

V. Balance of Payments

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Introduction

Listed below are some of the main issues that typically need to be addressed in forecasting a country's balance of payments. Obviously, there are interconnections among these different issues which need to be taken into account in producing a consistent forecast.

(1) External sector forecasts involve interrelationships with the rest of the world and must, therefore, take into account *developments in the world economy*. For example, the values of exports and imports depend on prices of commodities in world markets and the level of economic activity in partner countries. Interest rates in international markets are an important determinant of net interest receipts in the current account and, in relation to domestic interest rates, influence significantly the size and direction of capital flows.

Projections of developments in the world economic environment can be obtained from various private, government, and international institutions. The International Monetary Fund, for instance, publishes a World Economic Outlook twice a year. Nevertheless, a considerable degree of uncertainty must underlie any such forecasts. It is thus useful to undertake sensitivity analyses of the effects of deviations from projected levels of some of the more important external variables, e.g., interest rates, commodity prices, and output growth in industrial countries.

(2) There is considerable diversity in the individual categories of transactions that need to be projected. The types of *behavioral relationships* and *explanatory variables* needed to explain the various items in the trade, services, and capital accounts will, thus, depend on the particular item under consideration. Moreover, there may be deficiencies in the availability and quality of data as well as problems in identifying stable behavioral relationships. The problems may be particularly acute in times of structural change, including changes in the structure of production and commerce such as might result from reforms in the agricultural, financial and trade sectors. Stability of economic relationships may also be affected by changes in policies (for example, trade liberalization by which quantitative restrictions give way to more reliance on the price mechanism) and in economic institutions brought about by changes in political regimes. In such circumstances quantitative forecasts may need to rely heavily on judgement.

(3) In forecasting the balance of payments, *consistency* needs to be achieved with the *other macroeconomic accounts* by taking into consideration factors such as the stance of economic policies, the projected level of economic activity, and the volume of domestic and foreign financial resources required by both the private and public sectors.

(4) A first round of projections for the individual components of the balance of payments may turn out to be inconsistent with the *accounting identity* that external receipts and payments (including reserve movements) must sum to zero, i.e., the sum of current account transactions must equal the sum of capital flows and reserve movements. For example, even though external factors and the stance of domestic policies would seem to suggest a current account deficit, unavailability of capital flows and/or lack of reserves might make this impossible to achieve. Hence, the initial estimates for the current account or the availability of financing would have to be adjusted accordingly.

How the forecast is modified to ensure accounting consistency depends upon the nature of adjustment that is likely to occur. This, in turn is related to the circumstances and the policy orientation of the country. The adjustment process could involve a *depreciation of the currency* and/or the *introduction of other measures* (including use of fiscal and monetary policy) to increase net exports. If, however, the authorities react by intensifying *administrative restrictions* on imports, the adjustment path for exports, domestic output, investment and prices would obviously be different. *External payment arrears* are an extreme form of payments restrictions; this is an unsustainable method of adjustment which will further reduce a country's creditworthiness, and thus its imports, investment, and growth potential.

(5) An important consideration in a forecasting exercise is whether the projected current account outcome is *sustainable*. The ability to attract capital inflows to sustain a current account deficit without running into debt service problems depends, among other things, on the judgment of creditors as to the creditworthiness of the country and how efficiently the borrowed funds are used. In particular, if foreign borrowing is used to finance investments which generate sufficient returns to finance the repayment of such funds, then debt servicing problems should not arise. Debt servicing problems, however, may be expected when resources are used inefficiently or to support domestic consumption only. In addition, changes in world economic conditions may significantly affect the availability and affordability of funds. For example, rising interest rates in the early 1980s exacerbated the debt servicing difficulties experienced by many developing countries.

(6) Finally, the sustainability of any increase or decrease in the current account deficit must be *assessed* in light of developments in the macroeconomic aggregates contributing to those changes. For example, an increase in the current account deficit, rather than reflecting a lack of external adjustment, may stem from a deliberate policy decision to finance a higher level of investment with larger but sustainable capital inflows. Conversely, a reduction in the current account deficit, instead of being due to implementation of an adjustment program, may result from an abrupt reduction in foreign financing, following the absence of an adequate policy response by the authorities to a deteriorating situation.

Forecasting the Balance of Payments

A summary of Hungary's balance of payments in convertible currencies is presented in Table 3 of the statistical appendix. Tables 4–9 of the appendix provide supplementary data required for preparing a balance of payments forecast for 1990. This section briefly reviews determinants of the major items in the balance of payments, and considers special factors that affect their application in Hungary. The workshop emphasizes forecasting transactions with the convertible currency area; data for the nonconvertible balance of payments for 1990 are provided in the relevant appendix tables.

1. Exports

a. Determinants of exports

The value of a country's exports depends on the willingness of foreigners to purchase them, i.e., *the demand for exports*, as well as on the incentives for, and ability of, domestic residents to supply goods for sale abroad, i.e., *the supply of exports*.

Small Country Assumption

A particular market structure relevant to many non-industrialized countries leads to what is referred to as the "small country assumption." On the import side, the small country assumption implies that a nation is sufficiently small in the world market that changes in its demand do not affect the foreign currency price of its imports, i.e., supply is infinitely elastic. For exports, the corresponding assumption is that the country is sufficiently small in the world market that it can sell as much as it likes without affecting the foreign currency price of its exports, i.e., demand is infinitely elastic. As long as these assumptions approximately hold, analysis of trade volumes can focus on demand factors for imports and supply factors for exports. The analysis of foreign currency prices would focus on developments in world markets rather than the actions of the particular country.

Box 1

For countries and commodities where the small country assumption is warranted (see Box 1), the availability of domestic supply acts as the effective constraint on exports. In these cases, an explanation of export volumes requires consideration of the domestic supply process. In principle, the analysis may be broken down into

two stages: (1) a review of factors affecting domestic production, and (2) consideration of the proportion of output that is exported. Price incentives play a key role in both stages. The relevant price incentive affecting production is the price of output in domestic currency in relation to the costs of production. The price at which goods can be sold abroad (the world price in domestic currency) relative to the domestic price affects the proportion of supply exported.

Empirical formulations of export supply functions may be based on the following simplified equation:

$$\frac{X}{P_x} = f \left(\frac{P_x}{P_y}, Y_p, DD \right) \quad (1)$$

(+) (+) (-)

where:

- X = value of exports in domestic currency
- P_x = price of exports in domestic currency
- P_y = domestic prices
- Y_p = productive capacity in the export sector
- DD = the volume of domestic demand

The + and - indicate the signs of the partial derivatives of the function, i.e., the expected direction of influence of the independent variables.

The relative price variable reflects the effects of exchange rates, export taxes and subsidies, domestic costs, tariffs and the prices of imported imports. For example, a depreciation of the domestic currency raises the export price received by producers in domestic currency and makes exports more profitable relative to selling domestically. A subsidy given to exports has a similar incentive effect and an export tax lowers the actual price received by the exporter. Import tariffs and other factors adding to the costs of production reduce the relative price of exports. The existence of a given productive capacity in the export sector sets limits on the amount of exports. In practice, it is often difficult to obtain empirical estimates for this variable. If exportable products are also sold in the domestic market, the level of aggregate demand in the home country is likely to affect exports. With a given productive capacity in the export sector, a fall in domestic demand will induce producers to expand their sales abroad in order to maintain profitability.

The situation is more complicated when a country is sufficiently important in world markets that its actions can affect the world price. The prices and volumes in world markets are then determined by the interaction of demand and supply, and therefore both need to be assessed to obtain a projection of the value of exports. In general, the demand for exports depends on the level of income and expenditures in the trading partner countries, as well as the price of exports relative to that of goods produced domestically in these countries.

A demand function for exports could be specified as follows:

$$\frac{X}{P_x} = f \left[\frac{WD}{P_w}, \frac{P_x}{P_n} \right] \quad (2)$$

(+) (-)

where:

- X = value of exports in domestic currency
- WD = world demand in domestic currency
- P_x = price of exports in domestic currency
- P_w = world prices in domestic currency
- P_n = price of trading partners import substitutes in domestic currency

This equation shows the demand for exports as a function of world demand for a country's products and its competitiveness. Construction of appropriate scale and relative price variables requires information on trading partner countries' incomes and prices, averaged using appropriate weights.

In principle, simultaneous consideration of supply and demand factors requires a more complex econometric specification. To some extent forecasting may be simplified by disaggregation into products where supply- or demand-side considerations predominate.

b. Special factors affecting exports in Hungary

Convertible currency exports were *liberalized* continuously in the 1980s. In particular, the state monopoly of foreign trade was removed, the number of enterprises allowed to export and import expanded, and the number of items on the negative list reduced. The authorities tried to ensure the competitiveness of Hungarian exports by depreciating the forint a number of times, most recently in December 1989 (Table 5). Other incentives used to stimulate convertible currency exports included rebates of the differential producers' turnover tax that was in effect from 1980 to 1988, subsidies for exports with agricultural and food processing content, the so-called modernization grants, incentives for export-related investment based on preferential credits and interest rates, as well as various other forms of tax rebates.

In the period under review the *CMEA* had an important impact on Hungary's foreign trade. Under these arrangements, essential imports of energy and raw materials were paid for by exports of Hungarian agricultural and industrial products. The ruble area exports were influenced by governmental protocols and to some extent domestic liquidity concerns, rather than by the market related considerations affecting convertible currency exports. Exports to the ruble area were in general characterized by standards of quality, packaging, delivery and servicing of products that were less stringent than in the convertible currency

markets (or even domestically). The incentives offered to exporters to the ruble area were also different from those affecting convertible currency area exports. As the trade was conducted under government agreements, the enterprises received immediate payment in forint upon delivery of goods. At times, ruble exports were used by enterprises to shore up their liquidity positions. Further, enterprises received compensation from the budget for differences in profitability between exporting to the nonconvertible area and selling in convertible currencies or to the domestic market. The amount of compensation allowed was reduced in 1988–89.

As previously mentioned, this workshop concentrates on the techniques required to forecast the convertible currency balance of payments, with limited attention given to transactions with the ruble area. However, allowance needs to be made for possible connections between convertible and ruble transactions. For example, an inability to export to the ruble area might add pressure on enterprises to increase sales in convertible currencies, or vice versa.

The limited time series on trade data available for Hungary, as well as the substantial structural and other changes affecting the economy, restrict the use of regression analysis for forecasting exports. Consequently, reliance has to be placed on more judgmental methods. For this purpose, Table 1 provides data on export volumes and empirical approximations of some of its main determinants as reviewed above.

Indicators are presented of export competitiveness and profitability and the growth of export markets. In the Hungarian system it is possible that a tight liquidity constraint may compel enterprises to intensify their efforts to export. Financial constraints are proxied by enterprise deposits with the banking system and bank credit to enterprises. Data are also presented on the volume of ruble exports to facilitate consideration of possible substitution between ruble and convertible currency exports.

Table 1. Hungary: Nonruble Exports and Selected Indicators

(Percentage changes)

	1983	1984	1985	1986	1987	1988	1989
Value of nonruble exports <u>1/</u>	0.3	-1.8	-8.5	0.1	11.6	16.5	3.4
Volume of nonruble exports	6.4	0.4	-6.6	-3.9	5.0	8.8	2.7
Export prices in U.S. dollars	-5.7	-6.2	-2.0	4.1	6.3	7.1	0.7
Export prices in SDRs	-3.7	-2.2	-1.0	-8.9	-3.3	3.1	5.7
Exchange rate (SDR/forint, period average) <u>2/</u>	-11.3	-7.4	-3.2	-5.4	-11.5	-10.4	-10.5
Domestic currency price of exports <u>3/</u>	7.6	5.2	2.2	3.5	8.2	13.5	16.2
GDP deflator	3.6	6.6	5.8	4.5	8.5	15.1	18.2
Domestic demand deflator	4.5	7.5	6.4	5.7	7.9	14.2	17.1
Real effective exchange rate	-4.6	1.5	3.3	-10.3	-10.0	2.9	0.8
Growth in export markets	--	--	--	3.3	3.4	4.2	3.3
Enterprise deposits with banks	-11.3	-7.0	16.5	-1.5	17.7	-12.7	26.0
Bank credit to enterprises	2.7	5.7	9.1	12.1	6.2	-1.8	21.3
Volume of ruble exports	--	--	8.3	-0.1	2.5	0.6	-13.5

Source: IMF Institute data base.

1/ U.S. dollar value of exports.

2/ A negative number implies a depreciation of the forint in relation to SDR.

3/ Approximated as the percentage change in the SDR price plus percentage change in the SDR/forint exchange rate.

2. Imports

a. Determinants of imports

Application of the small country assumption allows the volume of imports to be forecast on the basis of demand factors. Import prices (in foreign currency) would then need to be determined from an analysis of world markets and developments in particular trading partner countries. An import demand equation could be specified as follows:

$$\frac{IM}{P_m} = f \left(\frac{Y_d}{P_y}, \frac{P_m}{P_y} \right) \quad (3)$$

(+) (-)

where:

- IM = value of imports
- P_m = domestic currency price of imports
- Y_d = domestic income (or domestic demand)
- P_y = domestic prices (GDP or domestic demand deflator)

Import volumes in this equation are related to scale and relative price variables. Usually, the scale variable is either real income or domestic expenditure. Imports would be positively related to either variable. The price competitiveness variable shows the response of imports to changes in relative prices. A negative relationship is indicated showing that as the relative price of imported goods rises, there is a tendency to reallocate expenditure towards domestic goods. The domestic purchaser, in considering whether to buy domestic or imported goods, would compare the relative prices in the same currency. Consequently, changes in the relative price variable can reflect both movements of domestic and foreign prices in their respective currencies and alterations in the exchange rate. Changes in the rate of import duty have a similar impact on the relative prices as the exchange rate.

The appropriate specification of an import demand equation varies for different types of goods. Therefore, disaggregating imports into subcategories such as capital, intermediate and consumption goods, and relating them to different scale and relative price variables can improve the reliability of estimated behavioral relationships. For example, it may be expected that capital goods imports are dependent on investment activity and imports of consumer goods on consumption. Moreover, the price indices of domestically produced competing goods can move quite differently for various categories of imports.

Several other factors, apart from income and relative price effects may influence the level of imports. Particularly important, among such factors, may be the availability of credit. This variable may affect imports indirectly through its impact on the growth of domestic demand components. A more direct effect occurs where it acts as the effective constraint on imports. Imports in many countries are influenced by various forms of quantitative restrictions as well as by tariffs and other measures which affect the price of such goods. Allowance needs to be made for the effects of any changes in these restrictions on the level of imports. In countries where imports are substantially rationed, the availability of foreign exchange may be an important factor influencing legal changes in restrictions or their effective implementation.

b. Special factors affecting imports in Hungary

All imports were subject to general quantitative restrictions until 1984, when quotas on imports of capital goods and productive inputs were removed. Instead, these were placed under a licensing scheme, which provided for a semi-automatic right for license holders to bring in goods outside a so called negative list. In contrast, imports of consumer goods remained subject to a quota. The set of enterprises able to obtain import licenses was also expanded in stages between 1986 and 1988, at which point practically all enterprises became eligible to trade in goods outside the negative list. A further liberalization took place at the beginning of 1989, when licensing restrictions were abolished for goods representing 40 percent of 1988 imports, and the universal quota on consumer goods imports was relaxed significantly. Tariffs on non-ruble imports were also gradually lowered in the 1980s, according to Hungary's commitments under the GATT.

Table 2 provides data on import values and volumes, and empirical approximations of some of the main determinants of the latter. Import values show large increases in 1986-87. However, to a substantial extent these increases reflected a depreciation of the dollar against other major currencies. To better reflect the foreign currency prices of average imports, the table shows import prices in SDRs as well as in U.S. dollars.

Data are included on a number of variables that might be used to explain the behavior of imports. Changes in real GDP and domestic demand represent scale effects. Competitiveness can be assessed by comparing fluctuations in the domestic currency prices of imports and the GDP deflator. In addition, the table includes changes in the volume of ruble imports to help assess whether any obvious substitution has taken place between the two types of imports.

In a situation where quantitative estimation of behavioral relationships is difficult, a useful starting point may be to compare estimates with those observed in other countries. Also, if estimates are available for a wide variety of countries and product groups, these may establish a likely range of acceptable results. Box 2 presents a summary of some available results for price and income elasticities of trade flows.

Table 2. Hungary: Nonruble Imports and Selected Indicators

(Percentage changes, unless otherwise indicated)

	1983	1984	1985	1986	1987	1988	1989
Value of nonruble imports 1/	-1.3	-3.5	1.3	13.4	9.1	-1.4	3.1
Volume of nonruble imports	6.4	0.4	2.6	0.7	2.5	-6.9	4.9
Import prices in U.S. dollars	-7.2	-3.8	-1.3	12.6	6.4	5.9	-1.7
Import prices in SDRs	-4.2	0.2	-0.3	0.4	-2.6	1.9	4.3
Domestic currency price of imports 2/	7.1	7.6	2.9	5.8	8.9	12.3	14.8
GDP deflator	3.6	6.6	5.8	4.5	8.5	15.1	18.2
Relative price change 3/	3.5	1.0	-2.9	-1.3	0.4	-2.8	-3.4
Real GDP	2.1	2.4	-0.4	1.2	3.9	0.3	3.5
Real domestic demand	-0.1	0.2	0.5	2.9	2.8	-1.2	5.4
Volume of Ruble imports	--	--	-0.4	3.8	3.7	4.0	-17.1
Nonruble imports in percent of GDP	21.2	21.1	21.1	20.8	20.6	19.0	18.7

Source: IMF Institute data base.

1/ In U.S. dollars.

2/ Approximated as the percentage change in the SDR price plus percentage change in the exchange rate.

3/ The difference in the percentage changes in the domestic currency price of imports and the GDP deflator.

Estimated Price and Income Elasticities of Exports and Imports

Import and export demand

Recent estimates of demand elasticities show wide variation among countries and different product groups. For total import demand, estimates of the short run price elasticities (0-6 months) vary between -0.1 and -0.8 . The responsiveness to prices increases as the time period extends to 2 years and beyond, as evidenced by estimated elasticities that range from -0.5 to -1.5 . For a typical country, the long run elasticity of import demand is roughly twice as high as the short run elasticity and about one half of the total adjustment to a price change takes place in one year. Studies indicate that income elasticities of demand for total imports and exports fall in the range of 1 to 2, which suggests that over time the ratio of exports and imports to GNP might well increase. The responsiveness of import demand to price and income changes also varies considerably among different product groups. In general, both price and income elasticities are higher for manufacturers than for food, raw materials and fuels.

Supply elasticities

For industrial countries, the price elasticity of export supply tends to vary positively with the size of the country and negatively with the relative openness of the economy. Time lags in adjustment of export supply to price changes also appear to be longer than those involved in import demand.

A great deal of research has also been done on responsiveness of export supplies in developing countries. As could be expected, those countries exporting agricultural products with long gestation periods (e.g., tree crops) tend to experience low short run supply elasticities. Time lags have been found to be shorter for other agricultural and primary products and especially manufactures. Even for crops such as coffee, cocoa and cotton, short run (one year or less) elasticities range from 0.2 to 0.7 and rise to 1 to 1.5 range over a longer period.

Box 2

3. Services and transfers

a. Determinants of services and transfers

Services form a rather heterogenous group of transactions. The following indicates some of the determinants of major categories.

- (1) Freight and insurance receipts and payments are related to the movements of exports and imports, respectively. In practice, payments may be estimated in the official statistics on the basis of a fixed ratio of f.o.b. import values.

(2) **Other transportation**, i.e., port and passenger services, are also influenced by merchandise trade flows, as well as factors that affect the overall level of tourism and the competitive situation of domestic carriers.

(3) **Travel receipts and payments** may be affected by income and price competitiveness variables. Receipts may be influenced by incomes in the countries from which travelers come as well as by the cyclical situation in those countries. Analysis of price competitiveness effects may be complex, involving a comparison of movement of prices and exchange rates between exporting and importing nations as well as with other competing countries. International transportation costs can also be an important factor influencing tourism flows. In the short run tourism may be substantially disrupted by social and political instability. Improvements in tourist services, for example hotels, may have important effects on travel flows over a longer period.

(4) **Investment income** arising from direct and other investment may be differentiated. The former depends on past accumulated foreign investment and may take place only after significant time has elapsed due to legal restrictions on the repatriation of funds. For other investment income, interest payments and receipts reflect the amount and cost of past and current foreign borrowing and lending, as well as the level of international reserves.

(5) **Workers' remittances** often form the major component of private unrequited transfers. A distinction may be drawn between the total earnings of workers in the host country and the amount which is repatriated. Total earnings may vary according to the cyclical situation in the host country. Repatriation of earnings are influenced by incentives to return funds, including exchange rate expectations and tax factors. Balance of payments forecasts of *official unrequited transfers* should be consistent with budgetary estimates of foreign grants.

b. Factors affecting services in Hungary

An analysis of Hungary's balance of payments, especially in convertible currencies (Table 3), shows that service transactions have played a particularly important role in the late 1980s. Service transactions were the main factor behind movements in the current account in 1988-89, mainly due to the unprecedented expansion in travel spending (including purchases abroad of consumer durables). This was a direct result of policy changes by the authorities. Beginning in 1988, Hungarian travel regulations underwent a significant liberalization: passport regulations were relaxed, so that issued passports became valid for travel in all countries within a five year period; access of residents to foreign exchange for travel purposes was greatly expanded; customs regulations for private imports were relaxed by expanding the duty free allowance and lowering the customs duties on private imports of personal cars; and holdings of foreign currency accounts were made easier as residents were allowed to declare convertible currency holdings from non-specified sources.

In forecasting the service account for Hungary in 1990, the following factors may be considered:

(1) **Freight and insurance.** Available data show only net flows, making it more difficult to detect empirical regularities between freight and trade transactions. Freight and insurance (net) may be compared with exports, imports and the trade balance; the most promising relationship appears to be between imports and net freight payments.

(2) **Travel.** Measured in U.S. dollars, receipts from tourism increased steadily if not spectacularly until 1985, and accelerated in 1986 and afterwards. These data are, however, affected by the appreciation of the dollar up to 1985 and its subsequent depreciation. If data were presented in SDRs, the rise would have been more pronounced up to 1985 and less so in 1986-87. The rather dramatic movements in travel debits in 1988-89 can be related to the institutional changes described above.

(3) **Investment income.** Issues related to interest payments are discussed in the section on debt and medium term balance of payments projection. Investment income credits relate largely to the level of reserves and international interest rates, as Hungary has few other foreign assets. In any event, this item is relatively small and does not show much variation.

(4) **Other services (net)** have also been relatively small and have not been subject to wide movements. Simple time trends may be used to get an acceptable projection for 1990.

In the case of Hungary, *unrequited transfers* have originated almost exclusively from private sector transactions, which have shown a steadily rising trend over the years.

4. Capital transactions

a. Determinants of capital flows

Capital movements can be divided into three main categories: direct investment, medium and long-term capital and short-term flows. Further disaggregation can be made within these categories, for example, between official and private capital, as well as between portfolio investment and project loans and trade related credits. Such disaggregation is useful for the purposes of forecasting, as the economic agents involved in the various transactions can be expected to behave quite differently.

The amount of direct investment is related to the presence of investment opportunities and the prospects of rapid economic growth. Clear rules and regulations are part of a favorable investment climate, as are credible government policies designed to achieve macroeconomic stability.

Projections of inflows of official medium- and long-term capital can use information from the budget and development plans, as well as from the donors. Private flows are by their nature more difficult to forecast. For many countries, access to international bank lending is limited and tends to vary with conditions prevailing in the international capital markets. Creditworthiness can be influenced by general prospects of the balance of payments, including the stance of economic policies.

In cases where capital flows respond to market forces—i.e., where there are few restrictions to capital flows and there is some substitutability between domestic and foreign securities—interest rate differentials play an important role, with funds tending to move from lower to higher interest rate markets. The effect of interest rate differentials need, however, to be viewed in the context of expectations about the exchange rate. More generally, the political and social situation is likely to be an important factor affecting the assessment of the risk involved in long-term capital flows. Provision of trade credit may be related to trade flows. In addition, the extent of reliance on external trade credits may be affected by monetary policy and the availability of domestic credit. Short-term capital flows can at times react very quickly to variations in financial market conditions between countries.

b. Factors affecting the capital account of Hungary

Hungary was an active participant in the international capital markets in the second half of the 1980s. Convertible currency capital account transactions shifted from a net outflow in 1982 to a net inflow of \$1.5 billion in 1985. The inflows came largely in the form of long and medium-term capital, with short-term capital flows fluctuating considerably over the period. Hungary enjoyed a relatively high credit rating from 1984 to 1989; in addition to receiving international bank loans, it was able to place notes and bonds in world financial markets.

Issues closely related to capital transactions are further discussed in the section on external debt below.

Forecasting External Debt

This section reviews the determinants and assessment of external debt, developments in the external debt of Hungary, and a methodology for medium-term balance of payments and debt projections. Supporting data on Hungary's external debt are presented in Statistical Appendix Tables 11–13.

1. Determinants and assessment of external debt

a. Definition and linkages

Gross external debt may be defined as “the amount, at any given time, of disbursed and outstanding contractual liabilities of residents of a country to nonresidents to repay principal, with or without interest, or to pay interest, with or without principal.”^{1/} Forecasting and assessment of external debt requires consideration of the linkages with the balance of payments and other macroeconomic data.

Linkages between the balance of payments and external debt are reflected in the following equation:

$$\begin{aligned} \text{Increases in gross external debt} & \quad (4) \\ & = \text{current account deficit} \\ & - \text{non-debt creating (equity) capital inflows} \\ & + \text{official reserve increase} \\ & + \text{acquisition of assets abroad by the private sector} \end{aligned}$$

Equation (4) shows that an increase in gross external debt can have three broad sources: current account deficits not financed by non-debt creating inflows, borrowing to finance an official reserve build-up, and private capital flight. It also summarizes the factors that need to be forecast, or assumed, to allow projections of external debt.

Linkage with the current account emphasizes the relationship between external debt and other macroeconomic developments. Thus, to the extent that external debt is financing a current account deficit this implies that a country's domestic expenditure is in excess of its income. Alternatively, this may be viewed as an excess of investment over domestic savings.^{2/}

^{1/} *External Debt: Definition, Statistical Coverage and Methodology*, a report by an international working group on external debt statistics of the World Bank, IMF, BIS and OECD.

^{2/} See Workshop on Interrelations Among Macroeconomic Accounts (Chapter II).

b. Assessment of external debt

By increasing the total amount of resources available, external debt can contribute to a country's long-run growth potential and welfare. Borrowed resources may also smooth the impact of temporary shocks that reduce consumption and investment. However, debt policies cannot be viewed as independent of other macroeconomic policies. External borrowing needs to be consistent with both short-term *macroeconomic objectives* and *medium-term balance of payments viability*. The following points should be emphasized in this context.

- (1) Total financial flows—from both domestic and external sources—should support a level of aggregate demand that is compatible with domestic and external balance. From this point of view, one of the purposes of external debt management is to complement policies influencing such variables as domestic credit expansion to ensure that aggregate demand is maintained within appropriate bounds. For example, in the case of a domestic imbalance arising from too large a public sector deficit, control of public sector external borrowing directly complements limitations on public sector domestic financing.
- (2) Current borrowing implies future payments of *interest* on the stock of outstanding debt, which can be approximated by the appropriate interest rate (e.g., LIBOR or prime rate plus a spread) multiplied by the average stock of debt over a given period and *principal* (typically there is a fixed repayment schedule of the existing debt stock, e.g., a repayment period of 10 years with 6 years grace period could imply four equal annual installments starting in the seventh year). Together, these payments constitute *debt-service* obligations due.
- (3) Unless these debt-servicing costs can be financed in the medium-term, a country will face external payments difficulties; as a result it may have to undertake more policy and expenditure adjustments than if a less ambitious debt policy had been pursued, reducing and/or eliminating the gains already achieved in terms of economic growth and welfare.
- (4) Debt management may be complicated by uncertainties relating to many of the main determinants of debt capacity, e.g., the growth of exports, the terms of new debt, and international interest rates.

Several factors may contribute to achieving a *sustainable external debt position*.

- (1) The borrowed funds must be used productively so that the economy's potential to generate foreign exchange is increased.
- (2) Sound macroeconomic policies must be followed. For example, the maintenance of an overvalued exchange rate has often been associated with the financing of capital flight: the central bank borrows abroad and sells

foreign exchange to private residents, who use the proceeds to acquire foreign assets.

(3) An ability to obtain external resources needed to service the debt. Creditors' willingness to increase their exposure in a country is strongly linked to how their perceptions of points (1) and (2) above.

(4) A favorable external environment.

c. Debt indicators

Some commonly used indicators of a country's external debt position are presented in Box 3. While useful, such indicators are inevitably partial. An assessment of the sustainability of a country's external debt position needs to be based on a broader view of the appropriateness of the macroeconomic policy stance and the external prospects. Consideration also needs to be given to the structure of debt and, in some cases, possibilities for debt restructuring.

Debt Indicators

Debt ratios offer various measures of the cost of, or capacity for, servicing debt in terms of the foreign exchange or output forgone. Exports of goods and services and gross national product may be used as scaling factors. Both stock and flow indicators are used in assessing a country's external debt situation. The former emphasize the extent of past dependence on contractual capital inflows. Flow indicators are often used as indices of short-run rigidity in a country's balance of payments; the higher the ratio, the greater the external adjustment required to compensate for adverse balance of payments developments. The following are frequently referred to measures:

- debt outstanding and disbursed to exports of goods and services;
- debt outstanding and disbursed to gross national product;
- total debt service to exports of goods and services (the debt-service ratio); and
- total debt service to gross national product.

Although these ratios may be helpful in signaling possible debt problems, two countries facing similar ratios may face considerably different economic circumstances. A full assessment of a country's debt position requires consideration of the overall macroeconomic situation and balance of payments prospects.

Box 3

2. Hungary: External debt background and current prospects

Partly because of a delayed response to sharp increases in world prices for oil and other imported raw materials, Hungary's convertible currency trade deficit widened steadily in the 1970s, resulting in a substantial build-up of external debt. External indebtedness declined during the period 1980-82, but subsequently rose from US\$10.2 billion in 1982 to about US\$20 billion at end-December 1987 (Table 11). Most of this increase reflected unfavorable developments in the current account of the balance of payments as well as periodic outflows of short-term capital. There was, however, also a valuation effect from the depreciation of the U.S. dollar against other major currencies, as a substantial part of Hungary's debt is denominated in deutsche marks and Japanese yen.

In 1988 the convertible current account deficit narrowed and capital outflows ceased: as a result external debt virtually remained at the 1987 level. However, in 1989 looser financial policies and larger debt service payments led to a widening of the current account deficit, and outstanding external debt in convertible currencies increased by US\$1 billion. The debt structure, on the other hand, improved markedly during the second half of the 1980s because of successful refinancing operations. Short-term debt, declined from one-third of total debt in 1983, to only 16 percent in 1989.

Total debt service payments increased rapidly during the period 1982-86 because of the relatively short maturity span of loans contracted in the early 1980s as well as the prepayment of certain future maturities. From 1986 to 1989, however, debt service payments declined from 87 to 48 percent of exports of goods and services, reflecting several refinancing operations (Table 12).

Medium-term prospects are largely dependent upon the balance of payments performance and developments in international interest and exchange rates, as well as lenders and investors' continuing willingness to provide additional resources. A greatly expanded recourse to bond markets in recent years made it possible for Hungary to withstand a reduction of commercial bank exposure. However, access to external capital was threatened by the poor performance of 1989. Meanwhile, rolling over the principal on debt incurred prior to 1990 alone will require gross annual borrowing of between US\$2.0 and US\$ 2.5 billion (Table 13).

3. Medium term balance of payments projections

Medium-term projections are required to assess the viability of the balance of payments and the sustainability of the external debt position. Use of Lotus worksheets can greatly facilitate the preparation of such projections. A simple worksheet has been prepared for this purpose which can be used to calculate the debt and debt service implications of possible medium-term balance of payments

developments. 1/ Specifically, starting from the balance of payments and external debt projections already derived for 1990, a targeted level of international reserves is determined for 1991-94 and, given projected current account developments in these years, the capital account is obtained residually.

A key feature of the worksheet is that it explicitly allows for the linkages between balance of payments developments and the external debt position. Thus, for example, an increase in the external debt would reflect the financing needs generated from the successive current account deficits; similarly investment income debits, i.e., interest payments, in the current account would be affected by changes in the stock and the terms of the external debt.

The worksheet consists of four parts. Section I summarizes the assumptions that need to be inputted into the worksheet to generate balance of payments projections for 1991-94, using 1990 as the base year. These include:

- (1) rates of growth for all the components of the external current account balance—with the exception of interest payments—as well as for short-term capital flows and net direct investment;
- (2) A targeted level of gross official international reserves;
- (3) interest rates to be applied to the external debt; and
- (4) rates of growth for real GDP and partner country GDP deflator denominated in U.S. dollars. Assuming domestic prices in U.S. dollar terms increase at the same rate as those of partner countries, a value of nominal GDP in U.S. dollar terms can be estimated and used as a scale variable to measure the relative size of the projected external current account imbalances and debt and debt service burdens. 2/

Section II summarizes the medium-term balance of payments projections that stem from the assumptions inputted in Section I. Medium- and long-term disbursements and interest payments on medium- and long-term debt are determined endogenously and simultaneously. The former is determined residually by the financing needs of the external current account balance, taking into account short-term capital flows and net direct investment, whereas the latter is based on the average outstanding stock of debt and the relevant interest rate. Interest payments on short-term debt also are determined endogenously.

Section III summarizes selected external indicators that result from the balance of payments projections. They are relevant in assessing the viability and sustainability of the scenario.

1/ A diskette for the workshop is available.

2/ This implicitly assumes that the real effective exchange rate remains unchanged at its 1990 level.

Section IV summarizes the working tables that were used to calculate interest obligations on the external debt. As inputs for this calculation, a repayment schedule for debt incurred prior to 1990 is used based on Table 13; for debt incurred since 1990, a repayment period of eight years with a two year grace period was assumed. LIBOR was used as the relevant interest rate to be applied to the outstanding debt stock. It should be noted, however, that in recent years the average interest rate paid by Hungary has been somewhat below the LIBOR rates on one year deposits. This may reflect the large proportion of Hungary's debt to official creditors at concessional rates, and the currency composition of the debt.

An example of the use of the worksheet is presented in Table 14. For illustrative purposes, hypothetical figures were inserted for 1990 and the following assumptions were made for the 1991-94 period.

- (1) **Current account.** Annual growth rates in the values of exports and imports of 10 percent and 8 percent, respectively. A 5 percent annual growth rate in the net position for other services; investment credits and transfers are calculated using annual growth rates of 10 percent. LIBOR is used as the relevant interest rate.
- (2) **Reserve target.** This is set at the equivalent of about 3.5 months of imports.
- (3) **Capital account.** Net inflows of short-term capital and direct investment each rise by 10 percent annually.

Exercises and Issues for Discussion

1. Exercises

- a. Prepare a forecast of the balance of payments for Hungary in convertible currencies for 1990 using the format of Statistical Appendix Table 3. The forecast should use the methodology and information provided in this workshop and the forecasts for world market and other exogenous factors presented in Table 5. The projections should be consistent with those developed in other workshops and in particular that on Prices, Output, and Expenditure.
- b. Develop a medium-term projection of Hungary's balance of payments and external debt situation for the period 1990–94. These projections should use the worksheet and methodology presented in this workshop. Reference should be made to the WEO projections for 1990–94 in Table 5.

2. Issues for discussion

- a. Review the acceptability of the balance of payments projection prepared for 1990. To the extent that the forecast indicates problems in 1990 (for example, the financing requirements is unrealistically high, pointing to the emergence of a financing gap) what are the major options open to the authorities?
- b. Consider any special factors that may affect balance of payments projections for economies in transition from centrally-planned to market economies.
- c. Comment on the possible impact of changes in the following items on the forecasts for the current and capital accounts:
 - Domestic credit
 - Domestic absorption
 - The exchange rate
 - Foreign or domestic interest rates
- d. On the basis of results of exercise 1.b, assess the medium-term viability of the balance of payments and the sustainability of the external debt position. To the extent that you detect problems review the policy options available to the authorities.

e. Consider the major uncertainties in the medium-term projections and their possible effects on the outcome. Review the possible impact of different assumptions for key variables (e.g., foreign trade prices, international interest rates, etc.) on the medium-term projections. Further simulations of the model used in exercise 1.b may facilitate this analysis.

f. Review modifications that might be incorporated into the spreadsheet to allow for a fuller analysis of medium-term developments and the impact of policy measures.

Table 3. Hungary: Balance of Payments in Convertible Currencies

(In millions of U.S. dollars)

	1982	1983	1984	1985	1986	1987	1988	1989	1990
									Reference Program
Trade balance	668.0	773.0	891.0	128.0	-482.0	37.0	489.0	536.0	
Exports	4831.0	4832.0	4916.0	4188.0	4186.0	5051.0	5505.0	6446.0	
Imports	-4163.0	-4059.0	-4025.0	-4060.0	-4668.0	-5014.0	-5016.0	-5910.0	
Services (net)	-1028.0	-755.0	-889.0	-1035.0	-1087.0	-1018.0	-1408.0	-2100.0	
Freight and insurance, net	-222.0	-164.0	-154.0	-156.0	-237.0	-309.0	-299.0	-310.0	
Travel (net)	180.0	167.0	165.0	147.0	199.0	367.0	41.0	-349.0	
Credits	264.0	256.0	268.0	281.0	364.0	553.0	670.0	738.0	
Debits	-84.0	-89.0	-103.0	-134.0	-165.0	-186.0	-629.0	-1087.0	
Investment income (net)	-1118.0	-758.0	-816.0	-833.0	-963.0	-988.0	-1076.0	-1386.0	
Credits	79.0	97.0	128.0	186.0	252.0	235.0	230.0	219.0	
Debits	-1197.0	-855.0	-944.0	-1019.0	-1215.0	-1223.0	-1306.0	-1605.0	
Other current payments (net)	132.0	0.0	-84.0	-193.0	-86.0	-88.0	-74.0	-55.0	
Unrequited transfers (net)	61.0	53.0	63.0	61.0	74.0	102.0	115.0	126.0	
Current account	-299.0	71.0	65.0	-846.0	-1495.0	-879.0	-804.0	-1438.0	
Medium- and long-term capital	-43.4	-158.4	1298.5	1692.7	1107.1	1109.8	690.5	1563.1	
Assets (net)	-510.0	-185.0	-43.0	-240.0	-79.0	-84.0	-26.0	32.0	
Liabilities (net)	466.6	26.6	1341.5	1932.7	1186.1	1193.8	716.5	1351.1	
Disbursements	1701.6	1522.6	3102.5	4513.0	4105.0	3364.0	2565.5	3091.2	
Amortizations	-1235.0	-1496.0	-1761.0	-2580.3	-2918.9	-2170.2	-1849.0	-1740.1	
Direct capital investment								180.0	
Short-term capital	-708.0	438.0	-1247.2	-170.0	79.3	-770.8	65.0	-218.0	
(Including errors and omissions)									
Total Capital account	-751.4	208.6	51.3	1522.7	1186.4	339.0	755.5	1345.1	
Overall balance	-1050.4	279.6	13.7	676.7	-308.6	-540.0	-48.5	-92.9	
Financing	1050.4	-279.6	-13.7	-676.7	308.6	540.0	48.5	92.9	
Change in reserves (inc--)	813.0	-635.0	-449.2	-766.4	-260.5	893.8	182.0	251.0	
Use of Fund credit	237.4	355.4	435.5	-89.7	-48.1	-353.8	-133.5	-158.1	
Purchases	237.4	355.4	435.5	0.0	0.0	0.0	221.5	65.8	
Repurchases	0.0	0.0	0.0	-89.7	-48.1	-353.8	-355.0	-223.9	

Source: IMF Institute data base.

Table 4. Hungary: Nonruble Trade, Customs Basis

(In millions of US\$ and percentage change)

	1982	1983	1984	1985	1986	1987	1988	1989	1990	
									Reference	Program
Exports, fob	4974.3	4989.2	4899.4	4483.3	4485.7	5005.7	5833.0	6030.0		
(percent change)		0.3	-1.8	-8.5	0.1	11.6	16.5	3.4		
Exports fob, 1986 prices	4487.1	4774.3	4998.3	4667.1	4485.7	4709.0	5123.5	5259.8		
(percent change)		6.4	0.4	-6.6	-3.9	5.0	8.8	2.7		
Export prices, 1986=100	110.9	104.5	98.0	96.1	100.0	106.3	113.8	114.6		
(percent change)		-5.7	-6.2	-2.0	4.1	6.3	7.1	0.7		
Adjustments from customs to BOP basis 1/	-143.3	-157.2	16.6	-295.3	-299.7	45.3	-328.0	416.0	416.0	416.0
Convertible currency exports, B.O.P.basis	4831.0	4832.0	4916.0	4188.0	4186.0	5051.0	5505.0	6446.0		
Imports, cif	4512.0	4453.4	4297.5	4353.7	4937.7	5386.7	5313.0	5476.0		
(percent change)		-1.3	-3.5	1.3	13.4	9.1	-1.4	3.1		
Imports, cif, 1986 prices	4474.8	4761.2	4776.1	4902.3	4937.7	5062.7	4715.2	4943.9		
(percent change)		6.4	0.4	2.6	0.7	2.5	-6.9	4.9		
Import prices, 1986=100	100.8	93.5	90.0	88.8	100.0	106.4	112.7	110.8		
(percent change)		-7.2	-3.8	-1.3	12.6	6.4	5.9	-1.7		
Adjustments from customs to BOP basis 1/	-349.0	-394.4	-272.5	-293.7	-269.7	-372.7	-297.0	434.0	434.0	434.0
Convertible currency imports, B.O.P.basis	4163.0	4059.0	4025.0	4060.0	4668.0	5014.0	5016.0	5910.0		
Terms of trade (US\$)	109.9	111.7	108.9	108.2	100.0	99.9	101.0	103.5		
(percent change)		1.6	-2.5	-0.7	-7.5	-0.1	1.1	2.4		

Source: IMF Institute data base.

1/ Adjustments account for freight and insurance, leads and lags, and trade under clearing arrangements in currencies other than the ruble.

Table 5. Hungary: Exchange Rates and Exogenous Indicators 1/

	1982	1983	1984	1985	1986	1987	1988	1989	1990 1/	1991 1/	1992 1/	1993 1/	1994 1/
	<i>(Percentage change, unless otherwise indicated)</i>												
F/\$, period average	36.631	42.671	48.042	50.119	45.832	46.971	50.413	59.066					
F/\$, end of period	39.610	45.193	51.199	47.347	45.927	46.387	52.537	62.543					
\$/SDR, period average	1.104	1.069	1.025	1.015	1.173	1.293	1.344	1.282	1.357	1.357	1.357	1.357	1.357
Partner GDP deflator (nat curr.)						2.8	2.8	3.6	3.8	3.4	3.1	3.0	2.9
Export markets 2/					3.3	3.4	4.2	3.3	2.9	2.7	2.7	2.8	2.8
Nonruble export prices (in U.S. dollars)		-5.7	-6.2	-2.0	4.1	6.3	7.1	0.7	5.0	3.8	2.9	4.1	4.1
Nonruble import prices (in U.S. dollars)		-7.2	-3.8	-1.3	12.6	6.4	5.9	-1.7	6.4	3.1	3.2	3.8	3.8
Interest rates													
LIBOR (\$) 3/	13.69	10.18	11.82	9.11	6.95	7.61	8.41	9.31	8.45	9.00	9.25	9.00	8.75
Memorandum item:													
LIBOR (SDR) 4/	12.1	9.36	9.94	8.4	6.58	6.48	6.87	8.46	9.28				

Source: IMF Institute data base.

1/ Figures for 1990 and beyond are WEO and staff projections.

2/ Real domestic demand of trading partners.

3/ Rate on one year deposits denominated in U.S. dollars, period average.

4/ Rate on one year deposits denominated in SDRs, period average.

Table 6. Hungary: Commodity Composition of Nonruble Trade 1/*(In millions of U.S. dollars)*

	1986	1987	1988	1989
Exports				
Energy products	137.9	150.0	186.4	202.8
Raw materials and semifinished products	1639.3	1930.7	2413.0	2671.3
Capital goods and transportation equipment	608.9	610.8	727.0	626.8
Industrial consumer goods	687.4	822.3	899.2	897.9
Food products	1129.8	1194.4	1475.1	1618.4
Total	4203.3	4708.2	5700.7	6017.2
Of which: Nonenergy	4065.4	4558.2	5514.3	5814.5
Imports				
Energy products	213.8	148.9	84.0	40.1
Raw materials and semifinished products	2683.8	2968.5	3282.5	3281.6
Capital goods and transportation equipment	658.1	751.3	716.2	943.6
Industrial consumer goods	583.5	615.7	534.1	645.0
Food products	532.8	543.4	565.0	552.5
Total	4672.0	5027.8	5181.8	5462.8
Of which: Nonenergy	4458.2	4878.9	5097.8	5422.7
Balance of trade				
Energy products	-75.8	1.0	102.4	162.7
Raw materials and semifinished products	-1044.5	-1037.7	-869.5	-610.3
Capital goods and transportation equipment	-49.2	-140.6	10.8	-316.8
Industrial consumer goods	103.9	206.6	365.0	252.9
Food products	597.0	650.9	910.1	1065.9
Total	-468.6	-319.8	518.8	554.4
Of which: Nonenergy	-392.8	-320.7	416.5	391.8

Source: IMF Institute data base.

1/ Exports are on an f.o.b. basis, imports on a c.i.f. basis.

Table 7. Hungary: Balance of Payments in Nonconvertible Currencies

(In millions of U.S. dollars)

	1982	1983	1984	1985	1986	1987	1988	1989	1990 Estimate
Trade balance	-258.0	-338.0	-111.0	320.0	17.0	43.0	94.0	507.0	194.0
Exports	4207.0	4146.0	4174.0	4399.0	5012.0	4816.0	4484.0	4007.0	2746.0
Imports	-4465.0	-4485.0	-4285.0	-4070.0	-4995.0	-4673.0	-4390.0	-3540.0	-2552.0
Services (net)	21.0	85.0	82.0	67.0	112.0	157.0	136.0	355.0	7.0
Freight and insurance, net	-91.0	-79.0	-65.0	-83.0	-76.0	-82.0	-77.0	-56.0	-10.0
Travel (net)	81.0	96.0	104.0	112.0	167.0	170.0	113.0	190.0	52.0
Credits	138.0	158.0	167.0	177.0	239.0	254.0	155.0	246.0	160.0
Debits	-57.0	-82.0	-83.0	-65.0	-72.0	-84.0	-82.0	-56.0	-108.0
Investment income (net)	5.0	-17.0	-34.0	-34.0	-28.0	-38.0	-16.0	-7.0	17.0
Credits	30.0	20.0	11.0	9.0	9.0	12.0	10.0	13.0	34.0
Debits	-25.0	-37.0	-45.0	-43.0	-37.0	-51.0	-26.0	-20.0	-17.0
Other current payments (net)	26.0	76.0	77.0	72.0	49.0	103.0	116.0	228.0	-52.0
Unrequited transfers (net)	2.0	3.0	3.0	4.0	4.0	3.0	2.0	4.0	53.0
Current account	-235.0	-251.0	-26.0	391.0	133.0	203.0	232.0	856.0	254.0
Medium- and long-term capital	96.0	100.0	15.0	3.0	-215.0	-177.0	-268.0	-278.0	-98.0
Assets (net)	-18.0	8.0	-5.0	15.0	-48.0	-69.0	-69.0	-127.0	25.0
Liabilities (net)	114.0	92.0	20.0	-18.0	-167.0	-108.6	-199.0	-151.0	-123.0
Disbursements	133.0	131.0	182.0	54.0	66.0	59.0	44.0	29.0	12.0
Amortization	-19.0	-39.0	-162.0	-72.0	-233.0	-167.0	-243.0	-176.0	-135.0
Short-term capital	180.0	128.0	3.0	-206.4	31.6	89.2	-51.5	-221.8	79.9
(including errors and omissions)									
Capital account	276.0	238.0	24.0	-203.4	-183.4	-87.8	-319.6	-500.8	-18.1
Overall balance	41.0	-13.0	-2.0	181.6	-50.4	115.2	-87.5	365.2	235.9
Financing	-41.0	13.0	2.0	-181.6	50.4	-115.2	87.5	-305.2	-235.9
Change in reserves (f.c.m.)	-40.0	13.0	2.0	-181.6	50.4	-115.2	87.5	-365.2	-235.9

Sources: IMF, 1991; data base.

Table 8. Hungary: Ruble Trade, Customs Basis*(In millions of U.S. dollars and percentage change)*

	1984	1985	1986	1987	1988	1989	1990
Exports, fob	3685.9	4025.2	4675.5	4559.6	4124.8	3653.0	2517.0
(percent change)		9.2	16.2	-2.5	-9.5	-11.4	-31.1
Exports fob, 1986 prices	4323.3	4680.5	4675.5	4792.0	4820.5	4169.0	2775.4
(percent change)		8.3	-0.1	2.5	0.6	-13.5	-33.4
Export prices, 1986=100	85.3	86.0	100.0	95.2	85.6	87.6	90.7
(percent change)		0.9	16.3	-4.9	-10.1	2.4	3.5
Imports, cif	3805.5	3849.8	4654.7	4462.1	4040.4	3397.0	2518.0
(percent change)		1.2	20.9	-4.1	-9.5	-15.9	-25.9
Imports, cif, 1986 prices	4500.9	4484.2	4654.7	4826.5	5021.7	4163.7	3080.2
(percent change)		-0.4	3.8	3.7	4.0	-17.1	-26.0
Import prices, 1986=100	84.5	85.9	100.0	92.5	80.5	81.6	81.7
(percent change)		1.5	16.5	-7.6	-13.0	1.4	0.2
Terms of trade	100.8	100.2	100.0	102.9	106.3	107.4	110.9
(percent change)		-0.7	-0.2	2.9	3.3	1.0	3.3

Source: IMF Institute data base.

Table 9. Hungary: Commodity Composition of Ruble Trade 1/*(In millions of U.S. dollars)*

	1986	1987	1988	1989
Exports				
Energy products	26.1	21.5	14.9	15.3
Raw materials and semifinished products	1041.6	997.1	893.4	852.7
Capital goods and transportation equipment	2147.3	2127.0	1922.3	1693.6
Industrial consumer goods	779.5	741.9	679.8	617.4
Food products	665.1	614.5	554.9	476.4
Total	4659.6	4502.0	4065.3	3655.4
Of which: Nonenergy	4633.4	4480.4	4050.3	3640.1
Imports				
Energy products	1489.2	1286.0	1101.6	934.6
Raw materials and semifinished products	1514.1	1486.9	1399.5	1200.8
Capital goods and transportation equipment	944.8	944.8	810.9	658.4
Industrial consumer goods	522.8	568.0	545.6	523.6
Food products	130.1	138.1	103.1	82.8
Total	4601.0	4423.8	3960.7	3400.2
Of which: Nonenergy	3111.8	3137.9	2859.0	2465.6
Balance of trade				
Energy products	-1463.1	-1264.5	-1086.7	-919.4
Raw materials and semifinished products	-472.6	-489.8	-506.1	-348.1
Capital goods and transportation equipment	1202.5	1182.1	1111.4	1035.2
Industrial consumer goods	256.7	173.8	134.2	93.8
Food products	535.0	476.4	451.8	393.6
Total	58.5	78.0	104.6	255.1
Of which: Nonenergy	1521.6	1342.5	1191.3	1174.5

Source: IMF Institute data base.

1/ Exports are on a f.o.b. basis and imports on a c.i.f. basis. Trade flows settled in rubles are converted from their forint value given in official statistics at the period U.S. dollar exchange rate.

Table 10. Hungary: Total Trade, Customs Basis 1/*(In millions of U.S. dollars and percentage change)*

	1984	1985	1986	1987	1988	1989	1990
Exports, fob	8585.3	8508.5	9161.2	9565.3	9957.8	9683.0	...
(percent change)		-0.9	7.7	4.4	4.1	-2.8	...
Exports fob, 1986 prices	9321.5	9347.6	9161.2	9501.0	9944.0	9428.8	...
(percent change)		0.3	2.0	3.7	4.7	-5.2	...
Export prices, 1986=100	92.1	91.0	100.0	100.7	100.1	102.7	110.8
(percent change)		-1.2	9.9	0.7	-0.5	2.6	7.9
Imports, cif	8103.0	8203.5	9592.4	9848.8	9353.4	8873.0	...
(percent change)		1.2	16.9	2.7	-5.0	-5.1	...
Imports, cif, 1986 prices	9277.0	9386.5	9592.4	9889.2	9736.9	9107.7	...
(percent change)		1.2	2.2	3.1	-1.5	-6.5	...
Import prices, 1986=100	87.3	87.4	100.0	99.6	96.1	97.4	104.4
(percent change)		0.1	14.4	-0.4	-3.5	1.4	7.2
Terms of trade	105.4	104.1	100.0	101.1	104.2	105.4	106.2
(percent change)		-1.2	-4.0	1.1	3.1	1.1	0.7

Source: IMF Institute data base.

1/ Derived from Tables 4 and 8.

Table 11. Hungary: Outstanding External Debt

(In millions of U.S. dollars, at end of period)

	1982	1983	1984	1985	1986	1987	1988	1989
Total external debt	11,515	12,125	12,216	15,106	17,928	20,531	20,150	20,966
In convertible currencies	10,216	10,746	10,983	13,955	16,907	19,584	19,603	20,605
By original maturity								
Short-term	3,261	3,904	2,977	3,019	3,494	3,103	3,363	3,306
Medium- and long-term	6,955	6,842	8,006	10,936	13,413	16,481	16,240	17,299
By type of credit:								
Financial loans	9,155	9,208	9,428	12,175	15,084	17,508	17,469	18,060
Trade-related credits	661	1,144	1,125	1,318	1,433	1,652	1,626	1,763
Intergovernment credits	5	4	3	2	1	0	--	--
Other	396	390	428	459	389	422	508	568
In nonconvertible currencies	1,299	1,379	1,233	1,151	1,021	947	547	361
By original maturity								
Short-term	250	367	916	106	111	184	120	87
Medium- and long-term	1,049	1,012	317	1,045	910	763	427	274
By type of credit:								
Financial loans	251	366	313	133	140	210	136	88
Trade-related credits	39	30	24	0	--	--	--	--
Intergovernment credits	974	948	863	1,009	873	728	438	260
Other	35	38	32	8	8	8	8	12
Memorandum item:								
Convertible currency debt 1/								
(as percent of GDP)	44.1	51.1	53.9	67.7	71.2	75.0	70.1	70.3

Source: IMF Institute data base

1/ End of period convertible currency external debt divided by GDP for the year as a whole in local currency units and converted into U.S. Dollars at the period average forint/U.S. Dollar exchange rate.

Table 12. Hungary: External Debt Service in Convertible Currencies

	1982	1983	1984	1985	1986	1987	1988	1989
<i>(In millions of U.S. dollars)</i>								
Total debt service	2,432	2,351	2,705	3,689	4,182	3,747	3,510	3,569
a. Principal	1235	1496	1761	2670	2967	2524	2204	1964
Excluding Fund repurchases	1,235	1,496	1,761	2,580	2,919	2,170	1,849	1,740
Fund repurchases	0	0	0	90	48	354	355	224
b. Interest	1,197	855	944	1,019	1,215	1,223	1,306	1,605
<i>(In percent)</i>								
Total debt service 1/	47.0	45.4	51.0	79.2	87.1	64.2	54.8	48.2
a. Principal								
Excluding Fund repurchases	23.9	28.9	33.2	55.4	60.8	37.2	28.9	23.5
Fund repurchases	0.0	0.0	0.0	1.9	1.0	6.1	5.5	3.0
b. Interest	23.1	16.5	17.8	21.9	25.3	20.9	20.4	21.7

Source: IMF Institute data base.

1/ As percent of merchandise exports, and travel and income credits.

Table 13. Hungary: Principal Obligations in Convertible Currencies on End-1989 Debt, 1990-94

(In millions of U.S. dollars)

	1990	1991	1992	1993	1994
Principal	2,062	2,407	2,542	2,229	2,396
Fund repurchases	322	79	46	51	254
Debts disbursed before 1990	1,740	2,328	2,496	2,178	2,142

Source: IMF Institute data base.

Table 14. Hungary: Medium-Term Balance of Payments and External Debt Projections

I. EXOGENOUS ASSUMPTIONS 1/

	1991	1992	1993	1994
<i>(Percentage change unless otherwise indicated)</i>				
External				
Exports	1.10	1.10	1.10	1.10
Imports	1.08	1.08	1.08	1.08
Investment income credits	1.10	1.10	1.10	1.10
Travel credits	1.10	1.10	1.10	1.10
Other services (net)	1.05	1.05	1.05	1.05
Unrequited transfers (net)	1.10	1.10	1.10	1.10
Net direct investment	1.10	1.10	1.10	1.10
Short-term capital inflows	1.10	1.10	1.10	1.10
Reserve target (in months of imports, end of period)	3.5	3.5	3.5	3.5
Interest rate (US\$, in percent)	0.0900	0.0925	0.0900	0.0875
Domestic				
GDP at 1986 prices	1.025	1.025	1.025	1.025
Memorandum item:				
Partner GDP deflator (US\$)	1.034	1.031	1.030	1.029

1/ Summary of worksheet inputs.

Table 14. Hungary: Medium-Term Balance of Payments and External Debt Projections (continued)

II. MEDIUM-TERM BALANCE OF PAYMENTS PROJECTIONS

	1990	1991	1992	1993	1994
<i>(In millions of U.S. dollars)</i>					
Exports	6400.0	7040.0	7744.0	8518.4	9370.2
Imports	-6382.0	-6892.6	-7444.0	-8039.5	-8682.6
Services (net)	-2297.5	-2581.6	-2843.3	-3031.0	-3261.1
Investment income (net)	-1597.5	-1887.1	-2158.8	-2361.4	-2612.1
Credits	233.0	256.3	281.9	310.1	341.1
Debits	-1830.5	-2143.4	-2440.7	-2671.6	-2953.2
On end-1989 long- and medium-term debt	-1388.3	-1295.6	-1108.4	-868.1	-655.0
On post-1989 long- and medium-term debt	-163.9	-541.0	-990.7	-1441.1	-1922.6
On short-term debt	-278.4	-306.9	-341.6	-362.4	-375.6
Travel credits	811.8	893.0	982.3	1080.5	1188.6
Other services (net)	-1511.8	-1587.4	-1666.8	-1750.1	-1837.6
Unrequited transfers (net)	130.0	143.0	157.3	173.0	190.3
Current Account	-2149.5	-2291.1	-2385.9	-2379.1	-2383.2
Direct investment	200.0	220.0	242.0	266.2	292.8
Other medium- and long-term capital (net)	2138.5	1938.2	1987.8	1938.3	2092.7
Disbursements	3878.5	4266.2	5130.2	5473.7	6447.2
Amortization	1740.0	2328.0	3142.4	3535.4	4354.5
Of end-1989 debt	1740.0	2328.0	2496.0	2178.0	2142.0
Of post-1989 debt	0.0	0.0	646.4	1357.4	2212.5
Short-term capital	300.0	330.0	363.0	399.3	439.2
Capital Account	2638.5	2488.2	2592.8	2603.8	2824.8
Overall Balance	489.0	197.1	206.8	224.7	441.6
Financing	-489.0	-197.1	-206.8	-224.7	-441.6
Change in reserves	-167.0	-118.1	-160.8	-173.7	-187.6
Use of Fund credit	-322.0	-79.0	-46.0	-51.0	-254.0
Purchases					
Repurchases	-322.0	-79.0	-46.0	-51.0	-254.0
Memorandum items:					
International reserves (end period) 1/	1892.3	2010.3	2171.2	2344.8	2532.4
GDP (in millions of U.S. dollars)	31017.3	32873.6	34740.0	36676.8	38683.9

1/ Net international reserves in convertible currencies at end-1989 were US\$ 1,725.3 million.

Table 14. Hungary: Medium-Term Balance of Payments and External Debt Projections (continued)

III. SUMMARY OF EXTERNAL INDICATORS

	1990	1991	1992	1993	1994
Current account (percent of GDP)	-6.9	-7.0	-6.9	-6.5	-6.2
Total outstanding debt (percent of GDP) 1/	73.3	75.8	80.2	85.9	93.1
Total outstanding debt (percent of merchandise exports, travel and income credits) 1/	305.2	304.2	309.3	318.0	330.2
Debt service (percent of merchandise exports, travel and income credits)	48.0	54.6	62.0	62.6	67.0
Interest payments (percent of merchandise exports, travel and income credits)	24.6	26.2	27.1	27.0	27.1

1/ Outstanding debt as of end of period.

Table 14. Hungary: Medium-Term Balance of Payments and External Debt Projections (concluded)

IV. WORKING TABLE A: DERIVATION OF PRINCIPAL AND INTEREST PAYMENTS ON MEDIUM-TERM EXTERNAL DEBT

	1990	1991	1992	1993	1994
1. Disbursements	3878.5	4266.2	5130.2	5473.7	6447.2
2. Amortization of pre-1989 debt	1740.0	2328.0	2496.0	2178.0	2142.0
3. Amortization of post-1989 debt	0.0	0.0	646.4	1357.4	2212.5
On 1990 flows	0.0	0.0	646.4	646.4	646.4
On 1991 flows	0.0	0.0	0.0	711.0	711.0
On 1992 flows	0.0	0.0	0.0	0.0	855.0
On 1993 flows	0.0	0.0	0.0	0.0	0.0
On 1994 flows	0.0	0.0	0.0	0.0	0.0
4. Total outstanding debt	19437.5	21375.7	24009.9	27305.6	31610.8
End-1989 debt 1/	15559.0	13231.0	10735.0	8557.0	6415.0
Post-1989 debt	3878.5	8144.7	13274.9	18748.6	25195.8
5. Total interest payments	1552.1	1836.6	2099.1	2309.2	2577.6
On end-1989 debt	1388.3	1295.6	1108.4	868.1	655.0
On post-1989 debt	163.9	541.0	990.7	1441.1	1922.6
Memorandum items					
Total medium-term debt service	3292.1	4164.6	5241.5	5844.6	6932.1
Principal	1740.0	2328.0	3142.4	3535.4	4354.5
Prior to 1990	1740.0	2328.0	2496.0	2178.0	2142.0
After 1990	0.0	0.0	646.4	1357.4	2212.5
Interest	1552.1	1836.6	2099.1	2309.2	2577.6
Prior to 1990	1388.3	1295.6	1108.4	868.1	655.0
After 1990	163.9	541.0	990.7	1441.1	1922.6

V. WORKING TABLE B: DERIVATION OF INTEREST PAYMENTS ON TOTAL SHORT-TERM DEBT

	1990	1991	1992	1993	1994
1. Disbursements	300.0	330.0	363.0	399.3	439.2
2. Fund repurchases (net)	-322.0	-79.0	-46.0	-51.0	-254.0
3. Debt outstanding end-year 2/	3284.0	3535.0	3852.0	4200.3	4385.5
4. Interest on total short-term debt	278.4	306.9	341.6	362.4	375.6

1/ Medium-and long-term debt outstanding at end-1989 was US\$ 17,299 million.

2/ Short-term debt outstanding at end-1989 was US\$ 3,306 million.

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