

BULGARIAN ECONOMIC STABILISATION: REALITIES VS. ILLUSIONS

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The Republic of Bulgaria has been moving towards the market economy since the beginning of the nineties. The false belief that the transition process will be considerably short and easy took place during the first months and years. Four Parliaments and eight Governments from different political parties have been making serious efforts to cope with the economic crises and to find the appropriate path from a central planing to a market economy.

The Bulgarian economy was in a deep recession for eight years from the beginning of the transition period (1989-1997). The rapid decline of GDP growth in 1990-92 was followed by the relatively smooth average annual growth rates in 1993-95. It should be noted that a positive economic growth of 1.8% and 2.9% was achieved in 1994 and 1995. Thus in the mid-nineties optimistic expectations took place in the Bulgarian economy (see Table 1 and Appendix 1).

But in 1996 there was a huge drop of 10.9% in GDP (the biggest negative GDP growth for the whole period of transition), followed by the inertial decline of 7% in 1997. As a result, in 1997 the Bulgarian economic potential was exactly two-thirds of its 1989 level (66.6%). Because of these negative economic results, the currency board has been implemented in Bulgaria since mid-1997. As a result, financial stabilisation occurred, and a positive economic growth was achieved in the following years. Thus, the positive GDP growth of 3.5% was reached in 1998, 2.4% in 1999 and 5.8% in 2000 (preliminary data). At the end of the century, after a dozen years in transition, the Bulgarian economy reached three-fourths of its "pre-democratic" 1989 level (74.7%). The positive economic results during the last years lead a large number of domestic economists and politicians, and some foreign observers as well, to the optimistic expectation of growth rates in the range of 6%, 8%, even 10% in the following years.

Table 1. Real GDP Indeces 1989 - 1998

Year	Base Year										
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1998
1989	100,0%	110,0%	120,1%	129,6%	131,5%	129,2%	125,6%	139,7%	150,2%	145,1%	141,7%
1990	90,9%	100,0%	109,2%	117,8%	119,6%	117,4%	114,1%	127,0%	136,5%	131,9%	128,8%
1991	83,3%	91,6%	100,0%	107,9%	109,5%	107,6%	104,5%	116,3%	125,0%	120,8%	118,0%
1992	77,2%	84,9%	92,7%	100,0%	101,5%	99,7%	96,9%	107,8%	115,9%	112,0%	109,4%
1993	76,0%	83,6%	91,3%	98,5%	100,0%	98,2%	95,5%	106,2%	114,2%	110,3%	107,7%
1994	77,4%	85,1%	93,0%	100,3%	101,8%	100,0%	97,2%	108,1%	116,2%	112,3%	109,7%
1995	79,6%	87,6%	95,6%	103,2%	104,8%	102,9%	100,0%	111,2%	119,6%	115,6%	112,9%
1996	71,6%	78,8%	86,0%	92,8%	94,2%	92,5%	89,9%	100,0%	107,5%	103,9%	101,5%
1997	66,6%	73,3%	80,0%	86,3%	87,6%	86,0%	83,6%	93,0%	100,0%	96,6%	94,4%
1998	68,9%	75,8%	82,8%	89,3%	90,6%	89,0%	86,5%	96,3%	103,5%	100,0%	97,7%
1999	70,6%	77,6%	84,8%	91,4%	92,8%	91,2%	88,6%	98,6%	106,0%	102,4%	100,0%
2000	74,7%	82,1%	89,7%	96,7%	98,2%	96,5%	93,7%	104,3%	112,1%	108,3%	105,8%

Source: Main Macroeconomic Indicators, 1998, NSI, Sofia, Bulgaria, p. 11

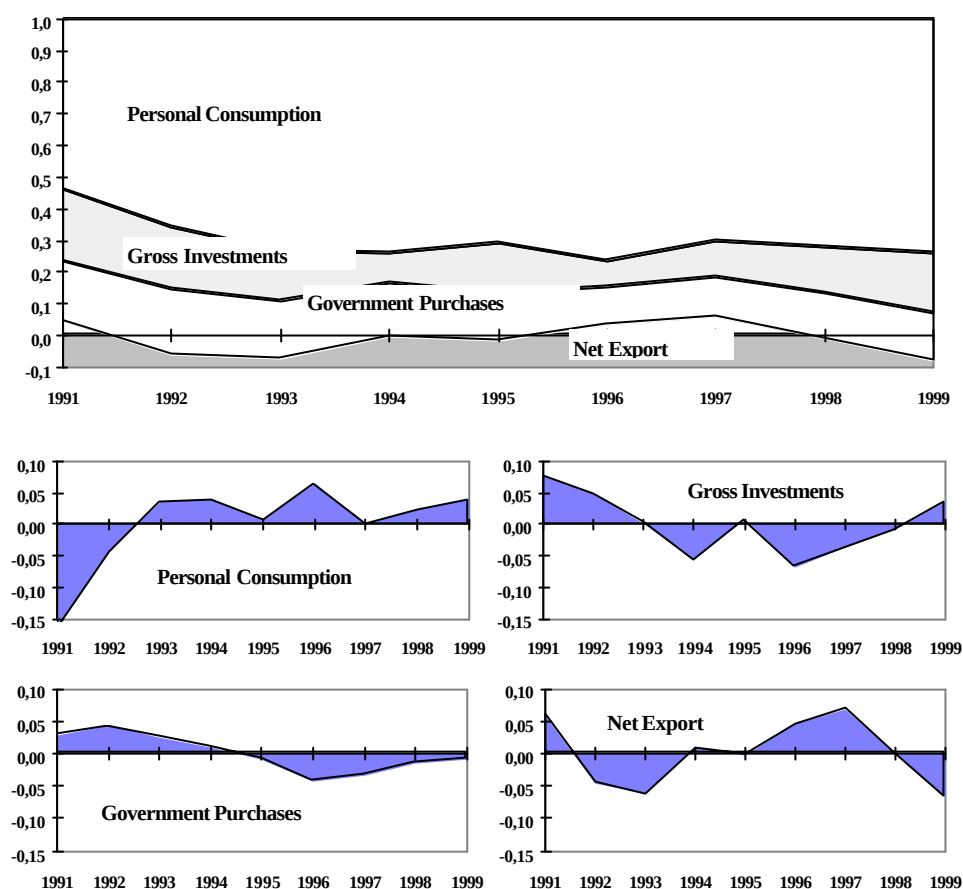
Statistical Reference Book of the Republic of Bulgaria, 2000, NSI, Sofia, Bulgaria, p. 184.

There is a question: is financial stability automatically followed by stabilisation in the real economy, and by increasing positive GDP growth rates? There are two opinions on this matter: some of the Bulgarian politicians and economists think that providing and keeping financial stability is really followed by positive economic growth and a stable real economy; others consider that financial stabilisation is a very important factor, but only one of the factors for achieving positive long-term economic growth.

The most important structure of GDP is its expenditure structure as a result of the expenditure approach for its measurement. Figure 1 shows the relative dynamics of the GDP components as components of the aggregate expenditures in the nineties.

The structure and dynamics of the aggregate expenditure components in the Bulgarian economy during the period 1991 –1999 follows, in general, widespread common principles: personal consumption expenditures – 60% to two thirds of GDP; gross investments equal to government purchases and both equal from one sixth to 20% of GDP; and net exports (exports minus imports) tending to zero. But there are some peculiarities under the conditions of the Bulgarian economic recession and transition to the market economy.

Figure 1. GDP Expenditure Structure (1991-1999)



During the nineties personal consumption expenditures had been varying from 53.7% to 76.6% of GDP with obvious tendencies for increasing its share in GDP. The average relative share is 70.1% - a little bit more than the upper general level of two thirds. This is due to the real income decline, high personal taxes, pauperisation of the population, and, as a result, a relative increase in the personal consumption expenditures.

For the same period (1991-1999), the relative share of government purchases had been moving between 11.9% and 20.4% of GDP. The average share of government purchases is 16.2%. Gross investments varied in a wider range than government expenditure. The dynamics of gross investments is from 8.4% to 22.8% of GDP. Their average share is 15.1% of GDP. Thus, the government purchases and gross investments tended towards the low general level of one sixth of GDP, and their variation was around 1-2% of GDP.

Net export share had been the smallest as it varied between minus 12% and plus 4.3% of GDP. The average net export for the period 1991 – 1999 is negative: minus 1.4% of GDP. This means that during the last decade of the previous century, Bulgarian imports exceeded Bulgarian exports. The data also shows that the net export tended to zero if we analyse the long period.

The four small graphs at the bottom of Figure 1 show the percentage deviation of each aggregate expenditure component from its average value for the period 1991 – 1999. The scale of the vertical axes is all the same. So one can consider, even visually, the relative dynamics of each one of the four aggregate expenditure components. The common rule states that gross investments and net exports are

more unstable through the years, while personal consumption expenditures and government purchases are more conservative.

Personal consumption expenditures in the Bulgarian economy are in line with the principle that they should be the biggest component of GDP, but they do not cover the requirement of being the most stable component of GDP. In practice it turned out to be just the opposite - personal consumption expenditures had the biggest variation of 22.9% (from 53.7% in 1991 to 76.6% in 1996). But if we exclude year 1991, the deviation is only 10.9%, because year 1991 (with 53.7%) will be replaced with year 1992 when the share of personal consumption expenditures was 65.7%, or 12% less.

Gross investments at first showed a tendency to decline (from 22.8% in 1991 to only 8.4% in 1996), and then, from 1997 on, the opposite tendency to increase. Their average deviation is 14.4%. The net export showed almost the same and a slightly higher deviation of 16.3% (from 4.3% in 1991 to minus 12.0% in 1999).

Government purchases happened to be the most stable aggregate expenditure component. From the beginning of the nineties their share in GDP had been declining because of the economic recession and requirements of the international financial institutions. Government purchases varied from 20.4% of GDP to 11.9% of GDP. That is why for the period 1991 – 1999 government purchases had been showing the lowest dynamic of 8.5%.

Table 2. Consumer Price Index Numbers by Year 1990-2000 (based on a consumer basket of NSI)

Year	Base month/year										
Months	May90	XII90	XII91	XII92	XII93	XII94	XII95	XII96	XII97	XII98	XII99
V90	100,0%										
XII90	150,6%	100,0%									
XII91	864,0%	573,7%	100,0%								
XII92	1550,9%	1029,8%	179,5%	100,0%							
XII93	2541,9%	1687,8%	294,2%	163,9%	100,0%						
XII94	5640,4%	3745,3%	652,8%	363,7%	221,9%	100,0%					
XII95	7496,1%	4977,5%	867,6%	483,3%	294,9%	132,9%	100,0%				
XII96	30801,5%	20452,5%	3565,0%	1986,1%	1211,8%	546,1%	410,9%	100,0%			
XII97	209018,9%	138790,8%	24192,2%	13477,6%	8223,0%	3705,7%	2788,4%	678,6%	100,0%		
XII98	211109,1%	140178,7%	24434,1%	13612,3%	8305,3%	3742,8%	2816,3%	685,4%	101,0%	100,0%	
XII99	224831,2%	149290,3%	26022,4%	14497,1%	8845,1%	3986,1%	2999,3%	729,9%	107,6%	106,5%	100,0%
XII00	250461,9%	166309,4%	28988,9%	16149,8%	9853,5%	4440,5%	3341,2%	813,1%	119,8%	118,6%	111,4%

Source: Statistical Monthly Bulletin on Inflation and Consumer Prices

The consumer price index (CPI is the official measure of inflation in Bulgaria) has also been unstable during the nineties (see Table 2). The initial market reforms and the price liberalisation created very high inflation – 473.7% in 1991. After this shock, the inflation rate had been slowing down until the mid-nineties.

Inflation burst again in 1996 – 310.9%, and in 1997 reached the highest annual value of 578.6%. The high CPI in 1997 is due to the hyperinflation in the first three months of the year, and especially to the February 1997 inflation, which was 242.7% (the highest monthly inflation rate in the transition period). Then in April 1997 there was a deflation, and the currency board has been implemented since mid-1997. Under the currency board, the CPI has been controlled within a range of several percent annually (1998 - 1%; 1999 – 6.5%, and 11.4% inflation in the year 2000 due to some foreign economic shocks). For the first three months of 2001, accumulated inflation is 1%.

It is interesting to pose, and to try to answer the question: when will the 1989 GDP level be reached, and at what price? What will be the impact on accumulated inflation, unemployment, real incomes, etc.? Let us take the 2000 CPI level as shown in table 2, and consider two scenarios of 6% and 8% annual inflation for future economic development in the model (see Appendix 2). The year 2000 GDP level is taken from table 1, and three possible variants of average annual GDP growth are considered – 2%, 3%, and 4%. In other words we are solving the equation $0.747 * 1.0R^x > 1$, where $R_1 = 2$, $R_2 = 3$, and $R_3 = 4$, for x . The results are: $x_1 = 8$, $x_2 = 10$, and $x_3 = 15$, which leads us to following conclusions:

Firstly: if the future average annual GDP growth rate is 2%, the 1989 GDP level (we already named it “pre-democratic economic level”) will be reached after 15 years, or in year 2015, under price increase of 6539 times (at 6% future annual inflation), or under the price increase of 8984 times (at 8% future annual inflation). In to my opinion, this is the highly possible path for long-term Bulgarian economic development.

Secondly: if the future average annual GDP growth rate is 3%, the “pre-democratic economic level” will be reached after 10 years, or in year 2010, under price increase of 4609 times (at 6% future annual inflation), or under price increase of 5662 times (at 8% future annual inflation). This is a hardly attainable optimistic way of economic development if a lot of foreign investments come into Bulgaria.

Thirdly: if the future average annual GDP growth rate is 4%, the 1989 GDP level will be reached after 8 years, or in year 2008, under price increase of 3870 times (at 6% future annual inflation), or under price increase of 4494 times (at 8% future annual inflation). Frankly speaking, this scenario is in the range of science fiction predictions.

The 1989 economic level is more than two times less than that required for joining the European Union. It means that the Bulgarian economy will need more time after reaching the 1989 GDP level to fulfill the EU economic requirements. So, one may expect that in real terms (according to the recently existing economic requirements for the GDP level) Bulgaria may join the EU after at least twenty or thirty years.

Table 3. Unemployment 1990 – 2001

Unemployment		
year	number	rate
XII 1990	65079	*
XII 1991	419123	11,1%
XII 1992	576893	15,3%
XII 1993	626141	16,4%
XII 1994	488422	12,8%
XII 1995	423773	11,1%
XII 1996	478770	12,5%
XII 1997	523507	13,7%
XII 1998	465202	12,2%
XII 1999	610551	16,0%
XII 2000	682792	17,7%
II 2001	713761	18,7%

Source: Statistical Reference Book of the Republic of Bulgaria, 1991 - 2000, NSI, Sofia, Bulgaria.

The deep recession in the nineties is reflected in the status of every economic agent. The real incomes had been falling all the time from 1990 to 1997, excluding year 1992 (see Table 4). In 1998-1999 they increased by more than one third, reaching, in 1999, 41.7% of the 1990 level.

Table 4. Real Income Indexes 1990 – 1999

Year	Base Year								
	1990	1991	1992	1993	1994	1995	1996	1997	1998
1990	100,0%	163,4%	151,9%	159,5%	179,6%	196,8%	285,6%	328,6%	282,0%
1991	61,2%	100,0%	92,9%	97,6%	109,9%	120,4%	174,8%	201,1%	172,6%
1992	65,9%	107,6%	100,0%	105,0%	118,3%	129,6%	188,0%	216,4%	185,7%
1993	62,7%	102,4%	95,2%	100,0%	112,6%	123,3%	179,0%	206,0%	176,8%
1994	55,7%	91,0%	84,5%	88,8%	100,0%	109,5%	159,0%	182,9%	157,0%
1995	50,8%	83,0%	77,2%	81,1%	91,3%	100,0%	145,1%	167,0%	143,3%
1996	35,0%	57,2%	53,2%	55,9%	62,9%	68,9%	100,0%	115,1%	85,8%
1997	30,4%	49,7%	46,2%	48,5%	54,7%	59,9%	86,9%	100,0%	74,6%
1998	40,8%	66,7%	62,0%	65,1%	73,3%	80,3%	116,5%	134,1%	100,0%
1999	41,7%	68,1%	63,3%	66,5%	74,9%	82,1%	119,1%	137,1%	102,2%

Source: Main Macroeconomic Indicators, 1998, NSI, Sofia, Bulgaria, p. 21

Households' Budget Survey, NSI, Sofia, Bulgaria, 1996, p.XII; 1999, p. 11

If we compare the third column of table 1 with the second column of table 4 we will find that, if the base year is 1990, in 1999 we have 77.6% of the 1990 GDP level and only 41.7% of the real incomes level of year 1999. This means that the reduction of real incomes is more than two and a half times bigger than the GDP decline. The question is “Where is the money?” The imbalance in the real GDP and real income decline is due to the long term negative real interest rate, which lasted from the beginning of the reforms until the implementation of the currency board in mid-1997. Through this mechanism on the one hand the public has been permanently losing parts of its wealth, and on the other hand the same public has been financing the budget deficit free of charge.

Households have been tightening their real consumer expenditure. The average household was in dissaving in 1991 and from 1994 to 1997. This means that for the stated (above) years money incomes are less than money spent. In other words, households as a whole had been consuming more than their

money earnings, using accumulated funds from the previous years. As a result, the average household was in a situation of dissaving.

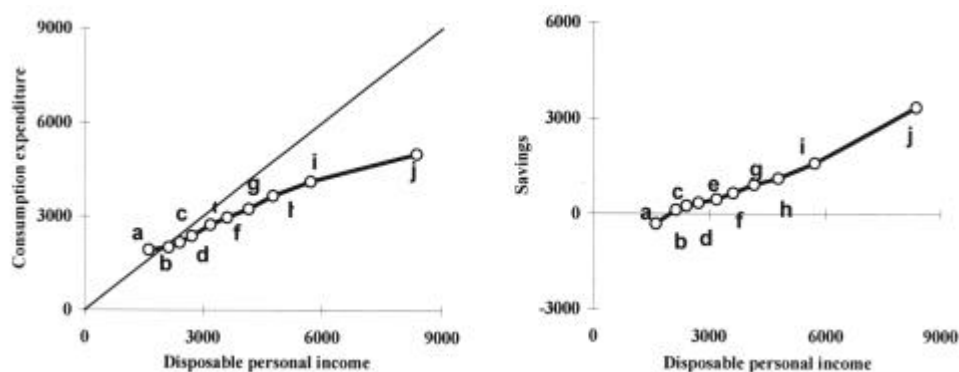
Let us have a look on the latest available data for consumption and saving schedules through household decile groups (see Figure 2).

It is apparent that even in 1999 (after two years with remarkable growth of 37.1% - see table 4) the first 10% of the households (first deciles) are in dissaving. If we look at the same data for year 1998 - 50% of households were in dissaving, and if we go back to the recession year 1996, 90% of households were in dissaving. So real incomes as a measure of Bulgarian prosperity have been increasing in the last years, but they are still far away from their 1989 level.

The high value of the average propensity to consume (more than 1) for the poorest household decile group expresses the deepening naturalisation of income – these families has been simply trying to survive. The savings of the high-income groups are pretty stable, reaching 40% for the richest decile group. As a result, the average propensity to consume in the whole economy is 0.77, and consequently the average propensity to save is 0.23. This means that 23% of incomes are destined for saving.

Figure 2: Consumption and Saving Schedules and Functions by household Decile Groups for year 1998 in Bulgaria (in BGN at current prices)

	I (a)	II (b)	III (?)	IV (d)	V (e)	VI (f)	VII (g)	VIII (h)	IX (i)	X (j)	?????
C	1934	2010	2168	2376	2736	2967	3244	3657	4115	5007	3095
S	-309	123	247	345	450	646	908	1111	1591	3349	928
DPI	1625	2133	2415	2721	3186	3613	4152	4768	5706	8356	4023
APC	1,19	0,94	0,90	0,87	0,86	0,82	0,78	0,77	0,72	0,60	0,77
APS	-0,19	0,06	0,10	0,13	0,14	0,18	0,22	0,23	0,28	0,40	0,23
dC	76	158	208	360	231	277	413	458	892		
dS	432	124	98	105	196	262	203	480	1758		
dDPI	508	282	306	465	427	539	616	938	2650		
MPC	0,15	0,56	0,68	0,77	0,54	0,51	0,67	0,49	0,34		
MPS	0,85	0,44	0,32	0,23	0,46	0,49	0,33	0,51	0,66		



Source: Household Budgets in Republic of Bulgaria 1999, Sofia, NSI, 2000, p. 156, 158

The consumption function is plotted on the left graph of Figure 2. It is clear that the households from the first decile are in dissaving (their point – a – is above the 45-degree line), the following 40% of households stay around the break even point - they eat almost everything they earn - and the last five deciles are saving from 20% to 40% of their income.

The uneven and chaotic behaviour of marginal propensities to consume and to save is a sign of, and more proof of, the unbalanced structure of consumption expenditure – the rising share of foods and clothes. The income inequality had been increasing during the first half of nineties and then it was decreasing. Let us use the simple measure of inequality - a ratio between the incomes of the 10% high-income households to the 10% low-income households. The peak of this measure was in year 1995 – 11.9 times; in 1997 it was reduced to 10.2 times, and in 1999, to 8.9 times. The Gini coefficient as a measure of households' income differentiation is 0.360 in 1995, 0.341 in 1997, and 0.311 in 1999.

The recession has badly influenced the investment process in the Bulgarian economy. The volume of real investments has had a tendency to decrease (see Figure 3). The normal share of investments in GDP structure should be about 20%. But in the nineties the average share of investments in GDP in Bulgaria was about 13 % (the lowest annual investment is in 1996 – only 8% of GDP was devoted for investments in this recession year).

Investments are very unstable under the recession. The investment accelerator (as a ratio between investment and GDP growth) had relatively high values, differing more than 10 times in the nineties. The positive economic growth in 1994-1995 led to a more than 16% increase in investments – five times more than the GDP growth. But the huge fall in GDP (in 1996 – 10.1%, and in 1997 – 7%) led again to a two (in 1996) and a three (in 1997) times bigger decrease in investments. The situation in 1998-1999 is a mirror image of the 1994-1995 development. This means that we cannot have a negative GDP growth if we want to expand and to return quickly to the 1989 GDP level.

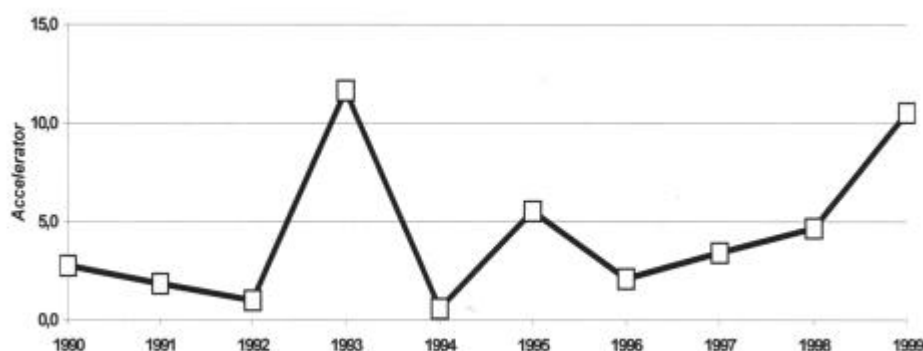
The interest rate under the currency board is very low, but there are no significant investments in the real economy. The main reason is that the commercial banks want unreal warranties (to cover from 125% to 150%, sometimes even 200%, of the credit amount). For foreign investments, Bulgaria is one of the last places among the Central and East European countries, according to the rate of foreign investments per capita.

The government budget and purchases have been reduced to the minimum level necessary. The real economic aid from the international financial institutions is mainly connected with foreign debt payments in recent years (more than a billion US dollars per year in the following 4-5 years).

Figure 3: Investment Dynamics in the Nineties (year on year basis)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Investment Index (I)	74,9%	84,4%	92,7%	82,5%	101,1%	116,1%	78,8%	76,1%	116,4%	125,3%
GDP Index (Y)	90,9%	91,6%	92,7%	98,5%	101,8%	102,9%	89,9%	93,0%	103,5%	102,4%
Investment Growth (dI)	-25,1%	-15,6%	-7,3%	-17,5%	1,1%	16,1%	-21,2%	-23,9%	16,4%	25,3%
GDP Growth (dY)	-9,1%	-8,4%	-7,3%	-1,5%	1,8%	2,9%	-10,1%	-7,0%	3,5%	2,4%
Accelerator (A=dI/dY)	2,8	1,9	1,0	11,7	0,6	5,6	2,1	3,4	4,7	10,5

Source: Main Macroeconomic Indicators, 1998, NSI, Sofia, Bulgaria, p. 13



The recession has also been worsening the position of the Bulgarian economy among the rest of the world. The foreign trade structure until 1990 was very stable: 80% with socialist countries and 20% with all the other countries. A huge restructuring in foreign trade turnover has been taking place. Now that trade with the EC countries is more than 50%, the trade with the previous socialist countries is reduced to about 20%, and the trade with the neighbouring countries is increasing.

The import-export structure in the Bulgarian economy, and some foreign trade indicators are given in Figure 4. The net export (exports minus imports) has been negative for almost the whole period in the nineties. Even when it was positive (in 1997) its value was rather low (0.1%). The positive net export, (in 1991 and 1997) in the case of Bulgarian economic transition is a negative feature of economic development. It happened in the worst recession or post-recession years, because in this case the decline in imports was bigger than the reduction of the more conservative exports.

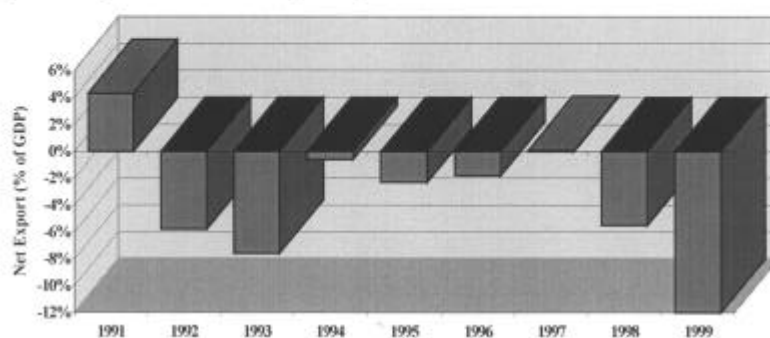
The balance of payments will stay strongly negative (about 500 million US dollars on average) for the last years of nineties and in the first years of next century.

Figure 4: Foreign Trade Indicators

(in million BGL at current prices)

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Net Export (X)	5792	-11695	-22766	-3285	-20348	-32305	12925	-1195083	-2740600
Export (Ex)	58976	94630	114210	236770	359664	859796	8281387	7570140	7230700
Import (Im)	53184	106325	136976	240055	380012	892101	8268462	8765223	9971300
Ex+Im	112160	200955	251186	476825	739676	1751897	16549849	16335363	17202000
GDP	135711	200832	298934	525552	880322	1748701	17055205	21577020	22776000
X(% of GDP)	4,3%	-5,8%	-7,6%	-0,6%	-2,3%	-1,8%	0,1%	-5,5%	-12,0%
Ex+Im(% of GDP)	82,6%	100,1%	84,0%	90,7%	84,0%	100,2%	97,0%	75,7%	75,5%

Source: *Import and Export, 1991 - 1999*, NSI, Sofia, Bulgaria.



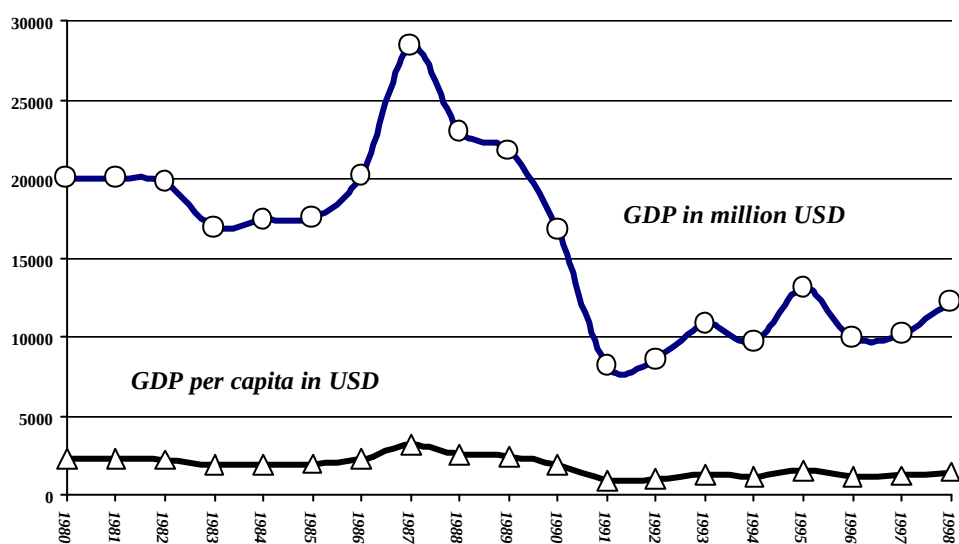
The Bulgarian economy is an extremely open economy. Foreign trade turnover almost equals GDP (see the bottom row in Figure 4). This means that the Bulgarian economy has been strongly influenced by world economic development and outside economic shocks.

There is some evidence of coping with the recession, but there are a lot of obstacles too. It is clear that returning to the 1989 economic level will be a difficult and sustained process. Then, reaching the required economic parameters for entering the European Union will be an even more difficult and sustained procedure. In practice, Bulgaria has the chance to utilise its intellectual and material resources in order to take its place among the Balkan and European economies.

Appendix 1. Gross Domestic Product (GDP) at current prices 1980 – 1998

Year	GDP	GDP	GDP	GDP	Average annual	Average annual
	million leva	per capita leva	million USD	per capita USD	population thousands	exchange rate leva per 1 USD
1980	25791	2910	20040	2261	8862	1,287
1981	27818	3129	20056	2256	8891	1,387
1982	29013	3253	19804	2221	8918	1,465
1983	29815	3335	16960	1897	8940	1,758
1984	31671	3534	17411	1943	8961	1,819
1985	32595	3638	17562	1960	8961	1,856
1986	34424	3843	20261	2262	8958	1,699
1987	36531	4072	28429	3169	8971	1,285
1988	38345	4269	23002	2561	8981	1,667
1989	39579	4459	21783	2454	8877	1,817
1990	45390	5206	16755	1922	8718	2,709
1991	135711	15721	8137	943	8632	16,678
1992	200832	23516	8605	1008	8540	23,399
1993	298934	35284	10812	1276	8472	27,648
1994	525552	62243	9688	1147	8444	54,247
1995	880322	104725	13106	1559	8406	67,168
1996	1748701	209104	9946	1189	8363	175,821
1997	17055205	2051861	10173	1224	8312	1676,500
1998	21577020	2613247	12257	1454	8257	1760,390

Source: Main Macroeconomic Indicators, 1998, NSI, Sofia, Bulgaria, p. 1



Appendix 2. Reaching the 1989 GDP level under different average annual growth rates and inflation schedules

YEAR	CPI 6%	CPI 8%	GDP 4%	GDP 3%	GDP 2%
1989	100,0%	100,0%	100,0%	100,0%	100,0%
1990	150,6%	150,6%	90,9%	90,9%	90,9%
1991	864,0%	864,0%	83,3%	83,3%	83,3%
1992	1550,9%	1550,9%	77,2%	77,2%	77,2%
1993	2541,9%	2541,9%	76,0%	76,0%	76,0%
1994	5640,4%	5640,4%	77,4%	77,4%	77,4%
1995	7496,1%	7496,1%	79,6%	79,6%	79,6%
1996	30801,5%	30801,5%	71,6%	71,6%	71,6%
1997	209018,9%	209018,9%	66,6%	66,6%	66,6%
1998	211109,1%	211109,1%	68,9%	68,9%	68,9%
1999	224831,2%	224831,2%	70,6%	70,6%	70,6%
2000	250461,9%	250461,9%	74,7%	74,7%	74,7%
2001	257386,7%	262243,1%	77,6%	76,9%	76,2%
2002	272829,9%	283222,5%	80,8%	79,2%	77,7%
2003	289199,7%	305880,3%	84,0%	81,6%	79,2%
2004	306551,7%	330350,7%	87,3%	84,0%	80,8%
2005	324944,8%	356778,8%	90,8%	86,6%	82,4%
2006	344441,5%	385321,1%	94,5%	89,2%	84,1%
2007	365108,0%	416146,8%	98,3%	91,8%	85,8%
2008	387014,4%	449438,5%	102,2%	94,6%	87,5%
2009	410235,3%	485393,6%		97,4%	89,2%
2010	460940,4%	566163,1%		100,3%	91,0%
2011	488596,8%	611456,1%			92,8%
2012	517912,6%	660372,6%			94,7%
2013	548987,4%	713202,4%			96,6%
2014	581926,6%	770258,6%			98,5%
2015	653852,7%	898429,7%			100,5%

x

$$0,747 * 1,0R > 1$$

R = 4%	X = 8	2008
R = 3%	X = 10	2010
R = 2%	X = 15	2015