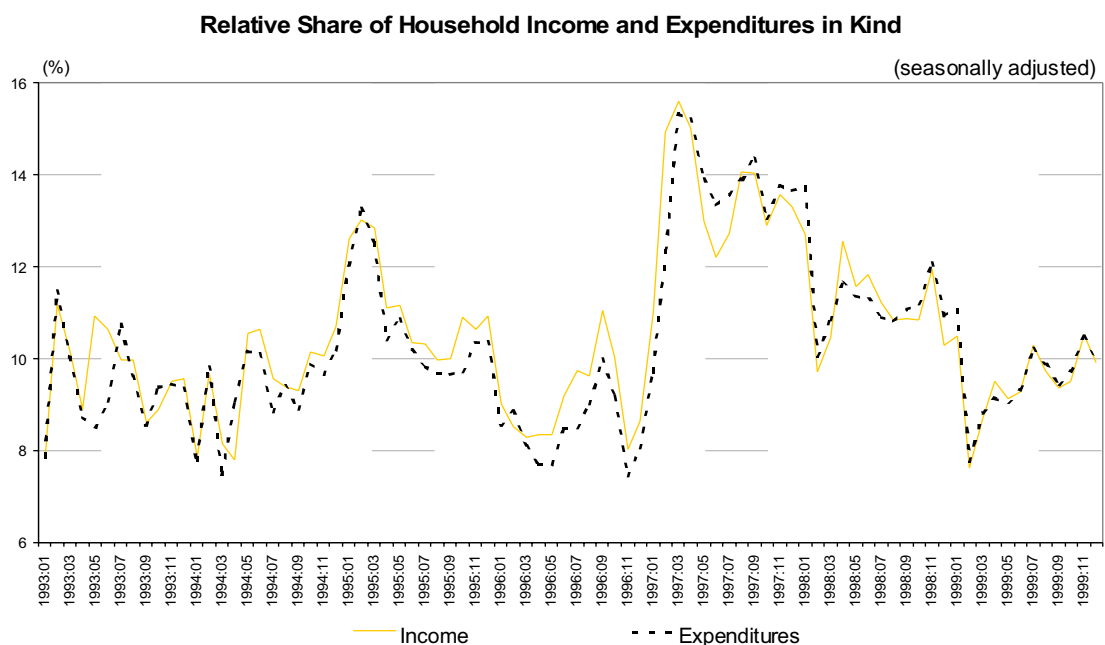
Source: NSI

The influence of international prices on domestic prices over the same period can be traced back on the basis of the price dynamics of tradables and potential tradables. In the 1998-end-1999 period, tradables and potential tradables reported a change of 3.3% and -7.6% respectively. □

## 5. SUPPLY AND DEMAND

As a result of the country's macroeconomic stabilisation, domestic demand for consumer and investment goods has gone on the increase. According to GDP data, consumer spending in 1998 stepped up by 8.1% relative to 1997, rising further by 5.2% in 1999 on a year earlier. Food expenditures began decreasing and their relative share within total household expenditures amounted to 44.2% in 1999 against 47.9% in 1998 and 54.4% in 1997. These data indicate that the structure of consumption has recovered following the late-1996 and early-1997 shock<sup>8</sup>. At the same time, food consumption in 1998 and 1999 had increased together with the growing purchasing power of households.

Many households produce homemade food for their own use. Homemade food consumption does not put any pressure on the market demand for food. As household income rose and the market expanded, the relative share of homemade products (from self-subsistence activity) was steadily declining. In 1998 and 1999, the relative share of household income and expenditures in kind set back at their 1993 and 1994 levels.



**Fig. 6**

Source: AEAf, NSI

External demand for local products contracted significantly over the mid-1998 - mid-1999 period, affecting about 60% of the commodity groups in the country's exports. The food industry was hardest-hit by the above contraction. Compared to 1997, food exports in 1998 registered an 18.4% shrinkage in dollar terms<sup>9</sup>, and a 19.4% decline in 1999 on a year earlier. Data on exports volumes (of some goods) are given in the table below.

<sup>8</sup> 1999 NSI Statistical Reference Book, 76-79 pp..

<sup>9</sup> BNB Balance of Payments, January 2000.

**Table 7. Selected Exports in Volume Terms**

<b>Commodities</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
<i>Live animals of the bovine species (in thous of numbers)</i>	2.5	2.2	1.8
<i>Live animals of the ovine species (in thous of numbers)</i>	379.4	20.1	0.2
<i>Pork (fresh, chilled or frozen) in thous of tons</i>	10.6	6.7	0.3
<i>Poultry meat (in thous of tons)</i>	9.3	9.6	8.3
<i>White cheese in brine and yellow cheese in (thous of tons)</i>	5.7	7.0	4.8
<i>Tomatoes (fresh or chilled) in thous of tons.</i>	5.1	2.4	1.2
<i>Apples (thous of tons)</i>	1.4	1.2	0.1
<i>Other preserved vegetables (thous of tons)</i>	47.7	44.3	23.5
<i>Wines of fresh grapes (thous of tons)</i>	214.9	200.1	181.7

Source: NSI Statistical Reference Book.

The growth in incomes and consumer loans reported in 1998 and the first half-year period of 1999 provided a strong stimulus to imports. Unlike exports where most commodity groups reported a decline, more than 80% of the import commodity groups registered an increase. In 1998, food, drink and tobacco imports reported a 34.9% rise at current USD prices.

**Table 8. Selected Imports by Years**

<b>Commodity</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>
<i>Meat of animals of the bovine species (thous of tons)</i>	6.3	19.3	23.4
<i>Meat of animals of the porcine species (thous of tons)</i>	0.0	2.4	6.1
<i>Fish, frozen, fish fillets excluded (thous of tons)</i>	0.4	13.0	17.1
<i>Salami, sausages, and similar meat products (thous of tons)</i>	1.8	4.4	8.2
<i>Milk and cream, concentrated (thous of tons)</i>	3.0	1.8	4.4
<i>Cheese and curd (thous of tons)</i>	0.5	1.6	2.7
<i>Tomatoes, fresh or chilled (thous of tons)</i>	0.6	0.3	2.1
<i>Cucumbers and gherkins, fresh or chilled (thous of tons)</i>	0.1	0.4	1.0
<i>Citrus fruit, fresh or dries (thous of tons)</i>	29.4	28.0	35.4
<i>Melons and watermelons (thous of tons)</i>	0.1	0.4	4.0
<i>Medications in the form of doses</i>	1.1	1.3	1.9
<i>Women's blouses and jerseys, knitted</i>	0.3	1.6	2.1
<i>Other footwear with outer soles and uppers of rubber</i>	0.7	1.1	1.7

Source: NSI Statistical Reference Book.

Consumer imports stepped up by 33.1% in 1999. Food, drink and tobacco imports in the same year, however, remained 13.6% <sup>10</sup> lower on a year earlier.

<sup>10</sup> In 1999, international food prices reported a 16% decrease.

Overall in 1998, total industrial output registered a 13.7% decline against 1997. On a year earlier, it reported a 12.5% decrease<sup>11</sup> in 1999. Food, drink and tobacco output in 1998 contracted by 7.5% at constant prices while export sales went down by 20.7%. Some primary products, on the other hand, reported a significant output growth relative to 1997. For instance, the following products registered a substantial increase in production: pork (98.5%), frozen poultry meat (5.1%), all kinds of salami (59.3%), margarine (46.5%), yoghurt (7.0%), refined sugar (5.9%), mineral water (43.5%), soft drinks (34.6%) and beer (17.6%).

In 1999, food output volumes reported an 11.1% on a year earlier. Over the same period, food export sales stepped down by 20.2% and domestic sales contracted by 7.6%.

The agricultural sector reported a production increase in vegetables, potatoes, milk and eggs while livestock production improved its performance significantly in 1998 on a year earlier. 1998 and the first half-year period of 1999 saw a certain increase in animal numbers and animal product output<sup>12</sup>. 1999 sustained the upward trends in agricultural production. Overall in 1998, farm gate prices reported a rise of 11.7% (livestock production) and 0.5% (crops). On a year earlier, livestock and crop farm gate prices fell by 25.5% and 4.5% respectively in 1999. Farm gate prices decreased as a result of the growing supply of agricultural products.

Despite the overall price level decrease in the second half-year period of 1998 throughout the second half-year period of 1999, one cannot say that there was a steady deflation process underway. Considering price changes in the three major consumer groups, i.e. food and non-food items, and services, we can speak of food price deflation alone. For a second year in a row since the institution of the currency board arrangement, food price inflation ran negative. Unfortunately, the overall price level decrease resulted not from any labour productivity improvements in the sector but was triggered by the interplay of the factors mentioned so far, viz. the hyperinflationary shock of early-1997, import liberalisation and international price decline. The loss of secure past export markets and rigid EU hygiene requirements to imports are the main reasons behind the production shrinkage in the food industry. Furthermore, the Kosovo crisis impeded Bulgarian exports to the Community markets in the first half of 1999. Food price deflation indicated that domestic demand for imported goods increased as a result of the growing domestic consumption, on the one hand, and shrinking domestic production, on the other.

The present paper analyses the dynamics of production, imports, exports and consumption of some basic food products over the 1997-1998 period drawing upon the statistical data available. Taking into account the high degree of arbitrariness, and

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<sup>11</sup> 1999 NSI Yearbook, p. 118, and the December 1999 NSI Business Situation Survey.

<sup>12</sup> Business Situation Survey, January 1999.



hence unreliability, of the „balances“ obtained, one can argue that the relative share of imports in food supply stepped up at the expense of local production. Therefore, it can be assumed that the food price level, following early-1997 hyperinflation, had reached, and perhaps outstripped the international food price level because a year later the food price level tended to decrease overall due to the less expensive competitive imports.

Non-food price inflation was rather low, without reporting any sharp fluctuations of the monthly indices. In the period from the institution of the currency board arrangement to end-1999, non-food prices stepped up by 18.2%. In the last two years, fuel prices exerted a most substantial influence on the non-food price level.

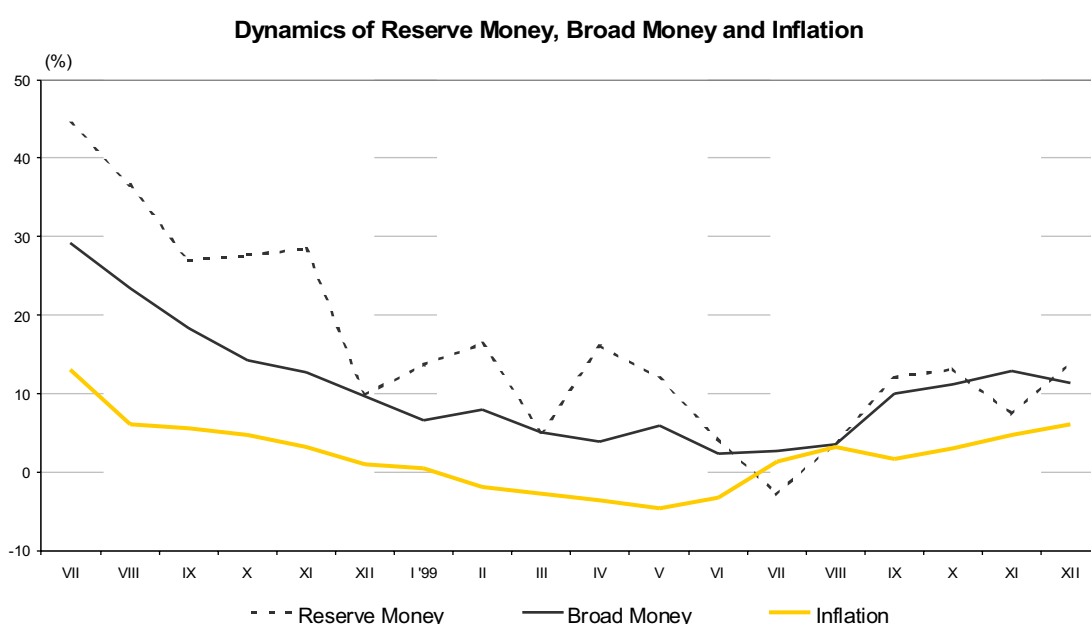
Compared to the other consumer groups, service price inflation ran highest, amounting to 73.1% since the introduction of the currency board in Bulgaria. Service prices followed a steady upward trend, as they did not face competitive imports as consumer goods did. The relative share of administered prices (heating and electricity) within the service group was rather high. On the other hand, service price growth ran parallel with household income increase. The relative share of household money expenditures tended to decline at the expense of the growing share of services. □

## 6. INFLUENCE OF MONEY SUPPLY

Following the institution of the currency board arrangement in Bulgaria, the correlation between money supply dynamics and inflation has become statistically significant. Given a currency board, money supply is determined by FX reserves.

The annual nominal-term growth in broad money remained higher than cumulative inflation<sup>13</sup>, but the month-on-month changes on a 12-month basis in both indicators were proportionate (fig.7). Money supply and producer prices exhibited a similar pattern of dynamics.

In the second half-year period of 1999, the statistical significance of the money supply/inflation correlation deteriorated, as revealed by the figure below where the trend lines of money supply and inflation followed opposite directions.



**Fig. 7**

Source: BNB, NSI

For eight running months over the January 1998 – June 1999 period, broad money was reporting a decrease against the preceding period. Money supply had been declining until June 1999 due to the negative balance on the *goods and services* item in the balance of payments. Since the second quarter of 1998, month-to-month sales in the manufacturing industry were declining on a year earlier. All this affected export revenues that were steadily shrinking. From May 1998 to June 1999, imports exceeded exports while core inflation (free prices) by months over the same period ran negative, September 1998 being the only exception to the trend. It was the balance of payments deficit that led to the contraction in money supply and grew into the factor generating deflation.

<sup>13</sup> *Broad money and inflation growth over the July 1997 – July 1998 period amounted to 29.2% and 13.0% respectively; over the June 1998 – June 1999 period, broad money stepped up by only 2.3% while inflation ran negative at -3.3%; in the December 1998 – December 1999 period, broad money rose by 11.4%, and inflation increased by 6.2%.*

In the second half-year period of 1998, broad money growth could be attributed to the external sector as well. Export sales in the manufacturing sector began to recover, and foreign investment in the second half of 1999 stepped up by 79% on a year earlier. □

## 7. PRICE DYNAMICS OVER THE FIRST-HALF YEAR PERIOD OF 1999

Cumulative deflation in the first half-year period of 1999 disappeared as a result of the high July inflation of 3.2%. The price level went on rising in the months to follow and 12-month cumulative inflation hit 6.2%. This change in prices could be attributed entirely to the factors already discussed.

The crude oil price rise in the world markets that started in early 1999 affected petrol, diesel and gas prices which reported a 29.6% increase on average over the July-December 1999 period. The fuel price inflation led to a chain reaction spreading over other commodity and service groups. Clearly, the 18.7% rise in bus fares and 21.8% increase in city bus fares, and some other transport services were due to the higher fuel prices.

July saw an increase in electricity and heating prices of 8.3% and 13.6%, followed by a 40.9% rise in coal prices in August. Over the July-December 1999, drinking water prices stepped up by 7.7%. Some administrative service prices also rose like international passport fees reporting a 95.4% increase.

The overall contribution of administered prices and petrol prices to cumulative inflation over the July-December period amounted to 3.06 percentage points.

**Table 9. Price Rise over the July-December 1999 Period**

	<i>Relative share in the CPI (%)</i>	<i>Price Increase</i>	<i>Contribution to inflation</i>
		<i>July – December</i>	
<i>Overall inflation</i>	<b>100</b>	<b>8.27</b>	<b>8.27</b>
<i>Monitored prices</i>	17.210	8.29	1.43
<i>Administrative services</i>	0.580	81.88	0.47
<i>Petrol and diesel prices</i>	2.852	29.56	0.84
<i>Transport services</i>	1.666	19.21	0.32
			<b>3.06</b>

Source: AEF, NSI.

The impact of seasonal factors on inflation is most distinct with food items. There are months when some of them like fresh fruit and vegetables are supplied in limited quantities or disappear from the market altogether. As fresh products are not always marketed throughout the year, price estimates become rather difficult because one of the CPI requirements is that it should have constant and fixed weights. Therefore, the use of an appropriate methodology of calculation of non-existent price observations becomes all the more important.

In September, fresh fruit prices rose by 12.2%, fresh vegetables reported a 25.5% price increase, and potato prices went up by 47.6%. Their contribution to September inflation amounted to 1.2 percentage points. Fruit and vegetable price variations remained very high and boosted monthly inflation.

**Table 10. Price Change in Some Fresh Fruit and Vegetables**

	<b>Price Change (%)</b>	
	<b>January-June</b>	<b>July-December</b>
<i>Apples</i>	64.8	-27.3
<i>Tomatoes</i>	-35.8	30.7
<i>Cucumbers</i>	-48.9	60.8
<i>Cabbage</i>	-30.5	38.2
<i>Onion</i>	123.1	-12.1
<i>Carrots</i>	64.1	-41.2
<i>Lettuces</i>	-60.9	145.2
<i>Radishes</i>	-43.6	70.5
<i>Fresh parsley</i>	-40.4	70.2
<i>Potatoes</i>	-40.9	15.8

Other food items also reported very high price variations.

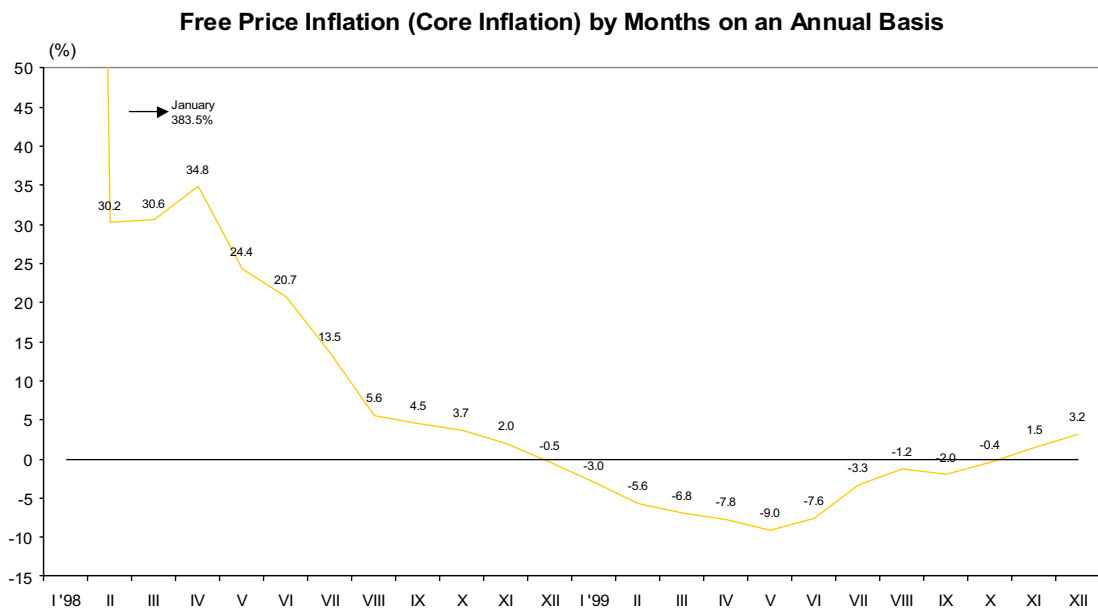
**Table 11. Price Change in Other Food Items**

	<b>Price Change (%)</b>	
	<b>January-June</b>	<b>July-December</b>
<i>Minced meat</i>	-13.8	7.4
<i>Bacon</i>	-25.3	13.8
<i>Perishable salami</i>	-16.6	11.5
<i>Ocean mackerel</i>	-19.7	6.8
<i>Milk</i>	-15.3	30.6
<i>Yoghurt</i>	-16.9	28.9
<i>Cow's cheese</i>	-27.6	43.1
<i>Yellow cheese</i>	-31.4	49.8
<i>Eggs</i>	-49.3	120.2
<i>Butter</i>	-8.0	6.6
<i>Sugar</i>	-33.8	14.4
<i>Marmalade</i>	-9.6	24.2
<i>Salt</i>	-10.5	7.8

As clearly seen from the above table, with June signalling a turnaround, food prices followed an upward trend over the July-December 1999 period.

The highly volatile seasonal pattern of food price dynamics was due to uneven supplies as well as to the share of imports against local counterparts.

Seasonal price changes are more important to the transition economies than the developed market economies because seasonal food prices, of fruit and vegetables in particular, have a larger share in the consumer basket exceeding 40% against 20% in the developed economies. Seasonal price volatility and administered price adjustments give a wrong idea of „actual“ inflation<sup>14</sup>.



**Fig. 8**

Source: AEAf, NSI

„Actual“ inflation, seasonally adjusted factors excluded, is best seen if handled by months but on a 12-month basis (fig. 8).

In 1999, the Bulgarian currency reported a 15.9% nominal-term depreciation against the US dollar, which in turn affected inflation through producer prices because local production is heavily reliant on raw material imports. As for consumer prices (non-food items included), pure imports did not report a price increase except for citrus fruit and olives.

The comparatively high inflation reported in the second half-year period of 1999 was anticipated by managers in the manufacturing sector and retail trade. According to NSI survey data, business climate in the manufacturing sector improved as early as May 1999, steadily and evenly rising<sup>15</sup> in the following months. The growth in total revenues from sales in the sector was entirely due to export sales. In the second half-year period of 1999, domestic sales were steadily declining while export sales growing.

<sup>14</sup> Koen, Vincent and Paula de Masi, Prices in the Transition: Ten Stylized Facts, IMF Working Paper, WP/97/158

<sup>15</sup> *Current Business Situation, NSI, December 1999.*

Mid-1999 saw a certain increase in external demand. In August, the current account ran a surplus for the first time throughout the year. Food exports surpassed imports in the second half of 1999. Total exports registered a 2.4% increase in 1999 on a year earlier, with the increase being due to the better export performance reported in the second half-year period of 1999. □

## CONCLUSION

Foreign trade liberalisation is one way to overcome supply shortages in the local market. Traders find imports profitable because there is domestic demand but competition as regards both imports and production remains unfair. Unfair competition comes along from imports of understated customs value, or production of goods from raw materials of poor quality or non-compliance with hygiene requirements, etc. Very often goods of inferior quality are traded at knock-down prices.

Consumers tend to seek, above all, lower prices because of their limited income, without being much demanding or pretentious as to the quality of goods they buy. But the fact remains that prior to the financial stabilisation of the country, the relative share of food expenditures within total household expenditures had been steadily increasing, which in turn indicated that households were steadily impoverishing. The enormous diversity of goods in the market and stringent EU requirements to imports to the Community make local producers undertake measures aimed at improving production efficiency and product quality.

For a second year in a row, food price inflation ran negative. As mentioned earlier in the analysis of the factors of inflation, the 1998 and 1999 reduction had to do with the inflated food prices in late 1996 and early 1997. The overall decrease in the food price level followed the dynamics of international food prices.

International prices are expected to grow into a major factor affecting domestic prices, once administered prices are liberalised. Over the last two years, price controls were limited to a small number of goods and services but their contribution to overall inflation remained significant.

The convergence of domestic prices at international prices is not a quick process as its pace depends on the improvement of labour productivity and income level. Some service prices that are not facing competitive imports because they are non-tradables will continue to be a source of inflation, as their price level is still lagging behind the international price level.

Inflation in Bulgaria under the currency board arrangement has been low but unstable, reporting huge monthly fluctuations. The ongoing structural reform aimed at overcoming huge imbalances in the economy will cause significant monthly inflation variations in the future. □



## APPENDIX 1

GROUP AND COMMODITY REPRESENTATIVES	PRICE CHANGE (%)			
	Jun'97/ Jun'96	Jun'99/ Jun'97	Jun'99/ Jun'96	Sept'99/ Sept'98
Rice, kg	-9.58	-19.98	-27.65	-5.41
Wheat flour, 500 brand, kg	91.80	-33.47	27.61	-7.97
White bread of the 500 flour brand, kg	68.99	-15.10	43.47	-1.53
Pasta, made in Bulgaria, kg	8.61	-16.81	-9.64	-15.61
Cheese pie, piece, 140 gr (n)	5.47	13.17	19.35	-8.60
Starch, wheat, desert, 100 gr	73.80	-18.98	40.81	0.53
Easter bread, kg (n)	42.78	0.32	43.24	-9.12
Biscuits, plain, kg	61.94	-10.52	44.91	-5.58
Pork, in-bone, in cuts, kg	84.18	-44.61	2.02	-30.21
In-bone beef, kg	96.88	-22.04	53.49	-23.34
Chicken, without offal, kg	66.68	-40.96	-1.59	-20.25
Minced meat, kg	75.82	-33.62	16.72	-24.50
Chicken liver, kg	86.31	-29.18	31.95	-17.49
Ham, kg	65.74	-29.81	16.34	-20.49
Perishable salami of the Hamburg brand, kg	62.17	-36.93	2.29	-23.63
Sausages, beef or chicken, kg	63.17	-37.22	2.45	-28.89
Appetite pate, tinned, 140 gr	49.97	-12.49	31.24	-24.09
Fresh carp, kg	52.41	-0.30	51.94	-24.09
Mackerel in tomato sauce, tinned, 160 gr	49.07	9.70	63.53	-10.57
Milk pasteurised, plain, lt (n)	-9.58	54.47	39.67	-11.04
Cow's yoghurt, 2% of fat content, 500 gr, (n)	-0.50	5.81	5.28	-11.76
Cow's cheese, kg	2.99	-1.25	1.70	-23.99
Yellow cheese (made of cow's milk), kg	2.76	-1.65	1.06	-23.31
Sluncho fruit and milk-based children's food, 200 gr	104.30	-8.86	86.20	-5.84
Hen's eggs/number	20.88	-48.83	-38.15	-21.13
Butter, made in Bulgaria, 125 gr	8.91	10.19	20.01	-9.83
Linco margarine, 500 gr	-6.69	-18.82	-24.24	-11.60
Sunflower oil, bottled, lt	13.42	61.65	83.35	-27.28
Apples, kg	14.07	32.48	51.13	11.13
Lemons, kg	-36.23	-16.77	-46.93	-5.92
Bananas, kg	-28.07	-9.98	-35.25	-16.99
Cherries, kg	64.80	16.25	91.58	81.59
Strawberries, kg	-0.15	-2.32	-2.47	56.86
Greenhouse tomatoes, ka	49.08	-37.03	-6.13	-6.50

GROUP AND COMMODITY REPRESENTATIVES	PRICE CHANGE (%)			
	Jun'97/ Jun'96	Jun'99/ Jun'97	Jun'99/ Jun'96	Sept'99/ Sept'98
Greenhouse cucumbers, kg	28.17	-20.29	2.16	-41.30
Cabbage, kg	-33.08	-19.72	-46.28	-4.54
Onion, kg	589.58	-41.18	305.59	21.38
Carrots, bundles excluded, kg	105.27	-26.21	51.48	-26.87
Olives, kg	60.21	-24.74	20.57	-3.48
Beans, kg	57.52	1.52	59.92	-15.26
Lentils, kg	24.78	-12.97	8.59	-11.44
Young potatoes, kg	87.08	-40.48	11.35	22.00
Tomatoes, tinned, 800 gr	147.88	-26.35	82.56	-27.55
Sugar, crystal, kg	1.01	-37.27	-36.63	-34.44
Rose-hip marmalade, 500 gr	110.69	-22.12	64.08	-12.60
Bee's honey, kg	66.64	3.08	71.77	-9.11
Svoqe chocolate bar, plain, 100 gr	31.10	-2.18	28.24	-13.51
Delta ice cream on a stick	2.80	14.23	17.43	-1.36
Cooking salt, kg	20.17	-33.66	-20.28	-10.98
Vinegar (made of wine), bottled, 0.7 lt	24.55	14.51	42.63	-5.12
Mayonnaise in plastic boxes, 250 gr	17.01	3.80	21.45	-7.70
Vegetable soup concentrates, 4 servings/pack	83.15	15.37	111.31	-13.78
Nova Brazilia coffee beans, kg	-35.64	4.26	-32.90	-9.59
Coca Cola, bulk, lt	-7.66	22.58	13.19	-4.67
Boza (millet-ale), lt (n)	16.40	-7.05	8.20	-7.24
Natural juices of southern fruit, 100%, lt	10.34	-25.88	-18.22	-8.88
Fruit puree (mixed), children's food, 190 gr	155.35	0.25	155.99	6.10
Ketchup, 500 gr	42.48	-30.64	-1.18	-16.91
Grape brandy, plain, 0.7 lt (n)	12.89	35.54	53.02	3.21
Vodka, local brands, 0.7 lt	-19.38	73.74	40.06	13.94
Dry white wines, plain, bulk wine excluded, 0.7 lt	72.02	6.89	83.87	7.27
Beer, plain, region-specific, 0.5 lt	12.38	15.75	30.07	1.28

Note: (n) stands for non-tradables.

## APPENDIX 2

GROUP AND COMMODITY REPRESENTATIVES	1996		1997		1998		1999	
	June	Sept	June	Sept	June	Sept	June	Sept
USD/BGL exchange rate	143.10	224.60	1668.40	1791.90	1790.64	1709.60	1.88	1.86
Rice, kg	0.82	0.68	0.74	0.71	0.64	0.66	0.59	0.62
Wheat flour, 500 brand, kg	0.22	0.38	0.42	0.37	0.34	0.32	0.28	0.30
White bread of the 500 flour brand, kg	0.22	0.38	0.38	0.35	0.33	0.34	0.32	0.33
Pasta, made in Bulgaria, kg	0.62	0.70	0.68	0.63	0.65	0.67	0.56	0.57
Cheese pie, piece, 140 gr (n)	0.13	0.14	0.14	0.15	0.17	0.18	0.16	0.16
Starch, wheat, desert, 100 gr	0.08	0.10	0.15	0.14	0.13	0.13	0.12	0.13
Easter bread, kg (n)	0.71	0.80	1.01	0.99	1.08	1.13	1.01	1.03
Biscuits, plain, kg	0.73	0.93	1.18	1.12	1.09	1.16	1.05	1.10
Pork, in-bone, in cuts, kg	2.07	2.47	3.81	4.72	3.46	3.52	2.11	2.46
In-bone beef, kg	1.55	1.61	3.04	3.54	3.19	3.13	2.37	2.40
Chicken, without offal, kg	1.54	1.66	2.57	2.53	1.83	1.89	1.52	1.51
Minced meat, kg	1.52	1.69	2.68	2.97	2.42	2.48	1.78	1.87
Chicken liver, kg	1.29	1.27	2.40	2.44	2.01	2.01	1.70	1.66
Ham, kg	3.28	3.26	5.44	5.97	4.63	4.73	3.82	3.76
Perishable salami of the Hamburg brand, kg	1.49	1.71	2.41	2.57	2.05	2.13	1.52	1.62
Sausages, beef or chicken, kg	1.50	1.75	2.44	2.65	2.15	2.23	1.53	1.59
Appetite pate, tinned, 140 gr	0.34	0.33	0.51	0.57	0.57	0.57	0.44	0.43
Fresh carp, kg	1.11	0.97	1.69	1.81	2.16	2.23	1.68	1.69
Mackerel in tomato sauce, tinned, 160 gr	0.37	0.42	0.55	0.56	0.63	0.68	0.60	0.61
Milk pasteurised, plain, lt (n)	0.23	0.24	0.21	0.32	0.33	0.39	0.32	0.35
Cow's yoghurt, 2% of fat content, 500 gr, (n)	0.17	0.17	0.17	0.23	0.20	0.23	0.18	0.20
Cow's cheese, kg	1.31	1.86	1.35	2.45	1.53	2.45	1.33	1.86
Yellow cheese (made of cow's milk), kg	2.22	2.71	2.28	3.92	2.77	3.74	2.25	2.87
Sluncho fruit and milk-based children's food, 200 gr	0.57	0.49	1.17	1.11	1.09	1.15	1.06	1.08
Hen's eggs/number	0.06	0.09	0.08	0.10	0.06	0.09	0.04	0.07
Butter, made in Bulgaria, 125 gr	0.35	0.39	0.38	0.48	0.46	0.48	0.42	0.4
Linco margarine, 500 gr	0.94	1.01	0.87	0.82	0.76	0.81	0.71	0.72
Sunflower oil, bottled, lt	0.52	0.56	0.59	0.86	1.23	1.29	0.95	0.93
Apples, kg	0.63	0.27	0.72	0.46	0.76	0.58	0.95	0.64
Lemons, kg	1.55	1.91	0.99	1.43	0.96	1.37	0.82	1.29

GROUP AND COMMODITY REPRESENTATIVES	1996		1997		1998		1999	
	June	Sept	June	Sept	June	Sept	June	Sept
Bananas, kg	1.15	0.78	0.83	0.80	1.08	1.01	0.75	0.84
Cherries, kg	0.35	0.22	0.57	0.26	0.66	0.33	0.67	0.60
Strawberries, kg	0.97	0.65	0.96	0.78	1.16	0.98	0.94	1.54
Greenhouse tomatoes, kg	0.56	0.20	0.83	0.55	0.74	1.18	0.52	1.10
Greenhouse cucumbers, kg	0.43	0.47	0.55	0.53	0.40	0.98	0.44	0.57
Cabbage, kg	0.37	0.26	0.25	0.20	0.18	0.29	0.20	0.28
Onion, kg	0.09	0.25	0.63	0.39	0.61	0.18	0.37	0.21
Carrots, bundles excluded, kg	0.41	0.22	0.84	0.37	0.54	0.39	0.62	0.29
Olives, kg	2.08	2.18	3.33	3.33	2.66	2.76	2.50	2.66
Beans, kg	0.57	0.57	0.90	0.98	1.01	1.06	0.91	0.90
Lentils, kg	0.67	0.61	0.83	0.83	0.83	0.86	0.73	0.76
Young potatoes, kg	0.26	0.28	0.48	0.29	0.44	0.31	0.29	0.38
Tomatoes, tinned, 800 gr	0.33	0.29	0.81	0.86	0.78	0.81	0.59	0.58
Sugar, crystal, kg	0.60	0.52	0.60	0.62	0.56	0.65	0.38	0.42
Bee's honey, kg	1.46	1.43	3.07	3.08	3.05	2.97	2.39	2.59
Rose-hip marmalade, 500 gr	0.60	0.48	1.00	0.95	1.12	1.19	1.03	1.08
Svoqe chocolate bar, plain, 100 gr	0.44	0.55	0.58	0.60	0.59	0.61	0.56	0.53
Delta ice cream on a stick	0.30	0.24	0.31	0.29	0.35	0.36	0.35	0.36
Cooking salt, kg	0.19	0.20	0.23	0.20	0.18	0.19	0.15	0.17
Vinegar (made of wine), bottled, 0.7 lt	0.24	0.20	0.30	0.29	0.34	0.37	0.34	0.35
Mayonnaise in plastic boxes, 250 gr	0.27	0.33	0.32	0.38	0.34	0.36	0.33	0.33
Vegetable soup concentrates, 4 servings/pack	0.35	0.31	0.64	0.65	0.83	0.87	0.74	0.75
Nova Brazilia coffee beans, kg	7.42	6.29	4.77	4.68	5.07	5.42	4.98	4.90
Black tea, boxes of 20 teabags	0.22	0.19	0.22	0.25	0.32	0.34	0.33	0.35
Natural mineral water, 1.5 lt	0.29	0.29	0.26	0.24	0.25	0.28	0.26	0.27
Coca Cola, bulk, lt	0.41	0.37	0.38	0.36	0.47	0.50	0.47	0.48
Boza (millet-ale), lt (n)	0.20	0.19	0.24	0.24	0.24	0.25	0.22	0.23
Natural juices of southern fruit, 100%, lt	1.09	0.92	1.21	1.12	1.05	1.09	0.89	0.99
Fruit puree (mixed), children's food, 190 gr	0.16	0.16	0.42	0.39	0.39	0.42	0.42	0.44
Ketchup, 500 gr	0.37	0.34	0.53	0.51	0.46	0.49	0.36	0.40
Grape brandy, plain, 0.7 lt (n)	1.28	1.14	1.44	1.57	1.80	1.91	1.96	1.97
Vodka, local brands, 0.7 lt	1.25	1.09	1.00	1.53	1.55	1.60	1.75	1.83
Dry white wines, plain, bulk wine excluded, 0.7 lt	0.59	0.53	1.02	0.90	0.98	1.04	1.09	1.12
Beer, plain, region-specific, 0.5 lt	0.15	0.12	0.17	0.16	0.18	0.21	0.20	0.21

Note: (n) stands for non-tradables.

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