FOREIGN EXCHANGE, PRICES AND ECONOMIC ACTIVITY IN BULGARIA

Gordon Hughes

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Centre for Economic Policy Research
6 Duke of York Street
London SW1Y 6LA
Tel: (44 71) 930 2963

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ABSTRACT

Foreign Exchange, Prices and Economic Activity in Bulgaria*

Bulgaria, like other socialist economies in transition, is attempting to implement an ambitious programme which combines a price reform to reduce price distortions and to liberalize pricing mechanisms, with macroeconomic stabilization to reduce the budget deficit and lower the underlying rate of inflation. The paper develops an input-output model to investigate the relationship between the exchange rate and the domestic price level. It shows that the success of the reform programme is closely linked to the path followed by the exchange rate. The government's stated policy is that it will not attempt to control the level of the exchange rate. The simulations suggest, however, that the government should use the exchange rate as the real anchor for the reform programme – that is, by targeting a level for the real exchange rate rather than the nominal exchange rate. Under such a policy it will be able to implement the necessary adjustments to controlled prices for food and energy without re-initiating the inflationary spiral that began in 1990.

Gordon Hughes
Department of Economics
University of Edinburgh
William Robertson Building
50 George Square
Edinburgh EH8 9JY
United Kingdom
Tel: (44 31) 650 8359

NON-TECHNICAL SUMMARY

Despite lagging behind other countries in Eastern Europe during 1989–90, in February 1991 Bulgaria introduced a programme of macroeconomic reform and liberalization which is more radical than even Poland's January 1990 programme. This paper outlines macroeconomic developments up to the adoption of the reform programme, and assesses the conditions that will be required if the programme is to meet its targets of macroeconomic stabilization and the elimination of price distortions without a high level of inflation from 1992 onwards.

Bulgaria was transformed from a predominantly agricultural economy in 1950 to an industrial economy in 1970 by a programme of heavy investment in sectors such as metallurgy, chemicals, engineering and textiles. Rapid economic growth was sustained through the 1970s and into the early 1980s. By 1985, however, the problems of low productivity growth, wasteful use of natural and investment resources and poor quality of output, characteristic of all centrally planned economies, were beginning to undermine the country's apparent economic success. During the second half of the 1980s economic growth slowed, the balance of trade deteriorated and the budget deficit grew as the government attempted to maintain macroeconomic stability through subsidies and high levels of public investment. Despite a brief attempt to reverse the cumulative deterioration in 1988, the situation continued to deteriorate until the government was forced to suspend payments on the country's foreign debt in March 1990.

A combination of political uncertainty, lack of foreign exchange and ill-considered price reforms resulted in a sharp fall in output during 1990 combined with an accelerating rate of inflation. The country's problems were substantially exacerbated by the collapse of CMEA trading arrangements and the oil price rises following the invasion of Kuwait. Bulgaria is more dependent on trade with the Soviet Union than any other East European country and, as a country with a very high level of energy consumption per unit of GDP, it suffered heavily from high energy prices and a shortfall in Soviet oil deliveries in the second half of 1990. These problems resulted in a decline in GDP of 11% from 1989 to 1990 together with an acceleration of year-on-year inflation from 10% in the first half of 1990 to 53% in the last quarter of the year.

In these circumstances the implementation of substantial economic reforms was unavoidable, but the programme adopted in February 1991 has set extremely ambitious targets for the transition from a centrally planned to a market economy. Most price controls have been removed and the prices of the remaining controlled items – food and energy products – were increased by up to 650%. The overall level of retail prices is expected to increase by 225% between December 1990 and June 1991. Multiple exchange rates have been eliminated and the exchange

rate is to be allowed to float freely. After an initial fall in the main commercial rate from 2.97 to 20 leva per dollar, the exchange rate has been rising and is expected to stabilize between 7 and 10 leva per dollar by the middle of 1991. Wage levels were adjusted to protect those on minimum wages, but average wages are expected to fall by about 40% as a result of the initial adjustments and a system of wage indexation which provides 70% compensation for subsequent price increases. It is hoped that real wages and wage differentials can be increased later in 1991 when macroeconomic stability has been re-established. These policies have been accompanied by changes in fiscal and monetary policy designed to reduce the tight monetary discipline on banks and enterprises.

The success of the reform programme depends upon ensuring that the price adjustments do not initiate an inflationary price spiral. The government's target, that inflation should settle down to less than 10% per annum from 1992 onwards, is too ambitious because two factors will tend to exert upward pressure on the price level: (i) the exchange rate is likely to settle at a lower level than that envisaged in the programme; (ii) the controlled prices for energy and food must be increased to reach world price levels converted at the current exchange rate. To investigate how these factors will influence the outcome of the reform programme we construct a pricing model based on a modified input-output framework. This focuses on the adjustment mechanisms for the exchange rate, wages, controlled prices and the profitability of industrial enterprises in order to simulate the consequences of following alternative policy rules.

The model suggests that the targets of the reform programme are broadly achievable with inflation stabilizing at 20–25% in 1993–4 provided that an appropriate exchange rate policy is followed. It turns out that a real exchange rate anchor is essential for the success of the programme. This would represent a shift in government policy since the programme explicitly says that the government does not have the resources to intervene in the foreign exchange market. This is probably because it felt that a nominal exchange rate anchor, as adopted by the Polish government, could not be supported. In fact, a nominal exchange rate anchor would be undesirable since it would either force the government to allow the remaining price distortions to persist or it would result in a rapid erosion of the real depreciation of the exchange rate that has been achieved and must be maintained in order to improve the balance of trade.

The level of the real exchange rate is important as well as the pursuit of a fixed real exchange rate target. The model simulations suggest that the government should aim for a reduction in the real exchange rate of about 25% from December 1990 rather than the 15% real depreciation implied by the reform programme. This would mean that inflation in the second half of 1991 will be higher than envisaged in the government's plans, but the inflation differential rapidly disappears. The advantage is that the stimulus to economic activity and the balance of trade is much greater. Such a strategy implies that the government

should set a target zone for the exchange rate of 10–12 leva per dollar in July 1991. Thereafter, it should allow the exchange rate to adjust over a period of approximately a year to reach the target real exchange rate. The alternative policy of adjusting the expected July 1991 exchange rate of 10 leva per dollar in line with movements in purchasing power parity would not generate a sufficient decline in the real exchange rate. On the other hand, a lower exchange rate in July 1991, e.g. 15 leva per dollar, would result in higher inflation and difficulty in sustaining the policy of eliminating the remaining price distortions.

Overall, the analysis emphasizes the critical role played by the real exchange rate in programmes of price liberalization and macroeconomic stabilization in former socialist economies. In Bulgaria's case the government cannot afford to allow the exchange rate to be determined freely in the foreign exchange market since its feedback effects on inflation and economic activity will have a critical effect on the success of the whole reform programme. On the other hand, it is possible to determine an achievable exchange rate policy which will improve the chances that the programme will be successful.
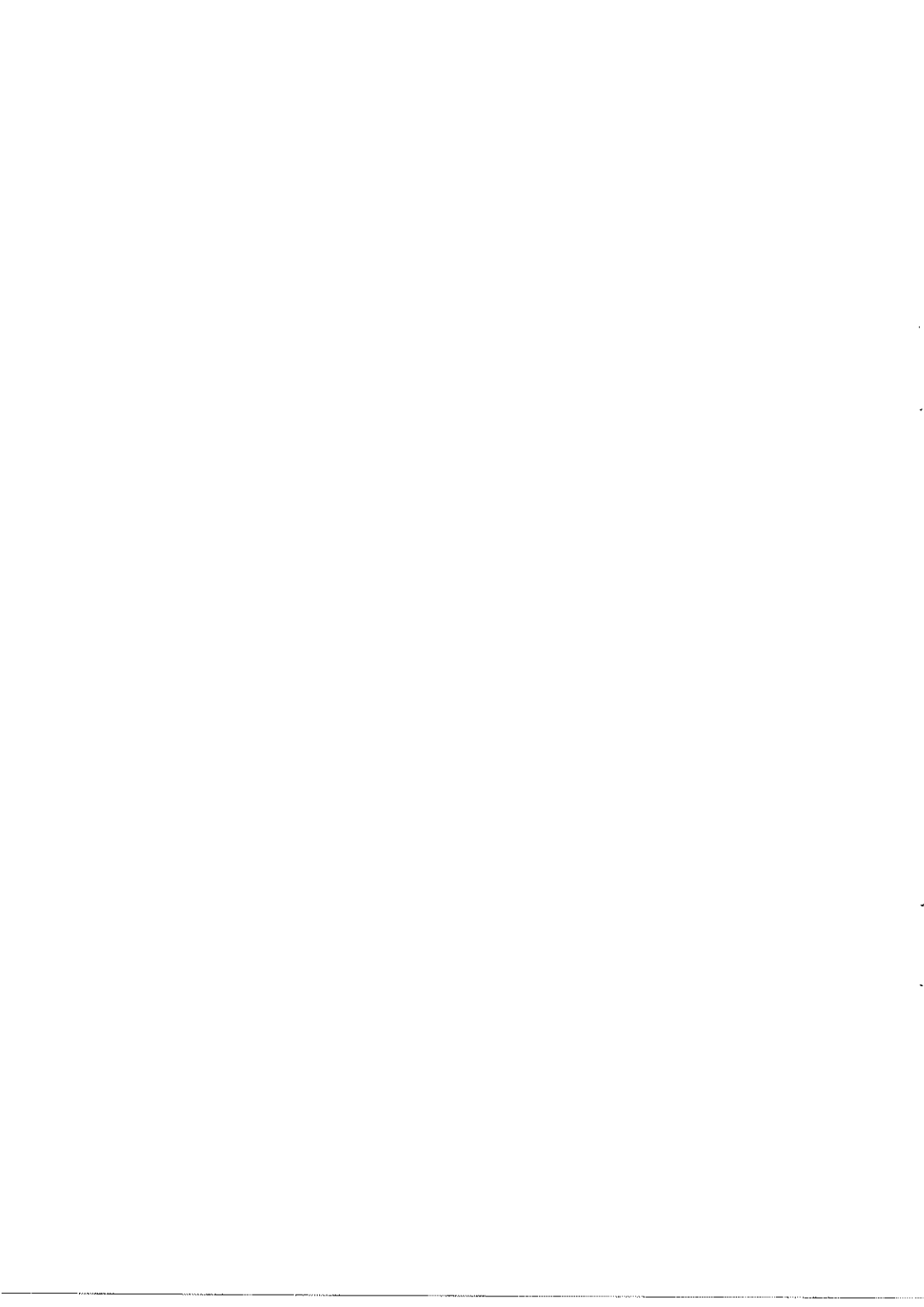
1. Introduction

In the wave of political and economic reform that swept through Central and Eastern Europe during 1989-90 Bulgaria lagged behind many of the other countries in the region. The economic problems which fuelled the dissatisfaction with the former regimes were slower to emerge in Bulgaria, so that it was only in the spring of 1990 that the severity of the economic crisis that was overtaking the Bulgarian economy began to become apparent.

An inconclusive set of elections took place in June 1990 in which the Socialist (former Communist) Party gained a bare majority while the UDF (the opposition coalition) attracted the support of almost 40% of the electorate. Bitterness engendered by suspicions of vote-rigging, internal divisions within the Socialist Party and the effects of the strong political support for the UDF in Sofia and the other main cities led to a political stalemate in Parliament. As a result the Socialists were not able to form a new government until late September 1990. This government survived for barely 2 months and was eventually replaced by a coalition government on December 20th 1990 in which the UDF control the main economic ministries. It is envisaged that a new set of elections will be held, but the original intention of holding these elections in the spring of 1991 is unlikely to be realised because of the economic and political problems associated with the implementation of the economic reforms that were initiated in February 1991.

Building upon preliminary work on the design of economic reforms carried out during the second half of 1990, the new government has embarked on a radical and comprehensive programme of macroeconomic stabilisation, price liberalisation and privatisation. In many

respects the objectives of this programme are more ambitious than those of the Polish reform introduced at the beginning of 1990. The government hopes that it will be able to achieve the large adjustment from controlled to liberalised prices in a single jump without setting off an inflationary spiral leading to hyperinflation such as occurred in Poland during the second half of 1989.

Radical economic reform was unavoidable. The foreign exchange crisis which overtook the economy in early 1990 would have led to severe economic dislocation even without the political and economic factors which compounded the country's problems later in the year. The breakdown of CMEA trading arrangements, economic problems in the Soviet Union and internal disruptions to production resulted in an estimated 27% decline in real exports for 1990 relative to 1989. Bulgaria is the country in Eastern Europe most affected by the shift from transferable rouble to dollar terms for imports of oil, gas and other raw materials from the Soviet Union. The country has exhausted its international borrowing capacity and was forced to declare a moratorium on repayments of interest and principal on its debt in Spring 1990.

Despite widespread acceptance of the necessity of restructuring the economy the current Bulgarian government has shown exceptional political courage in the scale of its reform programme and the magnitude of the decline in living standards which it will cause initially. Political and economic circumstances mean that the extent to which the reform package meets its objectives depend upon a number of factors over which the government has only limited control. In this paper I will attempt to identify the key variables which will determine whether the broad target of achieving price liberalisation without any inflationary spiral can be achieved.

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In particular, I will focus on the roles of the exchange rate and of price reform in the energy sector which are central to the success or failure of the programme. The importance of these two issues arises from the Bulgaria's extreme dependence on trade with the Soviet Union and on imported energy whose extra cost during 1991 could absorb the equivalent of its entire hard currency earnings during 1990.

Lack of foreign exchange and rationing of energy - the two are effectively equivalent in Bulgaria's current circumstances - resulted in a fall in total industrial output of at least 25% during the second half of 1990 and the situation seems to have been even worse in the first quarter of 1991. Thus, a recovery in economic activity depends upon relaxing these constraints by a combination of international borrowing following the conclusion of an IMF Stand-By Agreement in February 1991 and industrial restructuring that will enable the economy to make better use of its limited resources.

2.   Macroeconomic Developments 1980-90

At the end of World War II the Bulgarian economy was based on agriculture with a relatively small industrial sector. The Communist government set out to accelerate the pace of industrial development with a bias in favour of the metallurgy, chemicals and engineering industries and an autarchic framework characteristic of other centrally planned economies. During the 1950s and 1960s average growth rates of 7-8% p.a. in net material product at constant prices were achieved and the share of industrial production in total NMP grew from

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26% in 1948 to 55% in 1970. Despite the shocks which affected other economies during the 1970s Bulgaria reported an average growth in real NMP of 7.0% p.a. during this decade. The share of industrial production declined to 51% in 1980 as a result of more rapid growth in agricultural output and in miscellaneous branches of material production including transport, communications and other material production.

By the early 1980s Bulgaria had become an industrial country with a reported income per head roughly similar to those of European countries such as Poland, Hungary, Yugoslavia, and Portugal. However, its economic and industrial structure was beginning to show signs of the weaknesses which have plagued all of the centrally planned economies. A decline in the rate of productivity growth, a failure to develop or adapt new technologies, widespread waste of investment resources, excessive use of energy inputs and the low quality of goods produced were all symptoms of the neglect of economic incentives in a highly centralised system of planning and resource allocation. Still, the country had undergone enormous economic changes over the previous three decades and the average standard of living was much higher than that in Turkey with which it might have compared itself, so that the government had some grounds for feeling that its economic policies had been generally successful.

In evaluating Bulgaria's economic progress it is necessary to decide how much reliance to place upon official estimates of national income and its components. There is considerable scepticism about the reliability of Bulgarian statistics. The U.N. Economic Commission for Europe notes in its Economic Survey of Europe in 1989/90 that the initial estimates of Bulgaria's growth in NMP for 1988 were reduced by almost 4 percentage points in early 1990 and that

other statistical weaknesses or distortions have been publicly discussed - ECE (1990, pp. 81-83). The Central Statistical Office has supplied revised estimates of national accounts aggregates using both the MPS and SNA methodologies for recent years but there has been no systematic attempt to correct estimates for earlier periods. Within Bulgaria it is suggested that the most blatant manipulation of economic statistics started in 1985 as the bureaucracy sought to hide the scale and nature of the economic problems which were emerging. The resulting distortions affected input-output data and other industrial statistics as well as the national accounts aggregates. There is little option other than to utilise the best available data supplied by the Central Statistical Office but it is clearly important to be cautious in attempting to identify trends or turning points.

Quite apart from deliberate distortion of the statistics there are problems arising from the application of the official methodology. After a detailed review of national accounts data for the period 1970-80 Singh & Park (1985) suggested that the overall growth in real NMP over the 1970s should be revised downwards to 5.4% p.a. because of problems in the official treatment of the trade sector's contribution to total NMP. It should be noted that the contribution of the trade sector to total NMP during the 1980s has been very erratic with a large fall from 1980 to 1984. Estimates of growth rates in GDP are subject to even greater uncertainty since there is little data on the performance of the non-material sectors of the economy. Singh & Park suggest that the share of non-material activities in total GDP contracted substantially during the 1970s so that they estimated an overall growth rate for GDP of 5.1% p.a. over the decade.

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Bearing these qualifications in mind Table 1 gives growth rates for total NMP and GDP plus various of their sub-aggregates for 1980-84, 1984-88 and the two most recent years. The NMP estimates suggest a gradual slowing down of economic growth up until 1988 followed by the developing economic crisis of 1989-90. The aggregate GDP figures would be consistent with this interpretation were it not for the strange behaviour of the contribution of services to GDP. As noted above, this is almost certainly an artificial consequence of methodological problems in measuring the output of the trade sector. We may conclude that growth during the 1980s was significantly less than that during the 1970s and that there was a general slowdown during the course of the decade until the crisis of the last two years.

The fall in national income during 1989 was not reflected in personal consumption because the burden of the adjustment fell on fixed investment. In fact the situation was even worse than the aggregate figures suggest. Through the 1980s the level of national income was held up by large increases in stocks which accounted for 5.7% of GDP in 1980 and 7.7% in 1988. By comparison, in Austria the increase in stocks did not account for more than 2.5% of GDP for any year during the 1980s. The dramatic fall in net fixed investment in 1989 was the culmination of a related trend which became increasingly important during the decade. In 1980 investment in unfinished construction was equivalent to 2.4% of GDP but it was 4.0% in 1988 and 5.8% in 1989 while net fixed investment had fallen from 12.0% in 1980 to 7.4% in 1988 and 2.1% in 1989. Throughout the decade there was a deficit on the balance of trade - financed by increasingly heavy international borrowing - so that it is probable that the high levels of stockbuilding represented goods for which no market could be found. In effect, the

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appearance of economic growth was sustained by stockpiling unsaleable domestic output while goods were imported to meet domestic needs for intermediate and final consumption.

The figures in Table 2 on the composition and utilisation of GDP show the impact of a decline in agricultural production after 1982 and the erratic movements in the level of value-added in the service sector. The share of government consumption in total GDP increased significantly in the early 1980s, largely at the expense of private consumption, while later in the decade there was a shift from gross fixed investment towards private consumption. The deficit on the balance of trade contracted in the late 1980s after it had been as high as 6.7% of GDP in 1986. The improvement on the trade account was achieved both by increasing exports as a share of GDP and by reducing dependence upon imports, but the better export performance could not be sustained after 1988 so that the resource gap was widening rapidly in 1989 and precipitated the economic crisis in 1990.

The improvement in export performance up to 1988 was reflected in heavy government expenditure on export subsidies, especially in support of the agricultural sector. These subsidies, combined with special investment credits which were excluded from the regular state budget, led to a rapid deterioration in the government's financial position from 1985 to 1988 and a general budget deficit equivalent to 5.6% of GDP in 1988. This deficit was temporarily reduced in 1989 but widened dramatically again during 1990. The underlying problem is that during the mid-1980s the government was increasing the share of government revenue in GDP - from 52.6% in 1984 to a peak of 60.6% in 1987 - and was allowing government expenditure to grow in line with this revenue expansion. However, since 1987 government revenue has declined as

a share of GDP because trade problems and the economic difficulties of enterprises have reduced the government's non-tax revenue, while government expenditure has not contracted in line with revenue. The government deficit was cut in 1989 by reducing special investment credits with the consequent increase in unfinished construction work noted above. This proved no more than a temporary palliative and the government's attempts to maintain economic activity during 1990 resulted in a deficit equivalent to 13% of GDP. The main reasons for this deterioration were a huge jump in interests payments on foreign debt (though most of this was accrued) accompanied by increases in expenditure on social security and price subsidies as well as a decline in revenue from profits taxation.

The country's foreign transactions are described in Table 3. This shows that Bulgaria has been running an increasing surplus on its trade in transferable roubles, though it is clear that this surplus was achieved by extending substantial credits to its trading partners. There must be considerable doubt whether some of these debts will ever be repaid. The convertible currency account shows that exports to the dollar zone declined in real terms throughout the 1980s while imports grew rapidly until 1988. The result was an increasing deficit on trade account financed by borrowing from international capital markets. Again, the situation is rather worse than the simple trade figures suggest because the level of convertible currency exports was only maintained in nominal terms by extending substantial credits to developing countries and other centrally planned economies who purchased Bulgarian exports. As a result, the country was owed nearly $2.8 billion by such borrowers at the end of March 1990, of which $750 million represented arrears of payments.

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The deterioration in the trade account after 1984 led to a rapid growth in the country's external debt. Its foreign liabilities in convertible currencies increased from $3.2 billion in 1985 to $9.1 billion in Spring 1990, while international reserves contracted from $2.1 billion to $0.5 billion. During the same period Bulgaria shifted from a debt of 1.4 billion transferable roubles to a net credit of 0.4 billion t.r. This emphasises the extent to which the country was borrowing convertible currencies in order to sustain exports to other CMEA countries funded by matching loans. Relative to dollar earnings from exports of goods and services its convertible currency debt grew from 80% of gross export earnings in 1985 to 227% of these earnings in 1989[1]. This was slightly better than Hungary which had a ratio of about 250% in 1989 but, in combination with a downward trend in export earnings and the decline in domestic production, it is hardly surprising that the country was forced to suspend its debt service payments at the end of March 1990.

Until May 1990 Bulgaria operated a system of multiple exchange rates for different type of trade transactions similar to that in other centrally planned economies. The commercial rates given in Table 3 were used for the purpose of most trade transactions, though the 'valuta' system in terms of foreign currency leva converted at the official exchange rates was used for accounting purposes. From May 1990 to February 1991 there were three exchange rates for dollar transactions : (i) the basic commercial rate of $1 = 2.97 leva in June 1990; (ii) a market rate determined in a relatively thin auction market of $1 = 7.06 leva in June 1990; and (iii) a rate for cash transactions linked to the market rate of $1 = 7.17 leva in June 1990. The commercial rate was linked to a basket of currencies and floated up to $1 = 2.78 leva by the

end of 1990 as a result of the depreciation in the dollar against other hard currencies. The market and cash rates moved down in expectation of a substantial devaluation to about 10 leva per $ at the end of 1990 and about 14 leva per $ just before the exchange liberalisation in February 1991.

The composition of merchandise trade is shown in Table 4. In constructing an overall balance of payments a notional exchange rate for 1989 of $1 = 1.73 transferable roubles has been used by the IMF. On this basis, imports of energy represented about 24% of total merchandise imports while machinery and equipment constituted 50% of total merchandise exports. The share of energy and other raw materials in total imports declined through the 1980s as the country became more dependent upon imports of machinery and equipment and of industrial consumer goods, especially from non-CMEA sources. The relative weakness of the domestic agricultural sector is reflected in the growth of imports of foodstuffs from non-CMEA exporters which was accompanied by a decline in exports of foodstuffs to CMEA markets.

After a major price reform at the beginning of 1980 the rate of inflation as measured by the GDP deflator averaged just 1.4% p.a. from 1980 to 1988. Table 5 shows that the retail price index and wholesale price indices for industrial output increased rather more rapidly than this, but the general level of price rises was quite modest with a slight decline in inflation in the second half of the period. This price stability was achieved at the cost of an increasing isolation of domestic prices from international price levels, especially as the commercial exchange rate for the leva in terms of the dollar was substantially depreciated after 1984. Despite the improvement in the terms of trade as a result of the decline in international prices for energy

and raw materials the wholesale prices of tradeables should have increased by at least 4% p.a. during the period 1984-88 in order to match international prices.

The cost of this price isolation was an increasing level of expenditure on price subsidies for agricultural products and other traded goods. As noted above, this expenditure could not be sustained in the face of the rapid increase in the government budget deficit, so that these subsidies were reduced after 1988. In consequence, price increases began to accelerate in 1989 and the initial stages of price liberalisation and exchange rate adjustment in 1990 resulted in large increases in annualised rate of inflation during the course of the year. For the first two quarters of 1990 prices were 10-11% above those one year earlier, but the deregulation of most agricultural prices increased the year on year rate of inflation to 30% in the third quarter. Increases in the prices of petroleum products in July 1990 - as a form of rationing and taxation in response to the shortfall of Soviet deliveries of crude oil - followed by industrial price rises pushed the year on year inflation to 53% for the final quarter.

The increase in average monthly wages for the entire socialist sector comfortably outstripped the rise in the consumer price index for the period 1980-88 but there was a significant deterioration in the position of those working in service activities or in social sectors such as education and health. Average real wages declined marginally during 1989 and then fell by 2.4% in 1990. However, the annual averages for 1990 mask large intra-year variations since there was a sharp increase in real wages in the first half of the year followed by erosion of this increase and then an abrupt decline in the final quarter. For political reasons the government granted substantial wage increases before the elections in June which were

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overtaken by accelerating price inflation later in the year. Comparing real wages with their levels one year earlier on a quarterly basis shows that they were 8% higher in the first quarter, 14% higher in the second quarter, 2% lower in the third quarter and 20% lower in the final quarter.

3. The Reform Programme of February 1991

The new government which took office in December 1990 faced an economy which was almost in free fall. It had all the symptoms of a centrally-planned economy in transition - a large monetary overhang, a budget deficit increasing out of control, massive price distortions combined with an overvalued exchange rate and rapidly accelerating inflation, a breakdown in most mechanisms of central allocation of resources and a general paralysis of the enterprise sector. However, the rapidity with which the crisis had developed and its severity created a political climate in which the government has felt able to implement a stabilisation plan which will bring a larger short run decline in living standards than that which occurred in Poland during 1990.

The key elements of the reform programme, which was agreed with the IMF at the beginning of February and implemented in the first half of the month, are as follows :

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A.   Price Reform

To reduce the monetary overhang the general level of prices has been allowed to rise sharply by a combination of deregulating most prices and introducing large price increases for those products - mostly energy and food items - which are either still controlled by the government or are subject to a monitoring regime with maximum price targets. Administered pricing now operates for energy products alone which accounted for less than 5% of consumer expenditure in 1989. As shown in Table 6, the prices paid by household for these items have been increased by amounts ranging from 67% for premium gasoline to 650% for brown coal, while the rises for industrial consumers were even larger in some cases. For essential foodstuffs such as flour, bread, meat, milk, dairy products, vegetable oil and sugar plus public transport fares - accounting for 18% of consumer expenditure - the government has removed price controls but has said that it will intervene in the markets if prices exceed target maximum levels. The intention is that intervention should take the form of increasing supply by additional imports except for items such as flour, bread and public transport for which direct price controls on monopoly suppliers are threatened. The maximum price targets represent an average increase of about 350% in the prices of these goods.

Price controls have been removed from all other goods and services. As a result of this price reform it is expected that the level of retail prices will increase by 225% between the final quarter of 1990 and the second quarter of 1991. It is hoped that the rate of inflation will decline to 5% per quarter in the latter half of 1991 and thereafter settle down to less than 10% p.a.

B.   The Foreign Exchange Regime and Trade Policy

The system of multiple exchange rates has been abolished and a single interbank market for foreign exchange has been established.   Commercial banks are free to buy and sell convertible currencies against leva with the exchange rate being established by the balance of supply and demand in the market.   The only restriction on convertibility is that enterprises and individuals must deal through the commercial banks.   The government has stated that its reserves will not allow it to support any particular exchange rate target, but it hopes that tight monetary policies combined with the wages policy discussed below will provide the nominal anchor for price expectations necessary to prevent a continuing depreciation of the leva against the dollar. The black market exchange rate had fallen to 20-25 leva per dollar in early February and it was expected that the liberalised exchange rate would gradually rise from this level as individuals and enterprises had concluded that they would not gain by speculating against the currency. This expectation proved correct and the exchange rate had reached 14 leva per dollar by mid-March.   The reform programme is based on the assumption that after the initial price and other adjustments the exchange rate will settle in the range of 7 to 10 leva per dollar.   For the purpose of modelling the effects of the reforms I have assumed a target exchange rate of 10 leva per dollar in July 1991.

Quantitative import restrictions have also been removed and replaced by a special import tax of 15% on a wide range of products - except for special trading arrangements with the country's former CMEA partners. Some export restrictions and duties remain, primarily for food products and raw materials, in order to protect domestic prices from the full impact of moving

to world prices in a single step. The government intends to remove the remaining export barriers as soon as is consistent with meeting its inflation targets. As part of the general dismantling of CMEA trading arrangements trade with the Soviet Union and other CMEA trading partners will based on dollar prices, so that Bulgaria will be paying dollar world prices for its imports of energy products from the Soviet Union.

C.   Wages Policy

The system of wage indexation which operated briefly during 1990 was abolished at the beginning of 1991 and replaced by limits on the total wages bills of public sector enterprises and organisations. The intention is that there should be a large further reduction in real wages in the first quarter of 1991. Average wages were increased by 66% at the beginning of February and a further adjustment will be made at the beginning of April whose amount will depend upon the extent to which the actual increase in the cost of living of those on the minimum wage has exceeded the projected increase. Under an agreement with the trade unions the wage adjustments take the form of an identical money increase for all workers which is calculated to maintain the real value of minimum wages. Since the ratio of average to minimum wages in the final quarter of 1990 was 2.25, this implies a severe compression of wage differentials and a sharp reduction in real wages for most workers. In calculating wage adjustments it has been assumed that inflation between December 1990 and March 1991 will be 100% so that adjusting for inflation in the last quarter of 1990 the minimum wage was increased by 128% in February. The April adjustment will only provide 70% compensation for the increase in the cost of living

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of those on the minimum wage in order to exert strong downward pressure on real wages if the actual rate of inflation exceeds the target rate. Combining the inflation projections with the wage adjustment formula it is expected that average real wages in the second quarter of 1991 will be only 54% of their level in the final quarter of 1990 and 43% of their level in the final quarter of 1989.

It is envisaged that this dramatic decline in average real wages will be reversed in the second half of 1991, so that the overall decline from the final quarter of 1990 to the final quarter of 1991 will only be 25%. Even so, this implies a reduction of almost 40% in real wages over a two year period which is more severe than for any other similar reform programme in Eastern Europe. Since enterprises will only be subject to ceilings on the growth of their wage bills, the recovery in real wages could allow for a widening in wage differentials. This will be most difficult in the government sector whose overall wages bill will only be allowed to grow at the targeted rate of inflation for the second half of the year. Flexibility in setting new wage levels will depend upon enterprises and other organisations shedding labour in order to reward those who retain their jobs with higher real wages. Thus, any recovery in real wages will be accompanied by a sharp increase in unemployment in the second half of the year.

D.   Fiscal Policy

The reform programme involves changes in both the structure and levels of taxation and in government expenditure which are designed to reduce the budget deficit from 13.0% of GDP in 1990 to 3.5% of GDP in 1991 while also lowering the share of government revenue and

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expenditure in national income. Government revenue is expected to fall to 41% of GDP and government expenditure to 44% of GDP in 1991. On the revenue side the largest adjustment involves a shift from reliance upon non-tax revenues arising from differentials between world and domestic prices for imported goods towards revenue from the special import tax - effectively a rationalisation of trade taxes. Other non-tax revenues derived from intervention in production activities will also be greatly reduced. Income taxes and social security contributions are projected to fall from nearly 15% of GDP to 9% as a result of the reduction in real incomes.

The government is also embarking on a longer term programme of tax reform which will involve the replacement of the turnover tax by a value-added tax combined with a general broadening in the tax base and a reduction in reliance upon profit taxes. As steps towards these objectives the existing turnover tax has been simplified and its coverage has been extended, while the general rate of profits taxation has been reduced from 70% to 50% (including the 10% rate levied on behalf of municipal authorities). To provide funds to pay unemployment benefits the government has effectively raised the payroll tax falling on enterprises from 30% to 44%. In microeconomic terms these changes will encourage firms to shed labour and will enable profitable enterprises to retain a higher proportion of their earnings to finance new investment.

On the expenditure side the major saving will involve a reduction from 13% of GDP to 3% of GDP in expenditure on domestic price subsidies, export subsidies on CMEA trade and production subsidies to unprofitable activities - notably in agriculture and metallurgy. Special credits which were used to support investment in the energy, metallurgy and agricultural sectors

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will also be eliminated. It is likely that the government will encounter more difficulty in dealing with unprofitable enterprises and sectors than it has allowed for, so that the reduction in expenditure on production subsidies and investment credits may be slower than planned. The government also intends to reduce its own expenditure on wages and on the purchase of goods and services by shedding labour and postponing maintenance of public infrastructure. In the medium term these reductions in expenditure may lead to difficulties associated with the deterioration in the public capital stock, so that it is important that new methods of financing public services should be developed.

In view of the anticipated increase in unemployment total expenditure on social security payments is expected to amount to 12.9% of GDP as compared with 10.2% in 1989 and 13.2% in 1990. This will involve a shift from pensions and family benefits towards unemployment compensation. The budget is sufficient to cover an average unemployment rate of 6.8% through 1991, but pessimistic assumptions about the rate of inflation or the rise in unemployment suggest that expenditure may overshoot the budget provisions.

E.   Monetary Policy

Price liberalisation has reduced the monetary overhang but the government recognises that it is crucial to maintain tight monetary control in order to ensure that new liquidity is not created to offset the reduction in real money balances. The target for growth in the net domestic assets of the banking system is that this should not exceed 7.5% in each of the first and second quarters of 1991. On this basis real money balances will have been reduced by the

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beginning of July to 35% of their level at the beginning of January. To enforce this monetary contraction the minimum reserve requirements for commercial banks have been raised from 5% to 7% while the base interest rate was raised to 45% p.a. in February 1991. Since the price rises in the first quarter of 1991 effectively amounted to a step change in the general price level, the real rate of interest should be calculated by looking forward to anticipated inflation in the second and later quarters of the year. The target increase in the retail price index is 10% from March to April followed by an average monthly increase of 2% for the rest of the year. On these projections an annual interest rate of 45% implies a real return of 6% for the year from March 1992. Initial sales of Treasury bills and bonds in December and January at linked interest rates were successful but it cannot be expected that large amounts will be invested in fixed term deposits until the future outlook for inflation is more certain. Nonetheless, the increase in interest rates has stimulated a large scale repayment of housing loans and has reduced speculative holdings of dollars, thus exerting upward pressure on the free market leva-dollar exchange rate.

The treatment of past loans to enterprises remains uncertain. The problem is that many enterprises will not have the cash flow necessary to pay high interest rates on their outstanding debts, especially in view of the large decline in economic activity. On the other hand, capitalising interest payments will undermine the government's monetary targets and encourages distress lending to the least viable enterprises. There is also the danger that high interest rates will encourage a rapid growth in inter-enterprise credits, as has occurred in both Hungary and Poland, which could threaten both the effectiveness of monetary controls and the financial

stability of large sections of the industrial sector. The combination of tight monetary controls, high interest rates and inexperienced financial management in a period of restructuring is bound to lead to mistakes being made if the financial and industrial system remains highly centralised. This reinforces the need for a rapid transfer of financial responsibilities to individual enterprises who have the most direct interest in ensuring that their long term activities are safeguarded.

I have concentrated on the elements of the reform programme which are concerned with short and medium term stabilisation of the economy. These policies are accompanied by plans for rapid privatisation and measures to control the exercise of monopoly power. While crucial to the longer term development of the economy, these will contribute little to the immediate impact of the reform on prices and economic activity. Thus, in the next section I will examine whether the inflation targets of the reform can be achieved.

4.   Prices and Structural Reform

In order to assess the prospects of the reform meeting its targets for the reduction of inflation later in 1991 through 1992 I have constructed a model designed to explore the impact of key policy variables on the medium term behaviour of prices. The model takes account of the main structural reforms such as exchange rate and price liberalisation which affect the manner in which domestic prices are set. It is designed to provide a framework for investigating the sectoral impact of the changes which have occurred or are expected in the near future.

Because of uncertainty about the way in which the financial and monetary sector will operate within this time horizon, no attempt has been made to incorporate an explicit monetary sector in the model, though, as indicated later, it is possible to allow for the effects of monetary policy via the exchange rate.

The pricing model is based on a modified input-output pricing framework which has been developed to investigate the impact of energy prices and tax reforms in various countries - see Hughes (1987). The key feature of this model is that many of the sectoral prices may be determined by exogenous constraints such as foreign competition or administrative price controls rather than by the usual assumption of cost-plus pricing. Price and trade liberalisation combined with the retention of effective government controls over prices for key products means that 18 out of 32 sectors in the model are subject to these external constraints on price setting behaviour. Models of this type are usually static, but in this case the dynamics are based on the behaviour of the exchange rate, wages and the implementation of government policies with respect to the phasing out of price controls and the performance targets set for enterprises.

The key features of the model are as follows :

(a) The model is based on a revised version of the 30 sector input-output table for the year 1988 with some changes in the sectors included. Because explicit price controls have been retained for most energy products, the number of energy sectors has been increased by separating oil refining from the chemical sector. Separate sectors covering two groups of petroleum products have been introduced : (i) gasoline and automobile diesel oil plus similar products which are heavily taxed, and (ii) industrial diesel oil and heavy fuel oil plus other

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products which are primarily consumed by industrial users. These sectors are supplied by the oil refining sector which transforms crude oil into petroleum products and plays no other role in the model. The food, drink and tobacco sector has been divided into one sector covering food products still subject to price intervention and another for all other items. To reduce the number of sectors the two construction sectors have been merged as have miscellaneous and private industry. However, it has not been possible to introduce sectors covering non-material (service) activities though a crude adjustment has been made to allow for the contribution of services to the consumer price index.

(b)   It has been assumed that sectors such as iron & steel, machinery & equipment, electrical goods, chemicals, clothing and footwear which produce tradeable goods and for which either imports or export represent a significant fraction of total sales will have their prices governed by actual or potential competition from imports. The main agricultural sectors have also been treated as operating under a regime of traded goods pricing. In the first half of 1991 this involves large relative price adjustments - upwards for iron & steel, downwards for clothing, footwear and agricultural output - as the sectors adjust to international price levels. The information on comparable international prices has been obtained in the manner described in the accompanying paper on industrial competitiveness in other East European countries - see Hughes & Hare (1991). For the energy sectors and controlled foodstuffs it has been assumed that the government will increase domestic prices to international price levels at a rate which represents one of the policy variables in the model.

(c)   Price liberalisation and other reforms should lead to changes in the profitability of different sectors. This will be determined by the productive efficiency and costs of those industries which are subject to external constraints on their pricing decisions. For cost-plus sectors changes in prices will be linked to changes in their target gross profit rates expressed as a fraction of total sales. Two cost-plus sectors - non-ferrous metals and agricultural services - had negative gross profits in 1988 and I have assumed that these sectors will raise prices sufficiently in the first half of 1991 to cover their input and wage costs. Thereafter, target gross profit rates have been set for each cost-plus sector using equivalent data for the Spanish economy in 1980 and it has been assumed that prices will adjust to generate these gross profit rates at a speed which is another policy variable. Apart from the two sectors mentioned, the main adjustments will be increases in the gross profit rates for building materials, pulp & paper, and other material output with decreases in the gross profit rates for printing & publishing, miscellaneous industry and communications.

(d)   In implementing the reform programme the government was concerned that large enterprises not subject to domestic or international competition would take advantage of their monopoly power to push up their prices and gross profit rates during the period of transition. To investigate the possible importance of such behaviour the model contains a monopoly profit multiplier. This parameter, whose default value is 1.0, multiplies the gross profit rate in each of the cost-plus sectors in determining the output prices for these sectors. Thus, a value of 1.5 for the monopoly profit multiplier implies that all of the cost-plus sectors are able to obtain gross profit rates which are one and a half times those expected in a more competitive economy.

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(e) The pricing dynamics are modelled quite simply but it is possible to investigate a variety of alternative hypotheses by appropriate choices of parameter values that permit a wide variety of assumptions. Time is measured in periods of 6 months in length. Prices are assumed to adjust within each period to reflect the current exchange rate, the average wage rate and prices charged for inputs into production. This rules out an inflationary process generated by a self-fulfilling set of inflationary expectations but equally it means that there is no tendency for inflation to subside as a result of delayed price adjustments. In fact, enterprises are likely to experience downward pressures on the real prices which they can charge because of the substantial reduction in aggregate economic activity and the implementation of tight monetary controls, so that the model is more likely to overstate than understate the speed of inflationary adjustment.

(f) In the first half of 1991 it is assumed that nominal wages will follow the path described in the previous section. Thereafter, the wage equation allows for a weighted combination of two incomes policy rules. The first is an increase in line with the change in the consumer price index for the previous period - subject to the proviso that nominal wages cannot fall. Since expected inflation has been taken into account in setting wages for the first half of 1991, the adjustment in the second half of 1991 depends upon the difference between actual and expected price rises in the first half of the year. The second rule provides for the recovery in real wages anticipated after the sharp fall between mid-1990 and mid-1991. It assumes that the government has a target level for real wages relative to their level in 1990 and adjusts nominal wages to achieve this real wage level at the previous period's prices. By varying the real wage

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target and the weight placed on the two policy rules it is possible to achieve a range of wage paths corresponding to different government policies. On the basis of the assumptions built into the reform programme it will be assumed that the two policy rules are given equal weight and that the real wage target is 80% of the 1990 level.

(g)   The government has liberalised the foreign exchange market and has said that it does not wish to intervene in the market. However, it will be shown that the behaviour of the exchange rate is absolutely crucial in determining the success or otherwise of the reform programme. I have assumed that the government has a target exchange rate of 10 leva per dollar in July 1991. Thereafter, the simplest rule is to assume that the exchange rate adjusts in line with purchasing power parity starting from a notional equilibrium exchange rate of 10 leva per dollar at the expected price level for July 1991. The major difficulty with this assumption is that it would imply a real appreciation of the leva relative to the dollar of about 28% since July 1990, though similar calculations for December 1990 and July 1989 show a real depreciation of 8-10% over the shorter and the longer periods. It is unlikely that the July 1990 real exchange rate is an appropriate reference point, since this would take no account of the price increases which followed the exchange adjustment in May 1990. However, Bulgaria's recent trade performance and the problems caused by the breakdown in the CMEA trading arrangements suggest that a substantial depreciation in the real exchange rate relative to its level in 1989 will be required in order to generate the export earnings necessary to sustain an economic recovery. For this reason I have assumed that the government has to follow some kind of policy based on an explicit or implicit real exchange rate target. As with the wage equation, this is incorporated

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in the model by specifying an exchange rate equation based on a weighted average of the purchasing power parity adjustment and the real exchange rate target. To highlight the role of this target I have assumed that a further real depreciation of 20% below the expected level in July 1991 will be required to achieve balance of payments equilibrium.

The main results of simulating the impact of the reform programme on the rise in prices over the next 3 years are shown in Tables 7 and 8. The first of these tables focuses on the effects of alternative exchange rate policies. In interpreting the results it is important to note that the model suggests that the government's expectations about the extent of inflation in the first 6 months of 1990 may be too pessimistic if the exchange rate really does settle at around 10 leva per dollar by the middle of the year. The base run yields an increase in prices over this period of 159% on this assumption as compared with the forecast of 226%. The lower than forecast rate of inflation implies that the real exchange rate falls by 28% from December 1990 to July 1991 rather than the 10% implicit in the government's projections. This overshoots the intended purchasing power parity level so that there is a 10% appreciation of the leva in the second half of the year which exerts downward pressure on the general level of price increases. The lower than expected inflation also means that the decline in real wages is much less severe than anticipated, so that nominal wages barely change in the second half of the year because real wages are only slightly below the real wage target in July 1991.

If the government adopts a policy of targeting the real exchange rate and adjusting the nominal exchange rate in each period to achieve this real level, the appreciation of the leva in the second half of the year is only 3%, so that inflation is rather higher. This effect dies out

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within two years, after which the benefits of a lower real exchange rate in terms of the boost to economic activity have no further impact on the rate of price increases. On the other hand, it is possible to achieve a substantially lower average rate of inflation after July 1991 by sticking to the purchasing power parity adjustment to the nominal exchange target of 10 leva per dollar. In this case, the undershooting on expected inflation leads to an appreciation of the leva throughout 1991 to a rate of about 8 leva per dollar in January 1991. Even later in the period considered the half-yearly rate of inflation remains below 5%. The difficulty, of course, is that the real exchange rate is only slightly lower than that prevailing in 1989, even though the effective terms of trade have moved sharply to the country's disadvantage. Its imports of energy and raw materials tended to be undervalued under CMEA trading arrangements while its exports of machinery and other industrial goods were substantially overvalued. Thus, whether Bulgaria continues to concentrate on trade with the Soviet Union or switches towards West European markets, it will be obliged to export more or better quality goods in order to maintain the level of its imports. This should imply that there must be substantial increases in the prices of tradeables relative the general price of producer prices. Under the purchasing power parity adjustment policy the producer price of machinery and equipment rises by 5% relative to the producer price index by January 1994, whereas the comparable change under the real exchange rate target is a rise of 14%.

The bottom four rows in Table 7 show what happens if the exchange rate settles at a lower rate than 10 leva per dollar by July 1991. For an exchange rate of 12 leva per dollar the initial level of inflation is somewhat higher but the path of price increases rapidly converges to that

for the base run. At 15 leva per dollar the effects of alternative exchange policies are quite different from those observed for a higher exchange rate. In this case the initial level of inflation is similar to that forecast by the government and it converges quite quickly to the underlying rate of 10-12% per half year observed in the base run. Now, however, it is the policy of adjusting immediately to a real exchange rate target which offers the prospect of a reduction in the level of price increases during 1991-92, while adjustments to the nominal exchange rate in line with purchasing power parity lead to a doubling of the underlying rate of inflation from 1993 onwards. The reason is that this nominal exchange rate implies a real depreciation of 44%, whose ramifications in terms of higher prices for tradeables and for goods subject to government price controls have strong feedback effects on future levels of prices.

In summary, it seems that the government should be able to follow a policy of targeting the real exchange rate in order to achieve a 25% depreciation relative to the end of 1990 without running serious risks of increasing the medium term rate of inflation. It is possible to reduce this level of inflation by targeting a higher real exchange rate, but only at the cost of accepting a large reduction in the incentives which will be needed to achieve the necessary improvement in the balance of trade. There is some advantage in terms of price increases during 1991-92 to smoothing the adoption of a real exchange rate target. However, it is even more important to avoid the adjustment of the nominal exchange rate in line with purchasing power parity if the exchange rate remains significantly below the projected level of 10 leva per dollar.

The model suggests that price increases from 1993 onwards will be substantially higher than the quarterly increase of 2% envisaged in the government's programme. The reason for this can be explained by reference to the results in rows of Table 8 which deal with changes in the speed of adjustment in prices subject to government controls. Recall that it is assumed that the government has the objective of increasing these administered prices to target levels linked to the international prices of energy and food products. Despite the large price increases implemented in early February, the prices of many energy products are still well below European prices for the same products converted at an exchange rate of 10 leva per dollar - see Table 6. The prices of these items must increase substantially faster than the general level of prices over the next two or three years in order to close the gap between domestic and world prices. These relative price adjustments are the main reason for the persistence of moderately high inflation after the initial adjustment period.

For the base run it has been assumed that the gap between domestic and international prices is reduced at the rate of 25% per half year. By slowing down the speed of convergence to 10% per half year it is possible to reduce the medium term rate of inflation to 13% p.a. but this implies that it would take over three years to halve the gap, which would allow distorted energy prices to persist for many years. Accelerating the rate of convergence establishes a high underlying rate of inflation which persists even after the adjustment in the controlled prices is complete. The problem, of course, is a classic price-cost spiral in which relative price increases for key items are eroded by the consequent decline in the exchange rate and rises in the prices of other goods.

It is essential for the efficiency of resource use in production and consumption that the government should not try to resist the necessary changes in energy and food prices. An inflationary spiral can only be avoided by accepting that the price increases must result in a reduction in living standards and real wages. The reduction need not be large - no more than 5% - and it will eventually be fully offset by improvements in resource allocation induced by more appropriate relative prices. Thus, the best policy would be to implement a final price reform - probably in conjunction with the introduction of the value-added tax in either 1992 or 1993 - in which all remaining price controls are removed. The elimination of disparate rates of turnover taxation will lead to substantial relative price changes, so that it will be necessary to consider how the adjustment should affect living standards and wages. It should, therefore, be easier to devise a sensible strategy for minimising the impact of the price changes on the underlying rate of inflation in these circumstances.

The second and third rows in Table 8 show that neither the real wage target nor the speed of adjustment to this target has a substantial impact on the rates of price increase. This may seem counter-intuitive but it illuminates the factors which drive inflation in this model. Under the higher real wage target with immediate adjustment the nominal level of wages in January 1992 is 13% higher than the equivalent level for the base run. However, the level of price increases in this period is only 1.8% higher than for the standard framework. The feedback from wages through prices back onto wages is quite weak so that by January 1994 the difference in nominal wage levels between the two sets of assumptions has only increased to 17.5%. The crucial point is that external constraints on pricing decisions, whether from price

controls or competing traded goods, greatly reduces the importance of wages in determining the transmission of inflation. Rather, it is the exchange rate and the government's policies concerning administered prices which are the crucial factors influencing the inflationary outlook.

The slight impact of wages on medium term inflation should not be interpreted as indicating that wages have no effect in this model. Indeed, the external pricing constraints mean that they have a very powerful effect on the profitability of enterprises and thus upon the level and composition of output. The government cannot set its real wage target arbitrarily because one that is too high could force many enterprises making goods which are traded or subject to price controls into bankruptcy, so that either the real wage target would have to be lowered or prices increased by depreciating the exchange rate or relaxing price controls. Thus, an excessive level of wages will feed through into higher prices but the transmission mechanism is likely to involve important changes in real variables.

For similar reasons a rapid adjustment of gross profit rates to their target levels or a general increase in gross profit rates as a result of the exercise of monopoly power do not have a major impact on rates of inflation in the medium term. Again, these changes may have important effects on the real economy, especially in terms of the composition of demand for the goods produced by different sectors.

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5. Conclusion

The analysis has highlighted the crucial importance of the exchange rate and the traded goods sector in determining whether the reform programme will meet its goals for inflation. The government's expressed intention is to allow the exchange rate of the leva against the dollar to be determined in a free market without significant government intervention. However, my model suggests that the government cannot be neutral about the level of the exchange rate. If it settles at less than 12 leva per dollar, the prospects for a sustained reduction in inflation later in 1991 are good. On the other hand, an exchange rate of 15 leva per dollar would seriously jeopardise the reform programme unless the government were to intervene in pursuit of a real exchange rate target.

The exchange rate is also crucially important for the level of economic activity. Lack of foreign currency to buy energy, raw materials and spare parts during much of 1990 contributed to a decline in real GDP of 11% and a further decline of 10-15% is expected for 1991. The implicit target of 10 leva per dollar in the reform programme is almost certainly too high to induce the response from the producers and consumers of traded goods that will be required to achieve a substantial improvement in the balance of trade. An exchange rate of 12 leva per dollar by mid-1991 should permit a real depreciation of almost 25% since 1989 while not jeopardising the government's inflation objectives. Thereafter, the government should accept the necessity of managing the exchange rate in order to maintain this real depreciation. This should not imply a long term commitment to intervention, but the short run feedbacks from the exchange rate to both prices and the real economy are simply too strong to ignore. Once

inflation and economic activity have stabilised, the government can step back from its intervention and allow the foreign exchange market to develop on the basis of more stable expectations.

In effect, I have argued that an anchor is required for the success of the reform program in the manner of the commitment to a fixed exchange rate for the zloty against the dollar that was made by the Polish government. Since the level of uncertainty about inflation in the course of 1991 is high, it is unlikely to be sensible to make a commitment to a fixed nominal anchor. Hence, the argument must be for a real exchange rate target which would be consistent with an acceptable and stable rate of inflation in the medium term.

Finally, one reason that has been suggested for not adopting an exchange rate anchor is the lack of foreign exchange to sustain any intervention. This is not a very convincing objection since the foreign exchange market is relatively thin, so that the scale of any intervention need not be large. A proportion of the funds provided by the IMF could easily achieve the objective, provided that the government does not attempt to sustain a fixed nominal exchange rate. In any case the crucial issue is one of expectations. Once the government's target is clearly spelled out and the uncertainty associated with the initial burst of price increases subsides, it is likely that minimal intervention would be required.

Notes

1. In fact this ratio puts an overly favourable gloss on the country's debt servicing position. Approximately 10% of gross merchandise exports for hard currencies in 1989 were derived from re-exports of crude oil and exports of petroleum products obtained by processing crude oil received under barter trade deals with countries such as Iraq and Libya. The basis on which the associated imports of crude oil are recorded is confused, so that it is difficult to adjust trade statistics and the balance of payments for these transactions. However, a crude adjustment suggests that a corrected ratio for 1989 would have been close to 250%.

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Table I - Growth Rates of National Accounts Aggregates, 1980-90

		Real Growth Rates (% p.a.)			
		1980-84	1984-88	1989	1990 (est)
A.	Net Material Product				
	Total	4.2	3.5	-1.5	-10
	Industry	7.4	4.6	-0.5	-14
	Personal consumption	3.9	2.3	1.7	
B.	Gross Domestic Product at market prices				
	Total	3.5	3.9	-1.9	-11
	Agriculture	0.8	-5.0	-2.4	
	Industry	7.1	4.5	-0.3	-15
	Services	-2.5	7.1	-5.4	
	Private consumption	3.9	2.9	1.7	
	Net fixed investment	-0.1	-2.1	-70.8	
	Exports of GNFS	5.1	9.2	-0.1	-25
	Imports of GNFS	4.3	10.1	-7.5	-9

Source : Central Statistical Office

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Table 2 - Composition of Gross Domestic Product, 1980-90

		Share in GDP at market prices (%)				
		1980	1984	1988	1989	1990 (est)
A.	Value-added in :					
	Agriculture	14.4	15.8	11.4	11.3	
	Industry	53.8	60.0	61.0	59.4	
	Services	31.8	24.2	27.6	29.3	
B.	Components of value-added					
	Compensation of employees	50.8	49.8	50.2		
	Depreciation	13.8	13.8	15.4		
C.	Use of resources					
	Private consumption	62.2	60.6	61.1	63.4	
	Government consumption	5.6	7.5	7.2	7.3	
	Gross fixed investment	28.3	25.6	26.8	23.5	
	Increase in stocks	5.7	7.6	7.7	6.0	
	Exports of GNFS	25.9	28.3	32.6	30.8	
	Imports of GNFS	26.6	31.6	34.2	33.2	
D.	State Budget					
	Total revenue	50.5	52.6	57.7	56.9	55.7
	Tax revenue	36.7	44.9	47.4	48.4	45.7
	Profit taxes	8.9	19.0	21.2	23.4	19.2
	Turnover & excise taxes	13.3	12.3	11.6	11.3	10.5
	Total expenditure	49.9	51.9	63.7	60.2	66.9
	Current expenditure	45.2	44.2	53.0	53.4	61.4
	Subsidies	12.1	12.5	17.6	15.2	15.9
	Social security	9.3	9.3	10.2	10.4	13.2
	Capital expenditure	4.8	7.8	10.7	8.5	5.6
	Extrabudgetary surplus/deficit			0.4	1.9	- 1.8
	Surplus/deficit	0.5	0.6	-5.6	-1.4	-13.0

Source : Central Statistical Office

Table 3 - Balance of Payments and Exchange Rates, 1980-90

	1980	1984	1988	1989
A. Nonconvertible Currencies (millions of transferable roubles)				
Current account	46	-222	696	933
Merchandise exports fob	4706	7405	9135	8892
Merchandise imports fob	4864	7946	8553	8013
Services : net receipts	204	311	74	29
Capital account	-113	109	-619	-874
Short term borrowing	0	-220	-314	-437
Medium & long term borrowing	-112	335	-293	-327
Loans extended to LDCs	-1	-6	-12	-110
B. Convertible Currencies (millions of U.S. dollars)				
Current account	907	727	-840	-1306
Merchandise exports fob	3338	3299	3539	3138
Merchandise imports fob	2532	3011	4511	4337
Services : net receipts	43	365	54	-170
Capital account	-756	-332	1882	596
Short term borrowing	-347	2	188	51
Medium & long term borrowing	-280	-7	2139	712
Loans extended to LDCs	-129	-327	-445	-167

C. Exchange Rates (period averages)		1985		
Lev per U.S. dollar				
Official rate[1]	0.86	1.03	0.83	0.84
Commercial rate	0.99	1.19	1.67	1.82
Lev per transferable rouble				
Official rate[1]	1.30	1.30	1.30	1.30
Commercial rate	1.00	1.00	1.05	1.05

Source : National Bank of Bulgaria and Bulgarian Foreign Trade Bank

Notes :
1. The official rates are used only for accounting purposes and for the calculation of the currency leva, which is an accounting unit for foreign trade transactions.

Table 4 - Composition of Merchandise Trade

	% Shares of CMEA or Non-CMEA Exports/Imports			
	1980	1984	1988	1989

A. Trade with CMEA member countries

Exports

Fuels, minerals & metals	4.4	4.1	4.2	3.4
Processed foodstuffs	20.9	19.4	12.1	12.0
Chemicals	3.3	3.0	2.7	2.8
Machinery & equipment	52.9	55.5	64.9	65.4
Industrial consumer goods	10.2	11.9	11.2	11.7

Imports

Fuels, minerals & metals	45.1	49.5	37.6	36.1
Chemicals	3.9	2.8	3.4	3.4
Machinery & equipment	38.9	37.0	47.3	48.5
Industrial consumer goods	4.7	4.0	4.7	4.8

B. Trade with non-CMEA countries

Exports

Unprocessed foods	5.9	5.5	6.0	7.5
Fuels, minerals & metals	40.8	31.3	22.0	33.0
Raw materials	2.5	4.3	6.4	7.8
Processed foodstuffs	10.6	11.5	9.9	9.6
Chemicals	6.0	9.1	7.4	7.3
Machinery & equipment	23.7	23.7	36.9	24.2
Industrial consumer goods	5.7	4.6	8.0	7.6

Imports

Unprocessed foods	6.9	3.4	7.2	9.1
Fuels, minerals & metals	34.5	36.6	33.5	32.2
Raw materials	12.5	13.6	13.3	12.1
Chemicals	15.2	15.3	12.1	9.8
Machinery & equipment	22.2	22.3	22.6	25.2
Industrial consumer goods	3.5	4.5	6.3	6.3

Source : Central Statistical Office

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Table 5 - Inflation and Wages, 1980-90

	1980-84	1984-88	1989	1990 (est)
A. Rates of Price Increase (% p.a.)				
Implicit GDP deflator	1.7	1.0	4.4	
Consumer price index	2.8	2.6	6.2	26.3
Food	2.2	1.6	1.7	
Non-foods	3.3	3.4	10.1	
Wholesale price indices				
All industry	3.5	1.1	2.8	
Electricity & heat	0.6	2.3	1.2	
Chemical & petroleum prods	3.1	-0.1	-0.1	
Machinery & equipment	2.2	1.2	3.1	
Textiles	5.3	0.7	2.1	
Clothing	8.4	3.4	1.8	
Food, drink & tobacco	5.7	0.9	3.5	
Trade prices (in foreign currency terms)				
CMEA exports	2.1	2.9	-3.8	
CMEA imports	6.1	2.6	-3.5	
Non-CMEA exports	-1.7	-1.6	-0.8	
Non-CMEA imports	-1.0	-4.9	-0.3	
B. Growth in Wages (% p.a.)				
Average Monthly Wages				
All socialist sector	3.3	5.0	6.0	23.3
Industry	3.2	5.7	5.2	
Retail & wholesale trade	2.4	4.7	8.4	
Education	1.8	4.4	3.2	

Source : Central Statistical Office

Table 6 - Changes in Controlled Consumer Prices, 1990-91

Product	% price increases		Ratio of domestic to European price[a]	
	Jan-July 1990	July 90 - Feb 91	July 1990	Feb 1991
Exchange rate assumed (leva per $)			2.97	10
Gasoline	80	111	0.82	0.52
Motor diesel oil	100	150	0.77	0.57
Heavy fuel oil : industry	90	277	0.84	0.94
Natural gas : industry		558	0.27	0.53
Steam coal : industry		746	0.15	0.32
Brown coal : industry		704	0.21	0.49
Electricity : households		339	0.09	0.12
Electricity : industry		421	0.31	0.43
Flour		350		
Bread		511		
Meat : poultry		463		
Meat : lamb		333		
Milk		400		
Cheese		377		
Vegetable oil		400		
Sugar		200		

Source :   The State Committee on Prices and author's estimates based on IEA
- **Energy Prices and Taxes** and miscellaneous sources

Notes :
(a) The European prices are typical prices paid by households or industry in Austria or Germany including any consumption taxes but not VAT for industrial users.

Table 7 - Simulations of Inflation under Alternative Exchange Rate Policies

Reform Scenario	% Increase in consumer price index over 6 month period to :					
	July 1991	Jan 1992	July 1992	Jan 1993	July 1993	Jan 1994
Base Run	159.3	1.5	7.3	9.7	10.7	11.3
Immediate adjustment to real exchange rate target	159.3	5.7	8.9	10.2	10.9	11.3
No adjustment to real exchange rate target	159.3	-2.8	1.7	3.4	4.1	4.5
July 1991 exchange rate of 12 leva per $	177.1	3.0	7.9	9.9	10.7	11.2
July 1991 exchange rate of 15 leva per $	203.8	6.0	8.9	10.3	10.8	11.2
Exchange rate of 15 with immediate real exchange rate adjustment	203.8	-0.4	6.6	9.4	10.5	11.1
Exchange rate of 15 with no real exchange rate adjustment	203.8	12.3	18.2	20.4	21.5	22.1

Source : Author's estimates

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Table 8 - Simulations of Inflation under Alternative Wage and Pricing Policies

Reform Scenario	% Increase in consumer price index over 6 month period to :					
	July 1991	Jan 1992	July 1992	Jan 1993	July 1993	Jan 1994
Base Run	159.3	1.5	7.3	9.7	10.7	11.3
Real wage target of 90% of 1990 level	159.3	2.3	8.3	10.6	11.6	12.2
Real wage target of 90% of 1990 level with immediate adjustment	159.3	3.3	8.4	10.6	11.6	12.1
Slow adjustment of administered prices : coefficient = 0.1	159.3	-1.3	3.7	5.5	6.2	6.6
More rapid adjustment of administered prices : coefficient = 0.5	159.3	6.1	12.5	15.0	16.1	16.9
Immediate adjustment of administered prices	159.3	15.4	19.5	21.9	23.2	24.1
Immediate adjustment of gross profit rates to target levels	159.3	2.1	7.6	9.8	10.7	11.3
Monopoly profit multiplier of 1.5	166.0	2.9	8.5	10.7	11.6	12.0

Source : Author's estimates