

Accounting for Interest Under High Inflation

By World Bank

For information

Background

It is common practice under conditions of high inflation to charge high interest rates or index the interest or principal of loans to a price index so as to build a protection against inflation into the terms governing the loans. The claim is that the ‘standard accounting’ in such situations gives an incorrect picture of the true incomes, expenditures, deficits, and savings because the inflation protection component (of the asset) is shown as increasing the creditor’s and reducing the debtor’s incomes, while the inflation protection component in reality is compensating for the creditor’s real capital losses.

The 1993 SNA paragraphs 7.109 – 7.111 discuss nominal and real interest. It notes that in “inflationary situations it is possible to view an actual payment of nominal interest as consisting of two elements: (a) a payment equal to the loss of purchasing power on the monetary value of the principal during the accounting period; and (b) the balance remaining that represents the real interest accruing to the creditor.”

Paragraphs 19.82 – 83 discuss if, when, how, and where in the system real holding gains can be implemented. ...“For this reason, the system recommends showing real holding gains and losses on monetary assets as memorandum items to the current accounts. Countries with high inflation would benefit greatly from following this procedure and, in addition, giving great emphasis to a careful scrutiny of holding gains and losses in the revaluation account. ... Going one step further, countries experiencing significant inflation may want to apply a parallel treatment of interest that gives a more meaningful picture of the economy under such circumstances. A possible such treatment is described in *Annex B* to this chapter.”

Annex B to chapter XIX in the 1993 SNA (*Annex B*) sets out a parallel treatment of interest in the national accounts for countries experiencing (high) inflation. In 1996, the OECD issued the *Manual on Inflation Accounting*¹ (*Inflation Accounting*), where a different treatment of interest under high inflation was proposed.

In response, for the 1998 IARIW conference, André Vanoli, the author of *Annex B* presented a paper² that questioned the treatment of interest under high inflation proposed in *Inflation Accounting*. These arguments were challenged by Peter Hill, the author of the

¹ Peter Hill, *Inflation Accounting, A Manual on National Accounting under Conditions of High Inflation*, OECD 1996.

² André Vanoli, *Interest and Inflation Accounting*, Review of Income and Wealth Series 45, Number 3, September 1999.

OECD-manual, in another paper³ prepared for the same conference. Consequently, the ISWGNA established an electronic discussion group (EDG) to promote further discussions of the issue, with a view to clarify and propose changes if needed to the 1993 SNA.

It was, however, not possible for the moderator of the EDG to forward any recommendation to the ISWGNA based on the limited discussion that took place in the EDG. This issue is therefore forwarded to the AEG for further considerations without any explicit recommendations.

The Disagreement

There are two main areas of disagreement between *Annex B* and *Inflation Accounting*; whether to record “real interest” or “interest prime” and whether it is possible to have nominal holding gains/losses on a loan or deposit denominated in local currency—the numeraire. The latter gives rise to a different recording in the sequence of accounts of the inflation protection component of the nominal interest.

Real Interest versus Interest Prime

Inflation Accounting and the main body of the 1993 SNA (paragraphs 7.109 – 7.111) uses the concept of Real Interest - the amount which has been or would have been necessary in order to ex post keep intact the purchasing power of the principal of the financial asset/liability to which the interest refers. Real interest thus defined could be either positive, zero or negative. It represent the amount that remains after deducting from nominal interest the component of protection needed against **actual inflation**.

Annex B acknowledges the analytical usefulness of real interest, but argues that it is not possible to record negative real interest in the current accounts, as it would introduce real holding gains and losses in the “transaction accounts,⁴” and argues that for that reason real interest does not correspond to a true (nominal) “primary income flow in the SNA sense,” if negative. For that reason, *Annex B* records, as interest in the current accounts under significant inflation the amount that remains, if any, after deducting from nominal interest the component of protection against **expected inflation** of the principal of the asset that is actually ex ante included in nominal interest. After such an adjustment,

³ Peter Hill, *Interest and Inflation Accounting (A Reply to the Paper by Andre Vanoli)*.

⁴ *Inflation Accounting* introduces the term transaction accounts for the set of SNA accounts that records transactions, that is the production accounts, the income accounts, the capital accounts, and the financial accounts, or put differently, the flow accounts excluding the other changes in assets accounts in which nominal and real holding gains are recorded. Used in this manner, transaction accounts encompasses, but differ slightly from, the 1993 SNA use of the term (SNA 2.94 and 2.151) as the “dummy accounts” that shows “for a given transaction or group of transactions (for example interest) resources and uses for each sector (or industry if relevant) engaged in this type of transaction... .” The goods and services account represent the classical example of a transaction account in the 1993 SNA use of the term. The *Inflation Accounting* use of the transaction accounts term seems to be a useful extension of the 1993 SNA use of the same term.

interest as a primary income flow in the SNA is positive or zero. It may not be negative. To distinguish this concept from the one of Real Interest, it was called Interest Prime.

The critical issue here seems not whether the after inflation protection interest to be recorded as (nominal) interest can be negative or not, but whether adjusting for **ex post actual inflation** instead of **ex ante expected inflation** introduces real holding gains and losses into the transaction accounts, and thus alter the fundamental SNA distinction between transactions and other flows. The basic accounting identity that for the transaction accounts total resources equals total uses (or total credits equals total debits) is observed in both the *Annex B* and *Inflation Accounting* as the amount deducted from nominal interest is recorded as a separate transaction; as an accelerated repayment of the (nominal holding gain/losses of the) principal in *Annex B* or as a capital transfer in *Inflation Accounting*. Vanoli's claim appears to be that under high inflation loan and deposit contracts has an implicit built in protection against ex ante expected inflation that it is legitimate to show in the accounts as a separate transaction, because it is a part of the ex ante loan agreement, while there is no implicit or explicit agreement for protection against the ex post observed inflation.⁵ Consequently, deducting from nominal interest actual inflation instead of expected inflation is equivalent to introducing real holding gains or losses in the transaction accounts. Hill obviously disagree with this view.

A separate issue is whether Interest Prime is an analytical useful concept, and thus, if Vanoli's formal argument is valid, whether adjusting for any implicit inflation protection of the principal is feasible in the central framework of the nominal SNA transaction accounts or whether this is better done in the form of memorandum items or as part of a real or "constant price level" satellite accounts, the latter as proposed in the *Inflation Accounting*.

Nominal Holding Gains on a Loan or Deposit Denominated in Local Currency

The *Inflation Accounting* argues that there can be no nominal holding gains on a loan denominated in local currency as the "price" of the numeraire cannot change, thus, there can be no nominal holding gains on holdings of nominal currency. Hill's argument is that one currency unit always is one currency unit, and cannot change value, even though the purchasing power of the currency unit might have changed over time.⁶ The main body of the *1993 SNA* agrees with the *Inflation Accounting* in this as (SNA 12.68) "...assets and liabilities denominated in purely monetary terms—such as cash and deposits—do not have physical units which prices can be associated. In such cases, the relevant "quantity" unit is effectively a unit of currency itself—e.g., one dollar—so that the price per unit is always unity. By definition, therefore, the market prices of such assets and their corresponding liabilities cannot change over time." The consequence is that there can be

⁵ Vanoli (Vanoli 1999, page 285) interprets Hill as implicitly agreeing with this view by arguing that "it is conceptually incorrect to regard non-interest bearing assets ... as paying negative real interest (Hill 1996, page 87)."

⁶ This is of course not the case for a loan denominated in foreign currency.

no nominal holding gains or losses on such assets. Real holding gains or losses are, of course, possible.

In contrast, *Annex B* proposes to record nominal holding gains on financial assets such as loans and deposits denominated in local currency terms. Vanoli argues that at least for index-linked loans **the loan itself may be viewed as the unit** and thus that the index linking arrangement represent a “price adjustment mechanism for the loan” as the loan will represent a changing number of units of the national currency in relation with inflation. He argues further that “this is equivalent to stating that the amount which is lent/borrowed at the beginning is not the volatile nominal value of capital at time 0. Instead it is its value in real terms (a “volume” of capital).” The interpretation of *Annex B*, according to Vanoli, is that for non-index linked loans and deposits there exists an implicit price adjustment mechanism. This, however, is clearly inconsistent with the quote above from *SNA* 12.68, which explicitly states that there can be no nominal holding gains on deposits, and by association on loans.

Adjustments to the Sequence of Accounts; Capital Transfers or Accelerated Repayment of the Principal

The set of accounts that records transactions (the transaction accounts) form an integrated interdependent system of accounts. It follows from the double and quadruple entry accounting principle on which the national accounts are based that items may be partitioned, reclassified, and moved from one part of the transaction accounts to another with out violating the basic accounting principle that for the transaction accounts as a whole total resources must equal total uses (or that total credits must equal total debits). Items can, however, not be moved from the transaction accounts to the other changes in assets accounts without violating that basic accounting principle. Transactions, however, can technically be partitioned into two or more components that are recorded in different parts of the transaction accounts. *Inflation Accounting* and *Annex B* both propose to partition nominal interest payments into two components, real interest or interest prime and an inflation protection component. The first component is proposed to be recorded as interest in the current accounts while the second as a separate transaction. They disagree, however, over the type of transaction the latter represents.

Annex B proposes to record the inflation component as an accelerated repayment of the (identical nominal holding gain/losses of the) principal. Introducing nominal holding gains or losses on loans (and deposits) allows for recording the inflation component in the financial accounts without violating the fundamental accounting identity that for each financial asset or liability the closing balance is equal to the opening balance plus any net acquisitions or other changes in the volume or value of the asset.⁷ By doing so, *Annex B* is able to obtain an inflation adjustment of net lending/net borrowing (or the “deficit” in traditional fiscal accounts).

⁷ Observe that *Inflation Accounting* and *Annex B* agrees that for loans denominated in local currency the opening and closing balance is equal in the absence of any regular repayment of the principle.

Inflation Accounting, in contrast, proposes to record the inflation component as a capital transfer to compensate the creditor for its real holding losses. Hill (1998)⁸ argues that the inflation component fits perfectly the concept of capital transfers in the SNA as set out in paragraph 10.141, which in his reading specifically states that payments of compensation for damage or losses not covered by insurance policies are to be classified under other capital transfers (D.99), and “since it is expected that the payment received will be used to acquire an asset to maintain the creditor’s real net worth and not be regarded as available for consumption (see par. 10.132. (In case of an index linked loan, the transfer is automatically reinvested in the loan.)” Transfers are defined as transactions in which one institutional unit provides a good, service or asset to another unit without receiving from the latter any counterpart in the form of a good, service or asset. Hill claims that the argument that a “payment made to the creditor cannot be a transfer because there is a counterpart in the form of a holding gain is quite spurious,” because holding gains can not be counterparts.

Other Issues

Vanoli argues that the treatment proposed in *Inflation Accounting* gives a distorted picture under high inflation for two main reasons. First, because financial instruments denominated in foreign and local currencies are treated differently in that for the former nominal holding gains are feasible while *Inflation Accounting* does not allow for nominal holding gains for local currency denominated loans. Second, because no adjustments are made to net lending/net borrowing and as a result, net government borrowing in *Inflation Accounting* “mixes together current borrowing due to the government’s policy of the accounting period and the mechanical increase in the public debt resulting from the indexation of past borrowing.”

For the AEG to consider

- (i) Revise *1993 SNA* to implement more clearly Vanoli’s approach as described in *Annex B* (Interest prime and nominal holding gain)
- (ii) Revise *1993 SNA* to implement Hill’s approach as described in *Inflation Accounting* (Real interest and capital transfers)
- (iii) Do nothing, as the parallel treatment of interest in *Annex B* may be regarded as only presenting a possible treatment that does not preclude other possible treatments, and not as a part of the central framework.

Annex

Assume the case where a loan is given in national currency units, value 1000. Expected inflation is 52, while actual inflation is 60 per cent. The interest rate is set at 55 per cent.

⁸ Peter Hill, *Interest and Inflation Accounting (A Reply to the Paper by Andre Vanoli)*, Page 10.

Below is an illustration of the differences among the three approaches, “the regular” 1993 SNA framework; the framework presented in *Inflation Accounting*; and the framework presented in *Annex B*. E.g., while nominal interest is 550, real interest is –50 (550-600) and interest prime 30 (550 -520).

Illustration of treatment following regular 1993 SNA, Inflation accounting and Annex B:

Income account(s)	<u>Regular</u>				<u>Inflation Accounting</u>				<u>Annex B</u>			
	Debtor		Creditor		Debtor		Creditor		Debtor		Creditor	
	U	R	U	R	U	R	U	R	U	R	U	R
Interest	550			550	-50			-50	30			30
<i>Primary income</i>	-550			550	50			-50	-30			30
<i>Disposable income</i>	-550			550	50			-50	-30			30
Capital account	Debtor		Creditor		Debtor		Creditor		Debtor		Creditor	
	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L
Capital transfer						-600		600				
<i>Net lending</i>	-550			550	-550			550	-30			30
Financial account	Debtor		Creditor		Debtor		Creditor		Debtor		Creditor	
	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L
Cash	-550			550	-550			550	-550			550
Loan										-520		-520
<i>Net lending</i>		-550		550		-550		550		-30		30
Revaluation account	Debtor		Creditor		Debtor		Creditor		Debtor		Creditor	
	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L
Nominal holding gains/losses			0	0			0	0			520	520
Real holding gains/losses			-600	-600			600	-600			-80	-80
Neutral holding gains/losses			600	600			-600	600			600	600
Balance sheet (beginning of peiod)	Debtor		Creditor		Debtor		Creditor		Debtor		Creditor	
	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L
Cash	C ₀			C ₀	C ₀			C ₀	C ₀			C ₀
Loan		1000	1000			1000	1000			1000	1000	
Balance sheet (end of peiod)	Debtor		Creditor		Debtor		Creditor		Debtor		Creditor	
	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L	δ A	δ L
Cash	C ₀ -550			C ₀ +550	C ₀ -550			C ₀ +550	C ₀ -550			C ₀ +550
Loan		1000	1000			1000	1000			1000	1000	

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