SNA recommendations: Two approaches

The SNA’s paragraphs 7.109 to 7.111 discuss nominal and real interest. It notes an approach in which it is possible to separate actual payments of nominal interest into two components:

“(a) A payment equal to the loss of purchasing power on the monetary value of the principal during the accounting period;

(b) The balance remaining that represents the real interest accruing to the creditor “. The text points out that this is the conceptual approach. It adds that in practice, instead of real interest, nominal interest is registered as property income. It stresses that “the information needed to calculate real interest is provided within the System as a whole as the real holding losses incurred by creditors should be recorded in the revaluation account”. For countries with significant inflation, the reader is referred to chapter XIX, annex B.

Annex B, whose title is “A parallel treatment of interest under significant inflation”, discusses also the general conceptual problems connected with interest payments in the SNA. It presents two approaches of adjusting nominal interest: the one that is described in the main text, which leads conceptually to estimate real interest, and another approach, which leads to the estimation of what is called “interest prime”. Interest prime is obtained by deducting from nominal interest “the actual component of protection against inflation of the principal” which is included in nominal interest.

The annex rejects conceptually the inclusion of real interest in the central framework of the SNA, because “it is a basic principle of the System that holding gains or losses should not be recorded in the current accounts...but only in the revaluation accounts” (par. 3). It adds that real interest, being a very useful analytical tool, “may be calculated as a satellite construct”. (Par. 6).

In the following discussion, the real interest approach, as described by the SNA 93 in its main text, and recommended by Peter Hill for countries with high inflation in the OECD's Manual on National Accounting Under Conditions of High Inflation, published in 1996, will be referred as the “Manual” approach. The prime interest approach will be referred as the “Annex” approach.

Adjustment of nominal interest under conditions of low inflation

From a conceptual point of view it is clear that nominal interest should be partitioned into two flows, even if inflation is relatively low. Nevertheless, the SNA main text recognizes
that “in practice...the interest recorded is always the amount of nominal interest receivable or payable” (par. 7.111). No recommendation is explicitly given by the SNA on changing this practice.

When partitioning nominal interest flows, the component of protection against depreciation of the principal, may be significant even at relatively low levels of inflation and interest rates. This may be the case, if the value of loans, deposits and other financial instruments bearing interest as returns are relatively high as percent of GDP. It may distort also the sectoral composition of disposable income, saving and net lending.

In cases in which nominal interest and interest on index-linked securities, loans and deposits in the national currency coexist in the market and are relatively important, the practice of registering nominal interest when inflation is relatively low can not be justified even on practical difficulties. It is not possible to add these two types of interest directly. It is necessary to convert to nominal the interest charged on price-indexed financial assets or, alternatively, to convert the nominal interest flows to real/prime ones. It follows that there may be practical problems in registering all the interest flows on a nominal base or-alternatively- all of them on an adjusted basis. If this is the case, as it seems according to the empirical example that follows, the conceptually correct approach should be recommended to apply for countries with relatively low levels of inflation as well as for countries with high levels of inflation.

The existence of index-linked securities, deposits and loans is common in developing countries with relatively high levels of inflation and is a growing phenomenon in some developed countries with relatively low levels of inflation. Such is the case of the United Kingdom, which in 1995 had price-linked government’s bonds for an outstanding value equal to 56.8 billion dollars, representing 15.3% of the marketable government debt (See J. Campbell and R. Shiller, A Scorecard for Indexed Government Debt, a paper prepared for the NBER Macroeconomic Annual Conference, March 8-9,1996).

In the mentioned cases, countries should apply the conceptually correct approach, even when relatively low levels of inflation exist.

Main differences between the two approaches and implications.

There are three main differences between the two mentioned approaches. For each of the differences we will present: (1) the conceptual issue, (2) the implication of the difference in terms of the accounts entries, and (3) our suggestion on the approach to be followed in the SNA.

A. How to register the repayment of the principal included in nominal interest? Nominal holding gains versus capital transfers.

This is the most important difference between the Annex and the Manual. The Annex registers nominal holding gains (losses) on financial assets such as deposits and loans in
the revaluation account whereas the Manual suggest to register capital transfers -equal to
the real holding gains (losses) on these types of assets- in the capital account.

A.1 Conceptual issue

From the Manual’s point of view, loans and deposits denominated in new Israeli shekels
(NIS) are financial assets whose prices are always equal to one, if the NIS is used as the
numéraire; consequently nominal holding gains (gains due to changes on the asset’s own
price) can not be calculated on them. “100 NIS is twice the quantity included in 50 NIS
and not twice the price of 50 NIS”.

As a consequence, the increase in the amount of the outstanding principal that results
from its index-linkage requires new transactions to take place. “The principal cannot be
increased without the increase in the loan being recorded in the financial account. Under
the terms of the indexing agreement...this additional lending is implicitly financed out of
a transfer of equal value...recorded in their capital account” (Inflation Accounting, op.
cit., p 61)

The Annex suggests that a linked loan has a price, which changes as reflected in the
applied index-linking mechanism. In fact, a CPI index-linked loan of 100 NIS represents
a given basket of consumers' goods and services with a value of 100 NIS at the moment
the loan is provided. The lender wants back a value that maintains the purchasing power
of the money lent, in terms of the selected basket, plus the corresponding interest. This
basket has prices attached which change through time, generating holding losses for the
lender and holding gains for the debtor when prices increase. If the loan is given in NIS
but linked to the price in NIS of the dollar, both parts agree implicitly to give/ receive
back, in order to repay the debt, the value in NIS of a constant number of dollars, whose
price in NIS may change. If it is accepted that specific prices are attached to price- linked
loans and deposits, nominal as well as real holding gains/losses should be calculated for
both parties.

The Manual argues that the price of financial assets like loans and deposits in national
currency can not change since the price is always equal to one when the local currency is
taken as the numéraire. The Annex takes the price index mechanism as measuring the
change in the price of the corresponding asset/ liability, in which case the treatment
should be the same that in the case of marketable securities:

“Changes in the prices on marketable securities...generate nominal holding gains or
losses for both the issuers and the current owners of the securities” (Inflation Accounting,
p 86)

In effect, the agreement between creditor and debtor says that the outstanding principal
should automatically be revaluated at the end of each agreed period by the corresponding
change in the selected linking price index. The corresponding nominal holding gains and
losses must be registered, as well as the corresponding increase in the balance-sheet asset
of the creditor and the liability of the debtor.
A.2 Implication on the accounts entries

The important implication of this difference is that in the Manual’s approach, the indexed part of the financial asset can not be treated as a nominal holding loss of the owner of the asset. Instead a capital transfer from the debtor- the government, for example- to the creditor is registered, in order to compensate him for his real holding losses. Entries in the financial account register an increase in the liability of the debtor and in the financial asset of the creditor. As a result, e.g., in the case of the government, the nominal interest it pays will be separated into two components:

1. Real interest (instead of nominal), which will effectively avoid undervaluing government’s disposable income and saving,

2. A capital transfer “payment” in the capital account.

Since both components of nominal interest are registered before getting -as a balancing item- the government’s net borrowing, the resulting government’s deficit is the same as it was when registering nominal interest. It is convenient to remember that the concept of government’s net borrowing was adopted by the Maastricht treaty as the definition of government deficit.

If the Annex’s approach is adopted instead, the indexed part of the loan is registered as nominal holding losses/gains in the revaluation account of the debtor and the creditor respectively. It will not decrease the government’s disposable income and saving, but it will decrease the net borrowing that would have been registered if nominal interest had been included instead.

A.3 Suggestion

Given that applying the Manual’s approach the government’s deficit will be the same as in one registering nominal interest in the income account, it seems preferable to apply the Annex’s treatment in order to not include capital transfers. Including them leads to have both components of nominal interest determining the deficit. Since we accept to register the effects of the price changes on the value of the outstanding principal in the revaluation account, no transactions are required to be entered in the financial account and no transfers in the capital account.

We think that the inclusion of capital transfers translates the distortion generated by the registration of nominal interest, from the current accounts to the capital account.

The argument that a loan or a deposit in national currency has a price that can not change because the national currency is used as the numeraire, (and -consequently- not nominal holding gains can be registered in the revaluation account even if they are price-linked), seems to us based on what may be seen- by convention- as a technicality, with a very high cost for the SNA in terms of the conceptual meaning of the resulting net borrowing (deficit), especially in the case of general government. The problem may be resolved by accepting that index- linked loans and deposits have indeed attached prices that may change.
B. How should interest (as a property income flow) be calculated, when different price linking mechanisms coexist?

The second difference is due to the way each method calculates the interest flow to be registered as income when the index applied to link the principal is not the CPI (taken as a general price index), but another such as the wholesale price index or the exchange rate index.

B.1 Conceptual issue

The Annex’s method suggests not to register as interest what is a repayment of the principal.

In the case of loans in kind, with interest to be paid also in kind (e.g. a loan of 100 kilograms of grain, with the obligation for the debtor to give back, one year after, 110 kilograms of grain) it is clear for both parties what constitutes the repayment of the principal and what is interest payment.

“Credit has existed long before man invented an official form of money”....”Much of the earliest recorded laws concerned the issue of credit and ...interest...Hammurabi, King of the first dynasty of Babylon authored the earliest known formal laws around 1800 B.C. within which we find the first recorded attempt to regulate interest rates... Hammurabi established a ... maximum rate of interest that ...might [be] charged. On loans of grain, which were repayable in kind, the maximum rate of interest was limited to 33 1/3 % per annum. On loans of silver, the maximum legal rate was established at 20 %. (Martin A. Armstrong, A Brief History of World Credit and Interest Rates, Princeton Economic Institute, 1987).

When an index-linking mechanism exists, the adjustment of the principal ensures that no repayments are included in the interest to be paid on the linked principal. The selected price index and the interest rate charged on the indexed principal reflects what the creditor wants to get back as a repayment of the principal (the index linked principal) and as property income (the interest charged on the linked principal).

When selecting the price index, the lender has certain expectations of future inflation And if he prefers to link the loan to the dollar exchange rate is because he expects the price of the dollar to grow more than the general rate of inflation, making higher his total return.

The Manual calculates real interest for loans and deposits by fully compensating the creditor for losses due to inflation. It notes that it may be some under or over compensation to the creditor depending on the choice of index. In these cases-in
principle— the resulting interest payable should be adjusted by the difference to full compensation when estimating real interest. (See Manual, op. cit., p. 88)

**B.2 Implication on the accounts entries**

The Annex takes straightforwardly the interest, which results from the application of the corresponding index linking mechanism. If the CPI is applied, both approaches lead to the same interest flow (if the resulting interest flow is not negative. See third difference)

If different price indexes are applied for linking financial assets, the corresponding real holding losses due to changes in relative prices will be different and these different values will be registered in the revaluation account.

**B.3 Suggestion**

It seems preferable to adopt the Annex’s recommendation, and to register as interest the effective compensation agreed by the parties. In effect, interest may be defined as:

“Under the terms of the financial instrument agreed between them interest is the amount that the debtor becomes liable to pay to the creditor over a given period of time without reducing the amount of principal outstanding” (SNA par. 7.93). The SNA defines the principal outstanding, in the same paragraph 7.93, as “the amount that the debtor must repay to discharge the liability and thereby extinguish the creditor’s claim over the debtor”

When a financial instrument is explicitly price-linked, the amount that the debtor must repay in order to discharge his liability is the current value of a given fixed basket of goods and services, or fixed number of foreign currency units, or other units, depending on the linking mechanism agreed by the parties.

The creditor has decided which assets, or they corresponding monetary market value, he wants to maintain. He could buy shares (in which case the dividends will be treated as income, but not their nominal holding gains); or dwellings to rent (with the operating surplus obtained from rentals treated as income but not the holding gains on the dwelling); or maintain deposits in foreign currency (with receivable interest treated as income but not the nominal holding gains on the deposits in foreign currency).

Alternatively, he could prefer to give a loan or make a deposit in national currency, but linked to the share price index, the dwellings price index or a foreign currency exchange rate, maintaining in this way the corresponding market value in national currency of the selected asset.

From the investor’s point of view he maintains—in both cases: buying a specific asset or linking his loan or deposit to the price index of this asset - his assets in terms of the market value of specific financial instruments or non-financial assets. Why should the investor have a different value for net lending/borrowing, depending on the way he maintain his assets? Notice that we are neither speaking on the differences on property income which may originate on linking a deposit to the dwelling price index versus
buying a dwelling, nor on the purchasing power of his assets, but on the desired value composition of them.

C. The treatment of negative real interest

A third difference is that the Annex does not allow negative real interest flows to be registered in the current account whereas the Manual registers in this account the resulting real interests independently of its sign.

C.1 Conceptual issue

The conceptual reason given by the Annex is that registering negative interest in the income account implies including as part of disposable income holding gains/losses for the debtor/lender, which is not allowed by the SNA. The Manual simply notes that “The creditors real holding loss may turn out to be larger than the nominal interest receivable so that real interest becomes negative...in effect, real interest is payable by the creditor to the debtor”, and adds “Negative ex-post rates of interest have been observed in many countries at one time or another. Indeed, even negative nominal rates of interest have occasionally been observed...” (Inflation Accounting, op. cit., p 87)

C.2 Implication on the accounts entries

The Annex notes that “by definition, interest prime may be positive or zero, but never negative” (SNA, page 455, par. 4). In the case of index-linked financial instruments, non negative rates of interest prime will result. When only non-linked financial instruments exist “the simplest procedure seems to take the ex-post rate of inflation as approximating the implicit price adjustment mechanism” (op. cit., par.13). It notes that the resulting component for protection against inflation may exceed the value of nominal interest, “in which case interest prime is set at zero” (op. cit., par. 13).

The Manual simply registers the resulting real interest as property income.

C.3 Suggestion

Government units and public financial intermediaries sometimes charge very low rates of interest. They represent an indirect form of giving implicit transfers and subsidies to specific groups of households and producers. If imputation are not made in order to incorporate explicitly these grants and subsidies financing the full nominal interest payable by debtors, negative real rates of interest may result.

The same may happen when non-financial corporations charge their clients especially low nominal rates of interest, for purchases to be paid by them in installments. The difference between the corresponding market nominal rate of interest and the low rate charged
represents an implicit reduction in the sale price. Since no adjustments are made to the sale price and the nominal interest rate, negative ex-post real interest may result.

In cases like these it seems preferable to adopt the Manual’s criteria and allow real interest to be negative if the nominal rate of interest is lower than the general inflation rate. In the same way that a positive flow of real interest payable by households decreases their disposable income, a negative one should increase it.