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HOW TO TREAT NON-PRODUCED ASSETS AND EXCEPTIONAL EVENTS IN THE NATIONAL ACCOUNTS? CONSIDERATIONS ON THE VARIATIONS IN WEALTH ACCOUNTING

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National accounts should not be content with recording flows, but should also record wealth. To describe the latter, it is essential to form an exhaustive accounts framework to analyze the changes in the value of wealth in successive years.

One of the difficulties most felt in this field is the insufficiency of the "flows" to describe the changes in natural wealth and in particular mineral deposits. When mineral deposits are discovered, the find is not valued, and when the find is exploited the value obtained is described without noting the decrease in the resources.

The discussions engaged in to date, particularly regarding the revision of the SNA, usually proposed to enter these elements directly into the calculation of annual incomes. However, economic analysis, as well as accounting constraints (incomes directly or indirectly issue from production), would then make it necessary to modify the scope and significance of the concept of production. In addition, the consequences on economic indicators linked with production, for example productivity indicators, are considered unacceptable. Finally, the current range of treatments used for non-produced wealth has proved insufficient for developing a usable practical solution.

In this paper we propose an approach, but no totally developed solutions. In the first part we examine the present configuration of the SNA and complementary manuals. In the second part we propose a structuring of the value of wealth in year $n-1$ to that of year n. The structure obtained does not modify the definition of production, but allows for calculating aggregates, thus completing the present income and wealth aggregates. In the third part, elements of analysis of the capital gains and losses are proposed.

THE PRESENT CONFIGURATION

The present version of the SNA proposes a capital finance account for each institutional sector, which describes how the flows deriving from production and

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capital transfers received and paid modify a sector's wealth. This account shows the actual flows of purchases and sales of assets affecting wealth. It is not limited to assets derived from production (or imported), since it is necessary to take account of all transactions to obtain coherence with the financial operations.

This account is presented as follows, for a given sector:

TABLE 1

ACCOUNT 5—CAPITAL FINANCE ACCOUNT

5.2.5.	Increase in stocks	5.7.1.	Saving (A 3.7.1)
5.2.6.	Gross fixed capital formation	5.3.3.	Consumption of fixed capital
5.7.4.	Purchases of land, net	5.7.6.	Capital transfers, net
5.7.5.	Purchases of intangible assets, net, n.e.c.		
5.7.8.	Net lending (A 5.7.9)		
	Gross Accumulation		Financing of Gross Accumulation
5.8.1.	Gold	5.7.9.	Net lending (A 5.7.8.)
5.8.2.	Currency and tranferable deposits	5.9.7.	Short term loans n.e.c.
5.8.3.	Other deposits	5.9.8.	Long term loans n.e.c.
5.8.4.	Bills and bonds, short term	5.9.11.	Trade credit and advances
5.8.5.	Bonds, long term	5.9.12	
5.8.6.	Corporate equity securities, including capital participations	and 5.9.13.	Other liabilities
5.8.7. and 5.8.8.	Loans, n.e.c.		
5.8.9.	Net equity of households on life insurance reserves and on pension funds		
5.8.10.	Proprietors' net additions to the accumulation of quasi-corporate private enterprises		
5.8.11.	Trade credit and advances		
5.8.12. and 5.8.13.	Other financial assets		
	Net Acquisition of Financial Assets		Net Lending and Change in Liabilities

Note: The actual list of assets and liabilities varies according to institutional sector.

However, the gross accumulation derived from this account does not completely represent the variation of the wealth of the sector during the period. Certain items described in the "Provisional international guidelines on the national and sectoral balance-sheet and reconciliation accounts of the system of national accounts" must be added to the annual flows (UNO, Statistical Papers, Series M, No. 60).

These items are presented as follows:

TABLE 2

CLASSIFICATION OF ITEMS OF RECONCILIATION ACCORDING TO CAUSE
(M.60, Table 7.1)

13.1. Revaluations due to price changes
- 13.1.1. Market prices
- 13.1.2. Replacement costs
- 13.1.3. Rate of discount or capitalization factor
- 13.1.4. Foreign currency exchange rates

13.2. Issue of IMF special drawing rights

13.3. Adjustments in respect to unforeseen events
- 13.3.1. Unforeseen obsolescence
- 13.3.2. Differences between allowances included in capital consumption for normal damage to fixed assets and actual losses
- 13.3.3. Transfers to net equity of households on reserves of life insurance and pension funds
- 13.3.4. Uncompensated seizure of assets

13.4. Net changes in value of tangible assets not accounted for in the capital finance accounts

- 13.4.1. Natural growth less depletions
  - 13.4.1.1. Breeding stock, draught animals, dairy cattle and the like
  - 13.4.1.2. Timber tracts and forests
  - 13.4.1.3. Plantations, orchards and vineyards
  - 13.4.1.4. Fisheries
- 13.4.2. New finds less depletions of subsoil assets
- 13.4.3. Losses in land and timber tracts in catastrophies and natural events

13.5. Adjustments due to changes in structure and classification
- 13.5.1. Changes in the institutional sector or subsector of owners
- 13.5.2. Acquisition or divestment of subsidiaries and consolidation or decomposition of statistical units for other reasons
- 13.5.3. Changes in the classification of entries

13.6. Termination of purchased patents, copyrights, trade marks, etc.

13.7. Statistical discrepancies and discontinuities

All of these elements affect the change in wealth, but their justification may vary.

In certain cases, the existence of the item is the consequence of pure measurement problems: thus the natural growth of "breeding stock, draught animals, dairy cattle and the like" (item 13.4.1.1.) should be described in the flows of the present SNA. However, this is not the case in general for practical reasons. In other cases, it is an issue that has not been resolved: the natural growth of forests is not described in production; nor is the consequence of their felling. Yet there is nothing which indicates that this is a conceptual choice or a matter of practical reasons similar to those concerning animals. In the case of mineral or energy deposits for example, the agents concerned perceive their discovery as an increment in wealth and their mining or tapping as progressive depletion, but their non-description in flows does result from a choice.

The "revaluations due to price changes" describes general price rise movement which does not necessarily affect the variation of real wealth, except in the

case of non-remunerated monetary assets and specific relative price variations which create "real" increases or decreases in wealth. Finally, there are pure adjustments such as the changes in the classification of items and statistical discrepancies and discontinuities.

In addition it should be noted that the description of copyrights and patents, etc. allows for the phasing out of purchased assets, does not allow the identification of these assets when they are created despite the fact they are beginning to appear in company balance-sheets (cf. software). Nor does it allow identifying them at the seller's, if he has created them himself, except by means of the "statistical discrepancy" item.

A Reexamination

We propose to analyze again the overall variations in wealth. First, we will reconsider the general structure of assets and liabilities. Then we will take another look at the types of operations or events which contribute to the variation of these assets and liabilities. After this we will ask ourselves about the articulation between the movements concerning these assets and liabilities and the national accounts sequence.

General Structure of Assets and Liabilities

The SNA and M.60 distinguish:
—reproducible tangible assets;
—non-reproducible tangible assets;
—non-financial intangible assets;
—financial assets and liabilities.

We do not have much to say about financial assets and liabilities in the context of this article, except to recall that in the SNA conventionally all liabilities are financial. This is not the case in real life. In societies where vendettas are current, individuals may have a "blood debt," not at all financial in nature, with respect to their family, clan or group of another type, and the members of the group consider they actually have a claim against them. We admit that it is not a matter of economic liabilities here, and that from the moment that a liability is or becomes economic, a financial debt comes into play. More pertinent for the national accounts purpose is the existence of contingent liabilities related for example to guarantees, endorsements, etc., which can be given by one economic agent to another. Their frequency has considerably grown up in the recent past. Written "off balance sheet" in the accounts of economic agents, these contingent liabilities (contingent assets are also to be considered) do not constitute financial liabilities in the sense of the 1968 SNA. Their inclusion there could be envisaged, not of course for their gross amounts, but for the (present) value of the risks taken. The difficulty then would be to enter their counterpart. Logically, the latter should be constituted by a corresponding reduction in the value of the liabilities of the group of economic agents benefiting from the guarantees considered, but this treatment is inapplicable in practice. Failing this, we should think about creating a specific category of "quasiliabilities." Anyhow, it is important to be

provided with corresponding information as well as that relating to certain types of provisions, especially for bad debts which for the same reason of asymmetry between the lenders and the debtors are eliminated from the wealth accounts.

Concerning non-financial assets, we do not question the usefulness of the SNA classification, even if, as can be seen with the categories "cultivated land" (non-reproducible asset) and "land improvement" (reproducible asset), the conceptual criterion of reproducibility creates a few application problems, and even if the nature of the non-financial intangible assets is defined in a doubly negative manner. We believe that from the point of view of the SNA general structure, the distinction between produced assets and non-produced assets present a valid description. "Produced" are understood here as "produced in the national accounts sense" (as the latter's notion of production can be given more or less broad meanings, let us choose that of the 68 SNA for our purpose). A produced asset is fully described for entry in the framework of the SNA operations: it can be produced or imported, stocked, invested or exported, possibly consumed (in the sense of fixed capital consumption), bought and sold as a secondhand good (and reinvested or finally consumed); it appears among the assets of the wealth accounts; it can be accidentally destroyed or scrapped, etc. If economic life concerned only produced assets, things would be relatively simple. Matters become complicated in fact because non-produced assets (land, mines, patents, trademarks for example) sometimes appear in the wealth of economic agents and can be the subject of transactions.

In the 1968 SNA and M.60, all the produced assets are tangible assets (reproducible in general, the separation between reproducible and non-reproducible not being clear a posteriori in certain cases). Within the framework of the SNA revision, the way will probably be opened up for the production of intangible assets (such as software, unless the latter is considered as tangible, mining exploration expenditure and all or part of research and development expenditure in particular). The production of an asset in the national accounts sense can associate the work of nature with human activity. Stocks of agricultural products in general and fixed capital in cattle are in 1968 SNA.[1] In contrast, the SNA does not include natural growth in the production of assets constituted of plantations, orchards, vineyards and timber tracts. We do not believe these should be excluded. Produced assets can thus cover tangible assets, including assets partly produced by nature, and intangible assets.

Non produced assets, always non-financial assets are all the others. They can be grouped in five categories:

—rights which are not the counterpart of liabilities (non-financial intangible assets of the 1968 SNA);
—subsoil resources;
—physical environments and living organisms (ecosystems);
—human resources;
—intangible cultural assets (in the broad sense).

[1]According to M.60 (Paragraph 7.11) only the initial outlay for cattle acquisition is included in the formation of the fixed assets of the SNA; to our mind, this interpretation does not seem correct.

The first category calls for a brief comment. The SNA includes in it, in particular, patents, copyrights, trademarks, rights to exploit mining fields and fisheries, leases concerning land, etc. The list is not restrictive. The item can cover, for example, the sums paid by one sports club to another to obtain the transfer of a professional player.

Operations and Events which Make Assets and Liabilities Vary

We now describe variations in wealth. In other words, everything which explains the changes of wealth at the end of year $n-1$, at the prices of the end of this year, to the wealth at the end of year n, at the prices of the end of that year.

1. *Transactions (purchases/sales, gifts)*

To simplify let us equate with transactions all the stock entries/exits other than those due to wear and tear and destruction.

2. *Own account-production*

3. *Fixed capital consumption*

We use here the present SNA definition which includes the average value of expected accidental damage.

4. *Creation or appearance of assets otherwise than by production and the corresponding consumption*

Most transactions concern produced assets (within or outside the economy considered). The goods concerned are created at the time of the production. Some transactions however concern non-produced assets (patents, trademarks, for example). In one way or another they must be made to appear so that they can be the subject of transactions. Apart from this, wealth in non-produced assets (non-cultivated natural resources or subsoil assets for example) varies irrespective of any transaction. Though creation/appearance and consumption are grouped in this description, the events leading to an increase in wealth should in practice be distinguished from those leading to a decrease.

5. *Revaluation*

The value of assets and liabilities changes as a function of the movement of prices between the end of year $n-1$ or the subsequent date of entry into wealth, and the date of exit from wealth during the year or on December 31 if the asset/liability is still there. It is fundamental to distinguish the effect of the changes in the general price level from the effect of the changes in relative prices (difference between the effect of the change in the general price level and the effect of the change in the specific prices of the assets/liabilities considered). We will refer back to this point.

6. *Adjustment of fixed capital consumption*

The calculation of fixed capital consumption takes account of average life durations. Any discrepancy between these average durations and the actual life durations should in principle be the subject to an adjustment since the inventory value of assets has to take into account effective life durations. M.60 refers to two elements here:

—unforeseen obsolescence;

—the discrepancy between the "risk" element of fixed capital consumption and the actual losses[2] of the period; this discrepancy exists individually in any hypothesis, even if balance is achieved globally.

The following should also be added,

—replacing in activity totally consumed assets (through fixed capital consumption) or assets having previously become obsolete.

In the three cases, we are presented with a posteriori revaluation of the fixed capital consumption of the prior periods (including the current year).

7. *Capital gains or losses on disposal of or scrapping of assets*

Supposing these corrections are made, the inventory value (in the national accounts sense) will not necessarily coincide with the selling price in case of resale or scrapping (price of scrap iron). In principle those capital gains or losses must be taken into account, as in the case of company accounts, but under the assumption of a revaluation of assets.

The disposal capital gains or losses are equal to the difference between the actual value of the disposals (sales or benefits for claims in case of destruction of insured goods) and the "national accounts" residual value. M.60 does not allow this element to be taken into account in its Table 7.1, thus implicitly assuming that it is part of the revaluation. However, this would be the case only if the national accounts residual values were based on "true" market (or insurance) residual values of assets. Similar gains or losses can also occur on some financial assets when market prices are not available for their revaluation.

8. *"Assetization" of previously consumed durable goods*

Wealth value can be modified for example if some consumer durables, while being treated as consumption expenditure, are afterwards directly included in household balance sheets.

9. *Destruction or wear and tear of stocks by insurable risks*

These should not appear in the changes of stocks of the capital account unless they are included in intermediate consumption or deducted from output. They would unbalance this account if they were treated as equivalent to sales of stocks.

[2]Measured at the residual value according to national accounts, i.e. the difference between the revaluated initial value and the accumulated and revaluated fixed capital consumption. The actual losses do not appear except as an element of the adjustment of the fixed capital consumption due to the SNA definition of the latter (see above point 3). If the fixed capital consumption was to exclude the "risk" component, then the losses would directly appear as a factor of the assets variation.

10. *Destruction of assets by non-insurable risks*

These destructions can derive from natural catastrophes or political events (such as wars, demonstrations, etc.).

11. *Uncompensated seizures*

In case of compensation representing only part of the value of an asset, the non-indemnified part should be taken into account. In case of uncompensated seizures of financial assets, the corresponding liabilities should be noted (debt repudiation).

12. *Changes in classification*

Changes in classification do not normally affect the global consistency of national wealth, but they can modify its breakdown:

—between the institutional sectors or subsectors, in case of transfer of an institutional unit from a sector or subsector to another (e.g., unincorporated enterprise registering as corporation);

—between the various categories or sub-categories of assets or liabilities (for example in M.60 possibly between the "improvement of land" and "development of plantations" items and the "cultivated land" item. The first two items can be considered as linkage items between the classification of gross fixed capital formation and the classification of assets)

In Table 3, we cross-classify the main categories of assets and liabilities which have been distinguished and the factors making assets and liabilities vary.

We do not affirm that the previous list is exhaustive. For example, it could include the transfer of capital gains or losses to insured households by life-insurance companies or pensions funds. This would comply with what M.60 prescribes in some cases, if these gains/losses are not directly assigned to the equity of households at the precise time of the revaluation of the corresponding assets, or if the further assignment is not classified as capital transfer. Moreover, we have not treated the possible entries that could be added if certain solutions relating to shares and the net worth of incorporated enterprises were adopted.

Likewise we have not systematically explored the content of each of the factors of variation of wealth that we have presented. For example, the "goodwill" item, which appears in companies balance sheets when subsidiaries have been bought at a price exceeding the market value of the revaluated net assets, could be treated in the same way as patents, trademarks, i.e., as are other non-financial intangible assets that are subject to transactions, on the lines 1 and 4 of our table (at least when the companies have merged or when they present consolidated accounts).

Articulation With the Sequence of Accounts

Let us first consider produced assets. We could enter all the movements concerning the latter in a single "variations in wealth account." Furthermore, if we assume that there are only produced (non financial) assets, all the financial

TABLE 3

FACTORS OF VARIATION OF WEALTH

TYPES OF ASSETS / WEALTH VARIATION FACTORS	PRODUCED ASSETS (tangible and intangible)	FINANCIAL ASSETS/ LIABILITIES (as a reminder : off balance sheet liabilities or quasi-liabilities)	NON PRODUCED ASSETS				
			Non financial intangible assets (patents, leases, trademarks, etc...)	Subsoil resources	Physical environments and living organisms (ecosystems)	Human resources (reminder)	Other intangible assets (reminder)
1. Transactions (purchases, sales, gifts)	Acquisitions/ resales of produced fixed assets Entries/exits of stocks	Acquisition/ redemption of assets Incurrence/ refunds of liabilities	Acquisitions/ sales of patents, leases, trademarks, copyrights, etc..	Acquisitions/ sales of subsoil reserves	Acquisitions/ sales of land, etc...		
2. Own account production	Own account fixed capital formation						
3. Fixed capital consumption	F.C.C.						
4. Creation/ appearance of assets otherwise than by production and the corresponding consumption			Appearance of patents, trade-marks,etc... (1st transaction) End, termi-nation of patents, trademarks, etc...	Discovery of exploitable resources Variation of the exploitabi-lity level : - Technological change - Changes in prices Depletion of resources	Natural growth (net) Depletions Changes in ecosystem characteristics Appropriation of environments (1st acquisition)		
5. Revaluation Effect of change in specific prices including - Effect of change in the general level of prices - Effect of change in rela-tive prices							
6. Adjustment of fixed capital consumption	Unforeseen obsolescence Discrepancy between the "risk" component of F.C.C. and the actual losses of the period Placing back in activity of total-ly consumed assets or assets having previously become obsolete						
7. Capital gains or losses on disposal/ scrapping of assets	Transaction value National accounts residual value Capital gains or losses (NB : historical monuments)						
8. "Asectization" of previously consumed dura-ble goods							
9. Destructions or wear and tear of stocks by insurable risks							
10. Destructions of assets by non insurable risks : - natural catastrophes - political events		(reminder)					
11. Uncompensated seizures		Seizures of financial assets Repudiated debts Uncollectable debts	Frauds on patents licences, trade-marks (reminder)				
12. Changes in classification - changes in sector - changes in the nature of assets or liabilities							

assets and liabilities movements would be related to non-wealth flows, or produced asset flows, or other financial flows.

This variations in wealth account could be presented as follows (the various types of assets and liabilities being duly subdivided):

TABLE 4

VARIATIONS IN WEALTH ACCOUNT

(in the absence of non-produced assets)

	Changes in Assets		Changes in Liabilities
	Non-financial Assets	Financial Assets	Financial Liabilities
Stock entries	+		
Stock exits	−		
Fixed assets acquisitions	+		
Resale of fixed assets	−		
Fixed assets own-account production	+		
Acquisitions of financial assets		+	
Redemption of financial assets		−	
Incurrence of liabilities			+
Refund of liabilities			−
Fixed capital consumption	−		
Revaluation			
effect of change in the general price level	+	+	+
	−	−	−
effect of change in relative prices	+	+	+
	−	−	−
Fixed capital consumption adjustment	+		
	−		
Capital gains or losses on disposal/scrapping of assets	+		
	−		
"Assetization" of previously consumed durable goods	+		
Destruction or wear and tear of stocks by insurable risks	−		
Destruction of assets by non-insurable risks[3]			
natural catastrophes	−	−	−
political events	−	−	−
Uncompensated seizures	+	+	
	−	−	−
Changes in classification	+	+	+
	−	−	−
Change in net worth			+
			−

[3]For financial assets and liabilities: notes or bearer securities destroyed in a fire, for example.

The change in net worth is equivalent to the sum:

—of the net saving, i.e., the balance of all the distribution and redistribution operations of income deriving from production (within or outside the economy considered) and final consumption;

—(net) capital transfers, if applicable;
—a third component deriving from the balance of movements appearing in the second part of the variations in wealth account (revaluation, etc.).

The common characteristic of the values generated by these movements is that they do not derive from production, that is from the value added by production and distributed or redistributed.[4] We will call them *non-produced values.* Here they are non-produced values relating to produced assets or financial assets/liabilities. They are gains or losses which do not derive from normal operations of the period and which are generally called "extraordinary gains or losses" in business accounts.

To get back to the SNA familar accounts (capital finance account), the single variations in wealth account presented above merely has to be partitioned. We then obtain for example:

TABLE 5

VARIATIONS IN WEALTH ACCOUNT

(Produced assets)

Capital finance account

Changes in Stocks	Net Saving
Gross Fixed Capital Formation[5]	Consumption of Fixed Capital
	Capital Transfers Received (net)
Net Lending	
Net acquisition of financial assets	Net incurrence of liabilities
	Net lending

Non-Produced Values Account

Revaluation (+ or −)	
Adjustment of the residual value of assets (+ or −)[6]	
Destruction of wear and tear of stocks by insurable risks	
Destruction of assets by non-insurable risks (−)	
Uncompensated seizures (+ or −)	Change in non-produced net worth

Non-produced assets will now be discussed. We will leave aside both human resources which, within the framework of the SNA conventions, call for complete treatment in satellite accounts, and also intangible cultural assets which have been scarcely noted until now in the wealth perspective.

The other non-produced assets are sometimes the subject of transactions. If the asset sold is entered in the opening wealth (cultivated land), there is no problem. If this asset does not appear in the opening wealth (as with non-financial intangible assets in the SNA sense, identified upon the first transaction concerning them), its creation ex nihilo must be accounted for, as a counterpart for its sale,

[4]Sector or asset/liability changes in classification are elements of adjustment which finally do not represent a variation in wealth net worth.

[5]We do not record purchases of land or intangible assets n.e.c., since we have supposed, for the time being, that such assets do not exist.

[6]Sum of adjustment of fixed capital consumption and capital gains or losses on disposal/scrapping of assets, "assetization" of consumed goods (+ or −).

otherwise the seller would sell something which he does not have.[7] When these rights lapse, their phasing out of existence must also be shown.

Furthermore, if we can measure them, we can show the discoveries of new subsoil resources or the change in the level of exploitability and the decrease in the stock of exploited resources. Similarly, the natural growth of ecosystems, depletions, changes in their characteristics, etc. can eventually be shown.

We then have the following variations in wealth account for non-produced assets.

TABLE 6

VARIATIONS IN WEALTH ACCOUNT

(*Non-produced assets*)

Capital finance account

Purchases of Land (net) Purchases of Non-Financial Intangible Assets (net) Net Lending (sellers)	Net Borrowing (buyers)
Net acquisition of financial assets Net borrowing (buyers)	Net incurrence of liabilities Net lending (sellers)
Non-Produced Values Account	
Revaluation (+ or −) Creation of assets otherwise than by production, and the corresponding consumption (+ or −) Destruction of assets (−) Uncompensated seizures (+ or −)	Change in non-produced net worth

We can now combine the accounts drawn up successively for produced and non-produced assets:

TABLE 7

VARIATIONS IN WEALTH ACCOUNT

Capital Finance Account

Changes in Stocks Gross Fixed Capital Formation Purchases of Land (net) Purchases of Non-Financial Intangible Assets (net) Net Lending	Net Saving Consumption of Fixed Capital Capital Transfers Received (net)
Net acquisition of financial assets	Net incurrence of liabilities Net lending
Non-Produced Values Account	
Revaluation • effect of change in the general price level (+ or −) • effect of change in relative prices (+ or −)	
Creation of assets otherwise than by production	Consumption of non-produced assets Destruction and wear and tear of stocks by insurable risks
Adjustment of the residual value of assets (+ or −)[8] Uncompensated seizures (+)	Destruction of assets by non-insurable risks Uncompensated seizures (−) Change in non-produced net worth

[7]Of course, if such assets where included in wealth as soon as they were created, independently of any transaction, the recording mentioned in the text would take place at that moment.

[8]Under this heading we group factors 6, 7 and 8 of variation in wealth.

The non-produced values account thus comprises both non-produced value movements concerning produced assets and value movements (non-produced by hypothesis) concerning non-produced assets.

In the present SNA, the non-produced values account constitutes the largest part of the reconciliation account (see M.60 Table 7.1, Table 2 in this article). Proposals have been made (see for example Nancy D. Ruggles: Financial Accounts and Balance Sheets: Issues for the Review of S.N.A.) to include part or all of its content in the capital finance account.[9]

To a certain extent doing so is no problem. Since the whole set constitutes the variations in wealth account, everything which constitutes wealth in one manner or another is broken out for entry in this account. The breakdown of the latter into sub-accounts is indeed a very open question, which can be given various answers. The purchases (net) of land and non-financial intangible assets are already placed by the SNA in the higher part of the capital finance account, because they are market transactions bringing about a change in net lending and, correlatively, financial assets and liabilities. To a certain extent, it is already a matter of "reconciliation" operations with respect to the "normal" sequence of economic operations described by the national accounts. The items relating to non-produced values could be placed back "at the top," a "change in non-produced net worth" counterpart being introduced to take account of the fact that the movements considered do not have an incidence on net borowing or lending.

A remark must be made in relation to this last point. It could be objected that since (cf. the general Table 3, page 171) the unilateral non-collectibility of debts, whether explicitly repudiated or not, has been placed among uncompensated seizures, a change in assets and liabilities can appear in the finance account if the cancelled debts are entered in the variations in this account. A statistical adjustment thus exists between the net borrowing or lending and the net change in financial assets and liabilities. In the context of the SNA revision, the position adopted beforehand consists in distinguishing between the cancellation of debts which were the subject of an agreement between the creditor and the debtor—a counterpart would in this case be entered in the capital transfers—and the unilateral cancellation of debts with a counterpart entered in the reconciliation account. In this second case, a statistical imbalance appears between the two parts of the capital finance account. To make it disappear, in the present SNA framework there are two possibilities: either the unilateral cancellation of debts is included in the higher part of the capital finance account in a sub-category of capital transfers (or in a specific item), or else the corresponding changes in assets and liabilities are excluded from the second part of the capital finance account and placed only in the reconciliation account.

This long digression over, let us now come back to our main topic. There is really no definite argument against mixing what we have called the non-produced values account (in other words the main part of the M.60 reconciliation account) with the capital finance account. However, should this be done? Let us set aside the measurement difficulty argument, which is very real for many items,

[9] *The Review of Income and Wealth*, March 1987.

but which does not alone control the solutions chosen in a long-term accounting system. Truly, the effective calculation of these items would only be partial and would vary from one country to another for a very long period. The disadvantage would be minor only insofar as, clearly isolated and designated and including a counterpart of an equivalent amount, these items would not hamper the analyses and comparisons. Those who propose the integration solution use a similar consideration, but draw an opposite conclusion. If the difficult to measure items are not placed in an account considered as having a high priority ranking, then scant efforts will be made to measure the underlying magnitudes. The argument is not unfounded and it shows that national accounts are widely underdeveloped in most countries and nowhere totally developed.

For our part, we believe that it is preferable to distinguish the non-produced values account, provided it is given conceptual consistency which the present reconciliation account does not have, and as long as it is clearly shown that the SNA framework includes a variations in wealth account which comprises the non-produced values account, the financial account and the present capital account (whose name should be changed).[10]

Regardless of the possible presentation variations, to our mind the variations in wealth account enables us to address more explicitly the question of the relation between income and wealth in the national accounts. The SNA implicit hypothesis is that non-produced value movements and capital transfers do not influence the measurement of the net disposable income defined as the sum of the final consumption and net saving. It follows that net saving is not equal in the national accounts to net change in wealth and that income is not what can be consumed without tapping one's wealth.[11] The SNA therefore does not follow either the wisdom of nations, which readily speak of "consuming one's wealth" or "consuming one's capital" with reference to spendthrifts, or economists who have drawn up and perfected a common notion of income.

Reference to Hicks is essential here: "we ought to define a man's income as the maximal value he can consume during a week and still expect to be as well off at the end of the week as he was at the beginning".[12] In this commonplace form, it is nothing more than the wisdom of nations, or else for example Adam

[10]The respective positions of the financial account and the non-produced values account are conventional. They could be reversed with respect to the presentation made above. The best solution, but this would probably change habits too much, would be to place the non-produced values account first by including in it the purchases (net) of land and non-financial intangible assets, which would make a balance (net) to be financed appear in this account. Placed last, the balancing item of the financial account would then be equal, leaving aside the statistical adjustment, to the total of the balances (net) to be financed of the "capital" account and the non-produced values account.

[11]It should also be recalled that consumer durables (households, military goods) do not appear in wealth in the SNA sense; so wealth does not include everything that, at a given point of time, is available for the future. As regards households (military forces raise more complex problems which have not been discussed in this paper), the exclusion of durables which are actually consumption goods does not matter very much; to give the value of the stock of these goods as a complementary item can be considered sufficient. On the contrary, some durables are acquired and held exclusively or essentially as reserves of value (gold and other precious metals, precious stones, antiques, etc.). Except accidentally, they do not disappear progressively when using them. They can be thought of as "financial investment goods." It certainly would be wise to exclude them from consumption and to put the corresponding flows in the capital account.

[12]Value and Capital, Second Edition, chapter XIV, p. 173, Oxford University Press, England.

Smith quoted by Schumpeter:[13] "neat revenue" was what people, individually and collectively, "without encroaching upon their capital... can... spend upon their subsistence, conveniences and amusements" (*Inquiry*, Tome 2, chapter 2). But the Hicksian notion comprises many refinements. It is only in *ex ante* forecasting (short-term) that it is useful to theoretical economists since it is then revealing from the point of view of behaviour. The wealth referred to is the "capitalized money value of the individual's prospective receipts" or the individual's gain expectations. Expectations concerning changes in the interest rate and in prices intervene. The sum of the incomes of individuals understood that way does not make any sense except arithmetically since "income is a subjective concept dependent on the particular expectations of the individual in question" (p. 177), which do not have any reason to tally with the expectation of any other individual. If the forecasts do not come true, the "value of his (the individual's) prospect at the end of the week will be greater or less than it was expected to be, so that he makes a "windfall" profit or loss" (ibidem p. 178). In addition, in order to neutralize the effect of fluctuations in receipts, Hicks defines an individual's income as "some sort of standard stream of values whose present capitalized value equals the present value of the stream of receipts which is actually in prospect" (p. 184).

Economic definitions on one side, accounting measurements on the other side (in the national accounts, but also in accountancy more generally), thus appear irreducible. The absence of a link would be total if Hicks did not recognize that ex post income notions have great usefulness, in particular as a convenient measurement of economic progress, which grants them a specific place in economic and statistical history. Furthermore macroeconomics and econometrics have developed approaches and techniques which enable making the theoretically imperfect magnitudes constituted by income and saving, in the SNA sense, "say" things, about the behaviour of economic agents. The debate therefore cannot be avoided by advocating the "lack of a bridge." The national accounts are indeed confronted, if not really with the Hicksian notion of income, for the reasons stated, at least with that of common sense.

The SNA net saving, as recalled previously is not equal to the net change in wealth. Its relation to wealth is defined as follows

net saving = net change in wealth
plus capital transfers (net) paid
less change in non-produced net worth.

If we wish to introduce into the SNA a "quasi-Hicksian" concept of income, we are faced with the following alternative:

—either we include in the current flows of the period ("current" means here the flows of the production and income and expenditure accounts in the sense of the 1968 SNA) capital transfers and operations making the non-produced net worth vary (the variations in wealth account is then reduced to the present capital finance account after elimination of the capital transfers item);

[13] *History of economic analysis*, p. 628.

—or else we consider that the central concept of income in the national accounts is, by nature, different from the "quasi-Hicksian" concept and that the latter can be applied only to the set constituted:

- by the accounts of the "normal" operations of the period accounted for in the production and income and expenditure accounts;
- and by an "extraordinary" operations account covering the non-produced values account and possibly capital transfers.

This does not mean that putting something in either the normal ("current") or extraordinary operations makes no difference. A satisfactory solution has to be found for the difficult problem raised by the treatment of:

(a) direct indexation of financial assets and liabilities,
(b) their indirect indexation through an actual amount of "something" explicitly directed to the compensation of inflation,
(c) their implicit indexation by means of the component "compensation for inflation" of undifferentiated rates of interest.

In effect, if an element of compensation for inflation remains included in the interests appearing in current flows, as presently in the national accounts, this means that current income, consequently current saving (according to the terminology used in the following pages), covers, for creditors, redemption of a part of their claims real value and is calculated, for debtors, after refunding a part of their liabilities real value.

Taking into account high inflation prevailing in a number of countries (anyway the problem in principle is the same everywhere and even low rates of inflation may influence the real value of very big amounts of financial assets and liabilities), the impact on the measurement of (current) income, (current) saving and net lending of institutional sectors can be very meaningful.

Of course, we cannot, in this paper, fully discuss this question.

Turning to the above alternative, a few observations are necessary at this stage. We make them on the assumption that the magnitudes in question are known or can be known. Considering the first part of the alternative, we ask ourselves about the additive quality of current economic life and extraordinary events. We could believe that Hick's analysis applies mainly to the former, but he refers explicitly to "windfall losses due to natural catastrophes and war" in one of his concepts of ex post income (cf. note 2, p. 180). And if we place ourselves from the pure point of view of wealth value, regardless of its concrete consistency, additivity cannot be discarded. However, analysts would probably not like simply substituting new concepts of income and saving for the present ones. They would probably wish to see a distinction made between several notions of income and saving. This would bring us back to the second part of the alternative, except for differences in presentation.

A specific problem arises in the revaluation of assets and liabilities. The first reaction is to exclude them from the "quasi-Hicksian" notion of income and saving. "Being as well off at the end of the week as [one] was at the beginnning," is being as rich in real terms. To consume the equivalent of the revaluation of one's assets would manifestly mean tapping one's capital. However these remarks must be qualified. Being as rich in real terms applies to the abstract global value of wealth. If the revalued value of the opening wealth of an economic agent

increases more than the general price level, we will say that this agent has grown richer and that an income is constituted in Hick's sense by the difference between the evolution of the revalued value of his wealth and the evolution of the latter if its value had been revalued in terms of the general price level. The economic agent could consume this difference while being as well off at the end of the period as he was at the beginning.[14] Conversely an economic agent obtaining a negative difference should, everything else being the same, reduce his consumption by an equivalent amount if he wishes to remain as well off at the end of the period as he was at the beginning.

A distinction must thus be drawn in the nominal capital gains or losses[15] between the two elements which we have isolated in our presentation of the variations in wealth account:

—capital gains or losses linked with relative price movements (real capital gains or losses calculated as the difference between the revaluation of assets/liabilities made with their specific prices (or by using specific price indexes) and the revaluation of the same elements obtained by using a general price index);[16]

—the effect of change in the general price level, which has just been described.

The sum of the two constitutes the revaluation, at specific prices, of the assets and liabilities. Only the first element represents in fact capital gains or losses, the second one corresponds only to maintaining wealth intact.

We might finally think about the following accounts (see Table 8), on the assumption of concurrent treatment of extraordinary operations.[17]

The sum of the current income and the extraordinary income corresponds to the "quasi-Hicksian" income, subject to the question of capital transfers. In a presentation of this type nothing would be against placing them in the extraordinary income account. However, this would mean that wealth donations do not "notionally" have the right to exist. In the case of households in particular, the question arises if accounts per category of households are drawn up or if life-cycle types analyses are made. The problem concerns more broadly "heritages" including deceased estates. A possible interpretation of SNA and M.60 would consist in saying that, were these flows known, they would be entered in the "changes in sector" item. However, this solution would not be correct since it is the assets/liabilities which are transferred from one institutional unit to another one (and possibly as a consequence from one sector to another) and

[14]Of course, prudence would require him to make sure about the stable nature of this gain.

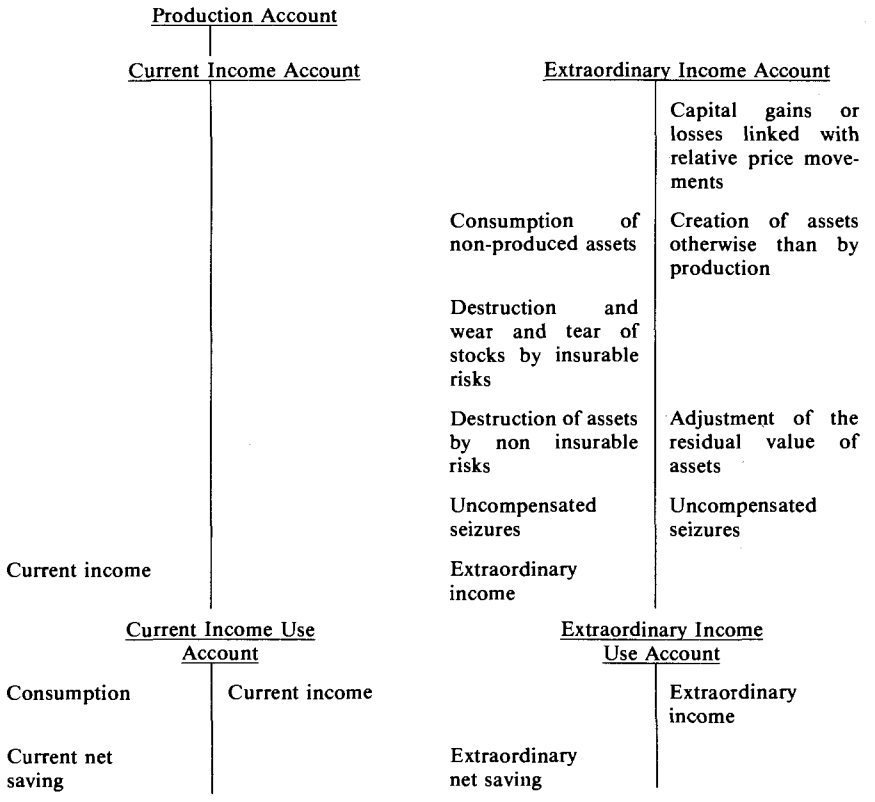
[15]Difference between the value of the assets/liabilities at their date of exit or at the end of a period and their value at the beginning of the period or their subsequent date of entry, these values being measured at the specific prices of each of the assets/liabilities at each of these dates.

[16]The choice of the general price level indicator will not be discussed in detail here: should it relate to the sole assets, or to goods and services (gross domestic product or gross national expenditure), or to this last set increased by non-produced assets which are the subject of transactions or else increased by all the non produced assets? Let us simply say that this indicator must be unique since it aims to measure the change in real value of money in general. Should it be chosen so that capital gains and losses compensate each other exactly? Not necessarily, for the same reason as that which requires it to be unique, this would lead to choosing in principle the widest possible cover indicator.

[17]We recall that throughout this paper the distinction current/extraordinary refers to the borderline of the production. Thus some elements of the extraordinary income account can be recurrent, such as the effects of relative price movements and the appearence of patents.

TABLE 8

PARALLEL SEQUENCES OF ACCOUNTS



Variations in wealth account

Opening assets	Opening Liabilities	Opening Net Worth
Changes in stocks		Current net saving
Gross fixed capital formation		+ Extraordinary net saving
		+ Capital transfers received (net)
Consumption of fixed capital (−)		= Net accumulation
Purchases of land(net)		+ Effect of change in the general price level
Purchases of non financial intangible assets (net)		= Change in net worth
Revaluation	Revaluation	
Creation of assets otherwise than by production		
Consumption of non-produced assets (−)		

TABLE 8—continued

Opening assets	Opening Liabilities	Opening Net Worth
Adjustment of the residual value of assets		
Uncompensated seizures (net)	Uncompensated seizures (net)	
Destruction and wear and tear of stocks by insurable risks		
Destructions by non-insurable risks (−)		
Net acquisition of financial assets[18]	Net incurrence of liabilities[18]	
Changes in classification[19]	Changes in classification	Changes in classification
Closing assets	Closing liabilities	Closing net worth

not the institutional units which change sector. It thus appears preferable to choose the solution appearing in the above presentation. In "quasi-Hicksian" terms this could be expressed in the following manner: "the income of an economic agent (of an institutional unit) is the maximal value which he can consume in the period without tapping his wealth, without prejudice however to the wealth transfers he can make or receive". If the beneficiary of such a transfer uses its amount to increase his consumption, this supplement is therefore not financed by income, but by a reduction in wealth. The person who makes the transfer does not undergo a reduction in income.

The accounting framework we propose is independent from the precise production concept. If the latter was modified to include the creation of assets at present considered as non-produced, this would change the content of certain items presented without modifying the approach itself. It is therefore not necessary for our purpose to discuss, for example, the problem of subsoil resources or degradation of the natural environment.

Capital Gains or Losses

The proposals which have just been made raise many technical accounting questions. Here we propose to treat just one; the measurement of capital gains and losses.

[18]To be added "off balance sheet": Opening financial quasi-liabilities and quasi-financial assets; opening provisions. Changes. Closing financial quasi-liabilities and quasi-financial assets; closing provisions.

[19]Of course, globally, changes in classification balance each other for assets and liabilities, respectively, and their effect on net worth is zero. On the contrary, for a given category of asset or liability or for a given institutional unit or sector, the result can be either positive, negative or zero.

Nominal Capital Gains and Losses

The variation in the value of wealth is at the beginning equal to:

$$W = E + VNP + PVC$$

W = variation of the value of the wealth

E = net savings

VNP = operation on non-produced values not linked with price movements.

PVC = nominal capital gains or losses.

Let us examine the case of an element q of this wealth, the price of which is p. The value at the time t of the wealth is thus:

$$Wq(t) = p(t)q(t).$$

The instantaneous variation is then:

$$dWq(t) = d[p(t)q(t)] = p'(t)q(t)\,dt = p(t)q'(t)\,dt$$

where $p(t)q'(t)\,dt$ represents the instantaneous flow similar to $E + VNP$ and where $p'(t)q(t)\,dt$ represents the instantaneous nominal capital gains or losses.

Over a period represented by the passage of t from 0 to 1, we have:

$$[p(t)q(t)]_0^1 = W_q(1) - W_q 0 = \Delta W_q$$

$$W_q = \underbrace{\int_0^1 p'(t)q(t)\,dt}_{PVC_q} + \underbrace{\int_0^1 p(t)q'(t)\,dt}_{E + VNP}.$$

However, this notation in continuous time is not really usable. It is necessary to give an accounting form to this expression in which the time t becomes "discrete."

We then have, with i and $j > 1$, the times when the quantities are modified:

$$PVC_q = (p_1 - p_0)q_0^1 + \sum_{i>0}^{i<1} (p_1 - p_i)q_i^1 + \sum_{j>0}^{j<1} (p_j - p_0)q_0^j$$

$$+ \sum_{i>0}^{i<1} \sum_{j>i}^{j<1} (p_j - p_i)q_i^j.$$

This formulation shows that the nominal capital gains or losses on the element q can be broken down into four terms:

$(p_1 - p_0)q_0^1$	revaluation of quantities present all the year.
$\sum_{i>0}^{i<1} (p_1 - p_i)q_i^1$	revaluation of quantities having entered during the year and not having left
$\sum_{j>0}^{j<1} (p_j - p_0)q_0^j$	revaluation of quantities present at the beginning of the year and having left during the year
$\sum_{i>0}^{i<1} \sum_{j>i}^{j<1} (p_j - p_i)q_i^j$	revaluation of elements having entered and left during the year.

The valuations for each element q can be added so as to obtain the nominal capital gains or losses for all the wealth of an agent, sector or nation. We should act in the same way on the complementary term to obtain the sum saving (E) plus operations on non-produced values (VNP) not linked with price movements.

It is important to note that this expression is in all points similar to the theoretical formula used to calculate the revaluation of stocks of products, materials and goods. Among the well known consequences of this identification, we must above all note that the global "capital gain" cannot be calculated by referring only to the wealth at the beginning and end of the period. It depends on all the acquisition and resale movements (and more widely on entries and exits) of the wealth components during the period in question.

Real Capital Gains or Losses

The problem of real capital gains or losses relates to comparing nominal capital gains or losses with what would be obtained by valorizing the same wealth elements with a general price (or money purchasing power) index:

Given $k(t)$ as this index. We will assume that $k(0)=1$.

The real capital gains or losses will then be $[p'(t)-k'(t)]\ q(t)dt$ for an elementary period, which can be integrated in the period. We obtain:

$$\int_0^1 [p'(t)-k'(t)]q(t)\ dt.$$

A formula which will be applied here too, wealth element per wealth element. (for elements like money which do not have a specific price, we consider that $p(t)=k(0)=1$).

The accounting translation of this calculation is not obvious however. We can proceed in a similar manner to that related in the previous paragraph. The results of this are summarized in the recapitulative Table 9, columns 2 and 4. The valuations of column 2 are with reference to the prices of the beginning of the period elements of wealth are held; those of column 4 are in reference to period ends.

Interpretation of this real capital gain is very simple: it is the difference between a permanent revaluation of wealth made by using the specific price variations of goods (if the good does not have a price, like money, this means that its price remains equal to 1) and a permanent revaluation made by using a general index. The real capital gain is positive if the specific prices weighted by the structure of the movements have increased more quickly than the reference index used and it is negative if the opposite applies.

It is natural to conclude that this notion of real capital gain is that which derives logically from the national accounts conventions. It must be the subject of the same remarks as the nominal capital gains; in particular its valuation depends on all the wealth entry and exit movements.

Nevertheless, it cannot be calculated in practice either in the continuous form or in its two accounting expressions.

We have thus included in the recapitulative table various simplifications which lead to calculable notions and correspond to often used methods such as

TABLE 9

RECAPITULATIVE TABLE OF REAL CAPITAL GAINS OR LOSSES

	Calculation Most Coherent with the National Accounts Concepts					Calculation Coherent with Maintenance of the Real Value of the Initial or Final Wealth				Calculation with Fixed Prices Specific to the Element Concerned			
	PVC			*PVC*		*PVC*		*PVC*		*PVC*		*PVC*	
	PVC	Real capital gains or losses *PVR* 1	Revaluation of the initial purchasing power *RA* 1	Real capital gains or losses *PVR* 2	Equivalent of the final purchasing power *RA* 2	Real gain on the initial wealth *GR* 1	Maintenance of the purchasing power of the initial wealth *RR* 1	Real gain on the final wealth *GR* 2	Equivalent of the final wealth purchasing power *RR* 2	Specific price gain with respect to the initial wealth *GPS* 1	Revaluation of the specific price initial wealth *RPS* 1	Specific price gain on the final gain *GPS* 2	Revaluation of the specific price final wealth *RPS* 2
	1	2	3	4	5	6	7	8	9	10	11	12	13
Capital gains or losses on elements kept in the wealth (latent capital gains or losses)	$p_1 \quad -p_0$	$p_1 \quad -p_0$ $-k_1 \quad p_0$	$k_1 \quad p_0$	$p_1 \quad -p_0$ $-\frac{k_1 \quad p_1}{1+k_1}$	$\frac{k_1 \quad p_1}{1+k_1}$	$p_1 \quad -p_0$ $-k_1 \quad p_0$	$k_1 \quad p_0$	$p_1 \quad -p_0$ $-\frac{k_1 \quad p_1}{1+k_1}$	$\frac{k_1 \quad p_1}{1+k_1}$	0	$p_1 \quad -p_0$	0	$p_1 \quad -p_0$
Capital gains or losses on elements having entered in i and present in 1 (latent capital gains or losses)	$p_1 \quad -p_i$	$p_1 \quad -p_i$ $-k_{1i} \quad p_1$	$k_{1i} \quad p_1$	$p_1 \quad -p_i$ $-\frac{k_{1i} \quad p_1}{1+k_{1i}}$	$\frac{k_{1i} \quad p_1}{1+k_{1i}}$	$p_1 \quad -p_i$	0	$p_1 \quad -p_i$ $-\frac{k_1 \quad p_1}{1+k_1}$	$\frac{k_1 \quad p_1}{1+k_1}$	$p_1 \quad -p_i$	0	$-(p_i \quad -p_0)$	$p_1 \quad -p_0$

TABLE 9—continued

	Calculation Most Coherent with the National Accounts Concepts					Calculation Coherent with Maintenance of the Real Value of the Initial or Final Wealth				Calculation with Fixed Prices Specific to the Element Concerned			
	PVC			*PVC*		*PVC*		*PVC*		*PVC*		*PVC*	
	PVC	Real capital gains or losses *PVR* 1	Revaluation of the initial purchasing power *RA* 1	Real capital gains or losses *PVR* 2	Equivalent of the final purchasing power *RA* 2	Real gain on the initial wealth *GR* 1	Maintenance of the purchasing power of the initial wealth *RR* 1	Real gain on the final wealth *GR* 2	Equivalent of the final wealth purchasing power *RR* 2	Specific price gain with respect to the initial wealth *GPS* 1	Revaluation of the specific price initial wealth *RPS* 1	Specific price gain on the final gain *GPS* 2	Revaluation of the specific price final wealth *RPS* 2
	1	2	3	4	5	6	7	8	9	10	11	12	13
Capital gains or losses on elements present in 0 and having left in j (realized capital gains)[4]	$p_j - p_0$	$p_1 - p_0$ $-k_{j0} \quad p_0$	$k_{j0} \quad p_0$	$p_j - p_0$ $\frac{k_{j0} \quad p_j}{1+k_{j0}}$	$\frac{k_{j0} \quad p_j}{1+k_{j0}}$	$p_j - p_0$ $-k_1 \quad p_0$	$k_1 \quad p_0$	$p_j - p_0$	0	$-(p_1 - p_j)$	$p_1 - p_0$	$p_j - p_0$	0
Capital gains or losses on elements having entered in i and having left in j (realized capital gains)	$p_j - p_i$	$p_j - p_i$ $-k_{ji} \quad p_i$	$k_{ji} \quad p_i$	$p_j - p_i$ $\frac{k_{ji} \quad p_i}{1+k_{ji}}$	$\frac{k_{ji} \quad p_i}{1+k_{ji}}$	$p_j - p_i$	0	$p_j - p_i$	0	$p_j - p_i$	0	$p_j - p_i$	0

Notes:

1. This table provides the elements for calculating the price elements of the capital gains. They must be multiplied by the corresponding quantities and then added to all the elements of the wealth to calculate the total capital gains or losses. The reader's attention is drawn to the following fact: if in i, a certain quantity of the wealth element described here is acquired, on the same date another element is sold for the same amount. The capital gains or losses concerning all the wealth result from the algebraic sum of the gains or losses relating to the two elements of this transaction.

2. $p(t)$ is the price index of an element of wealth which is studied $p(0) = p_0$; $p(1) = p_1$

3. $k(t)$ is a general price index;

$$k_{1i} = \frac{k(1) - k(i)}{k(i)}; \qquad k_{i0} = k(i) - k(0); \qquad k_{ji} = \frac{k(j) - k(i)}{k(i)}; \qquad k(0) = 1;$$

4. The capital gain realized in the third line is the sum of the capital gain of the year in which the element leaves the wealth and of the capital gains of the two preceding types accumulated in the course of the prior periods.

those deriving from the Hicks formulation, if specific importance is attached to the structure of wealth at the beginning or the end of the calendar period.

These solutions are also based on the nominal capital gains or losses and seek to provide a correction taking account of the maintenance of the "real" value of the initial wealth, or to refer to the equivalent in purchasing power of the final wealth. Simplifications consist in abandoning the idea of making corrections for each elementary capital gain or loss and on making a global correction. The calculations can nevertheless be presented so as to be compared with the four configurations of wealth elements: present throughout the year; having entered and not having left; present at the beginning of the year and having left during the year; or having entered and having left (cf. columns 6 and 8 of Table 9).

By aggregating all these elements, real gains can be defined as against the initial wealth:

$$GR1 = PVC - k_1 W_0 \quad \text{with } W(0) \text{ as the wealth on January 1}$$

and gains as against the final wealth:

$$GR2 = PVC - \frac{k_1 W_1}{1 + K_1} \quad \text{with } W_1 \text{ as the wealth on December 31.}$$

With respect to the notion of real capital gains or losses (PVR) defined previously, the cumulative effect of the variation of relative prices noted for wealth at each moment is no longer considered. Instead, the current capital gains or losses are compared to the effect of revaluation of a fixed structure wealth, concerning the whole period.

Finally we have included in the table a calculation of the capital gains made at fixed prices specific to each of the wealth elements. The result, not directly commented on here, corresponds for $GPS1$ to the surplus gain obtained with respect to that which we would have had by keeping the initial wealth; for $GPS2$ to the same gain surplus with respect to the final wealth. To state things otherwise with as the k price index the average index of the initial wealth, $GPS1 = GR1$; with for k the average index of the final wealth, $GPS2 = GR2$.