

NOTES ON THE COMPILATION OF STATISTICAL DATA

1 Statistical notes on the calculation of foreign trade volumes

Hungarian merchandise trade figures, as measured by the customs authorities, include inward and outward trade conducted by firms operating in customs-free industrial locations. After taking account of the estimates of the forthcoming adjustments, merchandise trade figures are analysed with regard to the following:

1.1 Customs-based merchandise trade reflects the total value of goods crossing the country's customs frontiers in a given period and, in the case of index numbers, changes in relation to any other period.

1.2 Past data adjustments serve as a basis for estimates applied in later adjustments. Exports are generally more variable after adjustment, with the result that the final trade numbers tend to be better than those reported provisionally.

1.3 The not seasonally adjusted data series, taking into account also the estimates for 1998, are not sufficient in themselves to encapsulate the trends of inward and outward trade flows. Reviewing the seasonally adjusted data and the trends, therefore, helps analyse aggregate export and import flow data.

1.4 Since January 2000, analysis of monthly developments in merchandise foreign trade is based on data denominated in the euro; however, currently there is no officially published time series, expressed in the euro, or more precisely in ECU, for the period prior to 1999. Therefore, for the purposes of seasonal adjustment the available dollar-based time series are recalculated using the corresponding official monthly ECU/USD exchange rates.

1.5 The path of goods trade is analysed on the basis of the degree to which the trend of the adjusted data series, upwards or downwards, slopes. The latter is expressed by annualised growth rates.

1.6 Volume indices are calculated by deflating domestic currency trade figures, adjusted to take account of estimates, by foreign trade price indices as reported

by the Central Statistical Office. Therefore, these should be considered as approximations.

1.7 Seasonal adjustment can be applied only to aggregate foreign trade figures, as the statistical error would be more than tolerable for lack of more meaningful data.

1.8 The Herfindahl index measures the degree of concentration of a phenomenon or a process using a single number. The formula of concentration is as follows:

$$H = \text{SUM}_i((A_i/A) * (A_i/A)), \text{ where } \text{SUM}_i(A_i) = A.$$

In foreign trade, to obtain the *H*-index first total merchandise trade is disaggregated according to certain criteria (groups of commodity or country). Then the ratios of these to total turnover are squared in fractional terms and the squared terms are summed individually. In other words, the value of *H* equals the arithmetic average of these ratios weighted by the ratios themselves. The value of *H* can vary between $1/n$ and 1. The index records a minimum value of *H* when the elements are of equal size; and yields a maximum value when there is a full concentration in the market. In our case, the value of *H* will vary between 0.2 and 1, given that, when decomposing turnover into groups of commodity and country, five categories have been created.

2 Methodological notes on 'The current account and financing' in Chapter III

2.1 The methodological framework of seasonally adjusting current account time series is as follows. Using the SEATS TRAMO software a model setting is selected to seasonally adjust balance of payments data for the period January 1994–December 1999. This model is then fixed at the length of the year. Subsequent data are adjusted in this model. The sub-accounts of the balance of payments, derived from the not seasonally adjusted data, are adjusted directly. Consequently, a seasonally adjusted sub-balance cannot be re-produced from a set

of seasonally adjusted data that underlie the given sub-balance. The trends are generated using the method of calculating centrally imposed symmetrical moving averages so as to minimise the number of revisions. A trend value is derived from the five-month moving averages of the seasonally smoothed data, with diminishing weights proceeding symmetrically on both sides of the centre. The equation used to calculate five-month moving averages:

$$y_t = 1/9x_{t-2} + 2/9x_{t-1} + 3/9x_t + 2/9x_{t+1} + 1/9x_{t+2}.$$

Trend values are not published for the latest two months. After the data for an entire year are attached to the time series, the model is re-estimated and, if necessary, methodological changes are made.

Of the major sub-accounts of the current account, non-debt investment flows cannot be seasonally adjusted in reliable quality, as seasonal patterns are vague and volatile. Seasonal patterns cannot be detected in the balance of other services excluding tourism and in compensation of employees in work for less than one year.

2.2 Reflecting the methodological changes made in December 1999, the balance of tourism includes turnover on households' foreign exchange accounts.

2.3 Non-debt flows cover, within the financial account, direct investment transactions in equity capital and portfolio investment transactions in equity securities. Income flows associated with these transactions are recorded as income on equity (dividends).

2.4 Debt-creating flows cover, within the financial account, income recorded on inter-company loans, portfolio investment income recorded on holdings of assets other than shares and equity securities, and other investment income. Income flows associated with these transactions are recorded as income on debt (interest).

2.5 Hungary's international investment position shows the stock of its external financial assets and liabilities. Analytically, debt must be distinguished from liability, as, from an economic and statistical point of view, debt and liability are not synonymous terms. According to the international practice, non-debt creating flows are classified as investments in equity capital, which, though recorded as liability, are not treated as debt.

Such transactions are recorded in the balance of payments under direct investments as equity capital, and under portfolio investments as equity securities.

Accordingly, net foreign debt is the difference between the country's liabilities, i.e. the debt of its residents outstanding to non-residents, and assets, i.e. the debt of non-residents outstanding to Hungarian residents.

3 The calculation framework of net financial wealth and net lending of households

3.1 Disaggregating stocks into components

*I*n the standard case, changes in the value of financial instruments are disaggregated into transactions, revaluations and other volume changes. The underlying components of changes in stocks can be used to assess positions in aggregate assets and liabilities as well as the balance of assets and liabilities, in addition to the individual instruments.

3.1.1 Transactions

Transactions flows are defined as economic actions undertaken by the mutual agreement between parties involved in a financial relationship. In the case of households, transactions affecting the holdings of financial instruments influence both the pattern of instruments held, on the one hand, and the volume of these transactions, on the other. Examples for the former are flows into or out of deposits, and borrowings or repayments.¹ Examples for the latter are purchases of consumer goods and the accumulation of taxes, wages and interest.² In the Bank's method, transactions are not monitored directly, instead they are defined as a residual: revaluations due to price and exchange rate movements, and other volume changes are subtracted from total change in volume.

3.1.2 Revaluations due to price and exchange rate movements

Changes in the value of financial instruments are accounted for under this heading. Revaluations caused by price and exchange rate changes do not occur as a result of mutual agreement between the parties involved, but rather as a consequence of reasons beyond their control. Revaluations are recorded separately on the revaluation account by the System of National Accounts (SNA), the international macroeconomic accounting framework.

In the case of marketable interest bearing financial instruments, the change in the volume of stocks, which also results in an increase in prices, is treated as a transaction instead of a nominal holding gain. The part of the price increase of investment fund certificates which is attributable to interest accumulating on the assets of the investment fund is recorded as a transaction.

¹ Both accounting legs of these transactions affect financial instruments, so they are recorded on the financial account.

² Only one leg of these transactions is recorded on the financial account, the other is recorded either on the income account or on the capital account.

Price and exchange rate changes are accounted for as revaluations in the following cases:

- changes in the value of foreign currency deposits due to exchange rates movements (calculated by currency),
- the effect of changes in the prices of government securities (calculated by types of paper),
- in the case of investment fund certificates, changes in the value of investment funds' holdings due to fluctuations in the prices of shares and government securities (calculated on the basis of the RAX index for the total holdings of shares; and the revaluation of all government securities outstanding in proportion of all government securities held by the fund),
- the effect of movements in the prices of exchange traded shares (calculated for each instrument).

3.1.3 Other changes in the volume of financial assets

Changes in the holdings of financial instruments are recorded as other volume changes which are attributable to the unilateral decision taken by any of the parties to a financial relationship, or to methodological changes to the accounting system. Currently, the following are recorded as other volume changes in the accounts:

- the impact of write-offs of small business debt,
- wage corrections between December and January (the disbursement in December of wages due in January is not treated as financial savings, in accordance with the principles of government accounting. This causes December's savings to be lower, and January's higher, than the total change in the net financial wealth of households),
- listings or de-listings of exchange traded shares (calculated for each instrument).

3.2 Compensation for inflation included in interest

Interest which accrues to the lender under a borrowing contract is the positive or negative income of the parties to a financial transaction. In periods of high inflation the general increase in prices is built into nominal interest rates. Therefore, in order to compensate the lender for its losses on the lending transaction caused by inflation, it is useful to apply an alternative method of calculating interest with the aim of prevent high inflation, or a change in the level of inflation, from leading to a distortion of income. This is set forth in Appendix B of Chapter XIX of the SNA. The alternative method of accounting for interest treats as income only a part of interest

which is in excess of the amount of compensation for inflation, and treats compensation for inflation as revaluation. In such cases, total revaluation is the sum of revaluation due to price and exchange rate changes plus compensation for inflation.

Within its statistical framework which analyses net lending of households through the changes in their assets and liabilities, the National Bank of Hungary has not yet published data concerning the extent to which compensation for inflation affects the balance of transactions and revaluations. This method is relatively new in international practice, so the Bank has also made only experimental calculations until recently. Compensation for inflation included in interest is calculated monthly, by types of instrument, according to the following:

3.2.1 First, interest accrued on the instrument is calculated, which is equal to the average outstanding stock of the instrument multiplied by nominal interest rate for the month. The average stock of a financial instrument in a given period is estimated by the arithmetic average of the stock at the beginning and at the end of the accounting period. For the purposes of the calculation one-twelfths of the annual interest rate prevailing in a given month is used as the rate of interest. In the case of the individual instruments (bank deposits, documentary deposits, bank securities), the Bank collects information directly for the prevailing interest rates. In other cases, the available interest rate on a similar instrument is taken as the interest rate on the given instrument.

3.2.2 Second, the loss of value of the instrument due to inflation is calculated. This is equal to the monthly average outstanding stock of the instrument multiplied by the inflation rate for the month. In the case of domestic currency-denominated instruments, the twelfth root of the one-month Consumer Price Index relative to one year previously is taken as the monthly inflation rate. In the case of foreign currency deposits, the foreign rate of inflation is estimated on the basis of the currency composition.

3.2.3 In case the loss caused by inflation does not exceed the interest rate, then compensation for inflation included in interest will equal the loss caused by inflation. Alternatively, if the loss due to inflation exceeds the interest rate, then the compensation for inflation included in interest will equal the interest rate.

3.3 Nominal and real holding gains and losses

Nominal holding gains or losses³ are treated as changes in stocks which occur to household sector assets and liabilities, and arise from price and exchange rate fluctua-

³ For the sake of simplicity, only the word 'gain' will be used in the following. Negative gain implies a loss.

tions. In an alternative framework of accounting for interest, the nominal holding gain is equal to total revaluation, that is, the sum of revaluation due to price and exchange rate changes, and compensation for inflation included in interest.

Nominal holding gains exert influence on household sector net wealth through changes in the outstanding stocks of financial instruments. This change in wealth, however, is different from the effects of shifts in wealth due to transactions, as the nominal holding gain should provide adequate cover for the loss of value of assets and liabilities caused by inflation. By deducting revaluation due to inflation from nominal holding gain we arrive at real holding gain.

From the point of view of economic agents, the importance of change in net wealth due to real holding gain is very similar to that of the change in wealth due to transactions. Households can spend real holding gains, just as their earnings, while the real value of their net wealth remains unchanged.

4 Explanatory notes on the adjusting entries in the Table ‘Net lending (+) / net borrowing (-) of central government’

Line (4) of the Table shows, on a consolidated basis, the difference between accounting for VAT revenue on cash and accruals bases, and adjustments relating to the more important concession fee receipts. The latter are not treated as one-off revenue, but are distributed evenly over the years of lease.

Depending on the length of interest periods, different amounts of interest accumulate on central government

debt by the end of the accounting periods, so interest paid may diverge significantly from interest actually accumulating on debt. Consistent with the SNA framework of accrual accounting, data in line (5) have not been adjusted, while the balance for the period January–September has been adjusted upwards by Ft 9.7 billion due to interest accumulation.

The GFS treats as expenditure loans extended by the state; and receipts of principal payments are treated as revenue. The SNA, in contrast, draws a sharp division between expenditures/revenues and financing items. Consequently, the creation of a loan is not accounted for as expenditure, just as the recovery of a loan does not constitute a revenue. These adjustments are shown in line (6), increasing the central government borrowing requirement by Ft 0.8 billion in September. The value of the January–September adjustment was Ft 16.6. billion.

Provisions funded from non-social security sources are amounts which the central government or other units reimburse to the social security authorities. However, in certain months of the year the amounts disbursed to entitled persons are not equal to those the authorities receive under that title. In such cases, the central government either acquires a financial asset or liability vis-à-vis the social security authorities. This adjusting item is shown in line (7) of the Table. Its amount lowered the central government borrowing requirement by Ft 0.6 billion for January–September and by Ft 8.1 billion for September.

The final adjusting item is shown in line (12) and relates to the residual balances of the extra-budgetary funds integrated into the chapters of central government in 1998. In the government accounting framework this item is treated as revenue. However, because the amount does not materially affect the net financial wealth of general government, it has been deduced from the entries adjusting the balance of extra-budgetary funds.