Social Accounting Matrix and the System of National Accounts: An Application.

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Abstract

The purpose of this session is to show how the System of National Accounts (SNA) and the input-output (supply and use) tables are used to construct a Social Accounting Matrix (SAM).
Based on the country's National Accounts, an aggregate SAM will be constructed for the Portuguese economy and their full consonance will be demonstrated by identifying both the items and balances of the various internal accounts of the System in the constructed SAM.
The SAM will be shown as a working instrument for quantifying the flows in the economic circuit, and blocks of sub-matrices with common characteristics will be described in terms of the accounting transactions that are included in each of them.
As an example, a more detailed SAM will be constructed and the contents of its cells described in strict detail.
The relationship between the SAM and the input-output table will also be briefly analysed.

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CONTENTS

1. The SAM and its development

A SAM is a square matrix in which each transaction is recorded only once in a cell of its own – it is conventionally agreed that the entries made in rows represent incomes or receipts, whilst the entries made in columns represent outlays or expenditures - so, for each row there is a corresponding column, i.e. for every income there exists a corresponding expenditure, with their totals being equal. These figures will include both production and institutional accounts, which are subdivided into yet other accounts, defined in accordance with the goal of the study and the available information. Thus, the SAM consists of a set of interrelated subsystems that, on the one hand, give an analytical picture of the studied economy in a particular accounting period and, on the other hand, serve as an instrument for assessing the effects of changes on the particular flows represented by it (injections and leakages in the system), which might be the result of policy measures.

Therefore, the SAM can be seen as a working instrument for quantifying the flows in the economic circuit and for simulating the effects resulting from any changes in such flows. This session will not develop the latter aspect (the SAM modelling).

The SAM's particular method of accounting for economic activity dates back to a number of different sources, starting with F. Quesnay's "tableau économique" (18th century). Sir Richard Stone pioneered the development of the SAM framework with his 1954 article "Input-Output and the Social Accounts," working on it for over roughly four decades. The general shape of a SAM framework was first described by Pyatt and Thorbecke (1976). Afterwards Pyatt and Roe (1977) published a book giving a detailed description of the example of Sri Lanka. Since then, SAMs have been applied in a wide variety of (developed and developing) countries and regions, and with a wide variety of different goals. SAMs have been used to study income distribution and redistribution (e.g. Pyatt and Roe, 1977; and Keuning, 1996), regional development (e.g. Cardenete, 2004), growth strategies in developing economies (e.g. Pyatt and Round, 1985; Robinson, 1986; and Vos and Jong, 2003), decomposition of activity multipliers that shed light on the circuits comprising the circular flow of income (e.g. Stone, 1981; Pyatt and Round, 1985; and Santos, 2004), as well as a combination of social, technological/environmental and economic issues (e.g. Resosudarmo and Thorbecke, 1996; Khan, 1997; Duchin[1], 1998; and Alarcón and others, 2000).

[1] Her very elucidating paper entitled "Global Environmental Degradation in the 21st Century: A Challenge for Input-Output Economics", presented at the *14th International Conference on Input-Output Techniques* (Montreal - Canada, October 2002), stresses the importance of the SAM framework.

2. The SAM and the SNA. An example applied to Portugal

2.1. The generic structure and the blocks of sub-matrices

The taxonomy used in a SAM depends on the available data and the purposes of the study underlying its construction. It is, however, fundamental for the success of any analysis, that there should be a definition of an appropriate classification and a characterisation of the production and institutional subsectors.

Constantly concerned with adopting a mutually exclusive and, in a certain way, exhaustive classification, the adopted disaggregation should respect, on the one hand, the functional criterion, describing the production processes and pointing out the existing technical-economic relationships between the various productive units and, on the other hand, it should respect the institutional criterion, describing distribution, accumulation and financing activities, and showing the relationships in economic behaviour. We therefore have "Production" divided into factors of production, activities and products and "Institutions" divided into current, capital and financial accounts. We also considered an "errors and omissions" account, which, as we shall see, will assume values that are perfectly justified by the national accounting system.

In a general way, the order of the accounts does not obey any specific rule; it just obeys the criterion of the person who works with them. Our criterion of ordering the accounts was the one that lies behind the Basic SAM, which is shown below.

Table 1. Basic Portuguese Social Accounting Matrix (SAM) for 1999 (in millions of euros)

Outlays (expenditures) / Incomes (receipts)		Production			Institutions			Rest of the World (RW)	Errors and Omissions	TOTAL
		Factors	Activities	Products	Current A.	Capital A.	Financial A.			
Production	Factors	0	Gross Added Value (93 707)	0	0	0	0	Compensation of Factors from the RW (4 122)	0	Aggregate Factor income (97 829)
	Activities	0	0	Production (203 614)	0	0	0	0	0	Production Value (203 614)
	Products	0	Intermediate Consumption (110 801)	0	Final Consumption (86 864)	Gross Capital Formation (30 585)	0	Exports (32 089)	0	Aggregate Demand (260 340)
Institutions	Current A.	National Product (92 152)	Other net taxes on production (-832)	Net taxes on products (15 025)	Current Transfers (69 474)	0	0	Current Transfers from the RW (4 827)	0	Aggregate Income (180 646)
	Capital A.	0	0	0	Domestic Saving (21 143)	Capital Transfers (6 416)	0	Capital Transfers from the RW (3 009)	0	Investment Funds (30 569)
	Financial A.	0	0	0	0	0	Financial Transactions (46 596)	Financial Transactions from the RW (17 407)	Net borrowing (- 6 570)	Total financial transactions (57 433)
Rest of the World (RW)		Compensation of Factors to the RW (5 678)	Other net taxes on production (-63)	Imports (41 700)	Current Transfers to the RW (3 165)	Capital Transfers to the RW (137)	Financial Transactions to the RW (10 837)	0	Net lending (6 570)	Transactions Value to the RW (68 024)
Errors and Omissions		0	0	Trade Margins (0)	0	Net borrowing (- 6 570)	0	Net lending (6 570)	0	0
TOTAL		Aggregate Factor income (97 829)	Total Costs (203 614)	Aggregate Supply (260 340)	Aggregate Income (180 646)	Aggregate Investment (30 569)	Total financial transactions (57 433)	Transactions Value from the RW (68 024)	0	

Source: Portuguese National Accounts

Table 2. Basic Social Accounting Matrix by blocks

Outlays (expenditures) (*j*) / Incomes (receipts) (*i*)		Production			Institutions			Rest of the World (RW)	Errors and Omissions
		Factors	Activities	Products	Current A.	Capital A.	Financial A.		
Production	Factors	0		0	0	0	0		0
	Activities	0	0		0	0	0	0	0
	Products	0		0			0		0
Institutions	Current A.					0	0		0
	Capital A.	0	0	0			0		0
	Financial A.	0	0	0	0	0			
Rest of the World								0	
Errors and Omissions		0	0		0		0		0

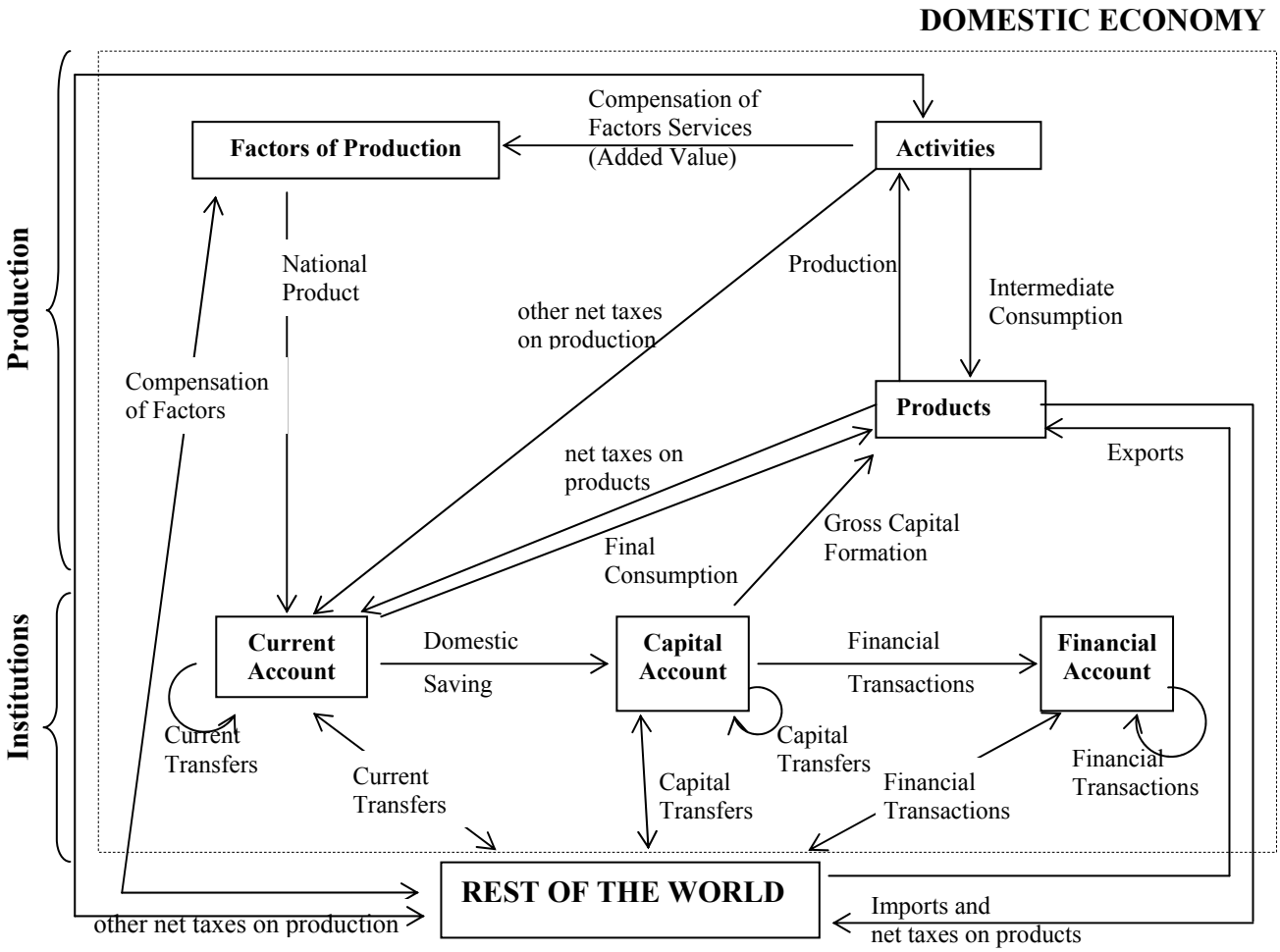
Blocks:

- Compensation of the factors of production
- Production
- Intermediate Consumption
- Final Consumption
- Net Indirect Taxes
- Gross Capital Formation
- External Trade
- Current Transfers
- Capital Transfers
- Domestic Saving, Trade Margins, Net lending/ borrowing
- Financial Transactions

2.2. The SAM as a complete account of the circular flow in the economy

As far as the flows of money are concerned, the following outline gives us the connections that can be established between the various accounts.

Outline 1: Flows of money between the basic Portuguese SAM accounts



This outline represents all the transactions recorded by the SAM, within the (domestic) economy and between it and the rest of the world. The latter are represented by the "rest of the world" account (see Table 1 – 7th column/row), the former are represented by the production and institutional accounts, as described below.

On the one hand, production activities buy "inputs" (intermediate consumption) and factors of production services in order to produce, thereby generating added value. Beyond the subsidies on production (from the government's current account and the rest of the world - European Union institutions), which are deducted from taxes (other net taxes on production), the only receipts of the activities come from the sales of their production which are spent in intermediate consumption, the compensation of factors and the payment of taxes (to the government's current account). Therefore, there is the value of production to balance the total costs of the economy (see the "activities" account, Table 1 – 2nd column/row).

On the other hand, the factors of production will sell services to the (domestic and foreign) production activities receiving compensation from these. Since the services of the factors are supplied by (domestic and foreign) institutions, outlays can be made to the domestic institutions (current account), through the national product, as well as to the rest of the world (see the "factors of production" account, Table 1 – 1st column/row).

Beyond the national product, i.e. the compensation of the factors of production, the other income sources of the institutions are (net indirect) taxes and current transfers, as can seen by its "current account", which also shows how the income is spent in final consumption and current transfers or is saved (see Table 1 – 4th column/row).

Through the "products" accounts, there is both supply and demand. As sources of demand, there is intermediate consumption, final consumption, gross capital formation and exports. On the supply side, we have production and imports, to which are added the (net) taxes on products and the trade margins (see Table 1 – 3rd column/row). The products accounts can be seen as the accounts of those that perform intermediation activities and place products on the market, in other words, those that acquire or import products, organise processing (transport and storage), add the corresponding margins to the price, pay indirect taxes to the government and sell the products to the producers, households, government and the rest of the world.

In the "capital account", or capital accumulation account, on the one hand, we can see investment through gross capital formation and capital transfers, and, on the other hand, the funds available for such investments, resulting from domestic saving and capital transfers, as well as from a balance corresponding either to the financing requirements or capacity, depending on its sign (see Table 1 – 5th column/row).

Among other aspects, the "financial account" reveals the financial transactions in the capital account (King, 1981) (see Table 1 – 6th column/row).

Besides all the accounts already mentioned, there is also the "errors and omissions" account, introduced because of the need to consider the balances of financial and capital transactions, on the one hand, and trade margins, on the other hand.

We can therefore conclude that the SAM is the numerical representation of the cycle: production - income - expenditure. It "shows how sectoral value added accrues to production factors and their institutional owners; how these incomes, corrected for net current transfers, are spent; and how expenditures on commodities lead to sectoral production and value added" (Keuning and Ruijter, 1988) – using the words of Thorbecke (2001): "it can readily be seen that it incorporates all major transactions within a socio-economic system".

It is also important to bear in mind that "a SAM applies the properties of a matrix format to incorporate specific details on various economic flows" (ISWG, 1993, Prg. 20.26).

2.3. Possible disaggregations

It is possible to break down each account into categories using on occasion sources of information other than the SNA, without losing the consistency of the whole system, that is to say, "a crucial feature is the wide range of possibilities for expanding or condensing such a matrix in accordance with specific circumstances and needs" (ISWG, 1993, Prg. 20.6).

Nowadays, the SNA provides several disaggregation possibilities for products and activities, few possibilities for the institutions' accounts and even fewer for the factors of production[2].

Therefore, production accounts, drawn from supply and use tables, can be disaggregated into 95 activities and products, which for some transactions can have yet more disaggregation levels.

Also in relation to production accounts, the factors of production may only be disaggregated into labour and capital, although the former refers only to employees.

In turn, the institutions' accounts can be disaggregated into households, non-financial corporations, financial corporations, general government and non-financial corporations serving households.
General government can be disaggregated further into central government, local government and social security funds, whilst financial corporations can be disaggregated into central bank, other monetary financial institutions, other financial intermediaries, except insurance corporations and pension funds, financial auxiliaries and insurance corporations and pension funds.
The rest of the world can also be disaggregated into the European Union (member states and institutions) and non-member countries and international organisations.

2.4. Identifying the identities and balances of the various internal accounts of the SNA in the aggregate SAM

Considering the SNA as the basic information source of the SAM, almost all the flows that are part of the former are integrated into the latter.
The SNA adopted in Portugal since 1995 has been the European System of National and Regional Accounts in the European Community of 1995 - ESA 95 (Eurostat, 1996), which is based on the 1993 version of the International United Nations System of National Accounts - SNA 93, prepared by the Inter-Secretariat Working Group and published by the United Nations Statistical Office

[2] According to the System of Economic and Social Accounting Matrices and Extensions (SESAME), which "breaks down money values in the traditional national accounts into price (changes) and volume (changes)" (Keuning, 1996)

(ISWG, 1993). For the latter body, "a SAM is defined as the presentation of SNA accounts in a matrix which elaborates the linkages between a supply and use table and institutional sector accounts" (ISWG 93, Prg.20.4).

Next, we are going to identify the identities and balances of the several (T) accounts of the Portuguese SNA in the SAM constructed for Portugal in 1999[3] (see Tables 1 and 3), each of them referring to an aspect of the economic circuit (see Outline 1). As uses (outlays or expenditures) and resources (incomes or receipts), always recorded in millions of euros, we will use the designations that we used for the various accounts of the SAM. We will add a " ' " to the SAM balances.
We are going to deal with gross balances and will not therefore take into account the consumption of fixed capital. We will also work upon the goods and services account, at current prices, the current accounts and the accumulation accounts (with the exception of SNA account III.3 - other changes in assets accounts), which are the accounts made available by the Portuguese National Accounts.

Goods and Services Account (SNA account 0) - balanced by definition:

Resources

Output of goods and services	203 614
Imports of goods and services	43 293
Taxes on products net of subsidies	15 217
Total	262 124

Uses

Intermediate consumption	110 801
Final consumption expenditure/ actual final consumption	88 648
Gross capital formation	30 585
Exports of goods and services	32 089
Total	262 124

This account can be associated with the SAM's "products" account, belonging to the group of "production" accounts.

Thus:

Resources

Intermediate consumption	110 801
Final consumption expenditure/ actual final consumption of the national institutions in the economy	86 864
Gross capital formation	30 585
Exports of goods and services	32 089
Aggregate demand	260 340

[3] The last year for which definitive values were available, in April-May 2005, when this paper was written.

Uses

Output of goods and services	203 614
Taxes on products received by the national institutions net of subsidies	15 025
Imports of goods and services plus taxes, minus subsidies on products received by the European Union institutions	41 700
Aggregate supply	260 340

The difference between both accounts is in the "direct purchases abroad by residents" (1 784), considered in the SAM as a "current transfer to the rest of the world".

Production Account (SNA account I) - which describes the transactions that constitute the appropriately named production process:

Resources

Output of goods and services	203 614
Taxes on products net of subsidies	15 217
Total	218 831

Uses

Intermediate Consumption	110 801
(B1g) Gross added value/gross domestic product	108 030
Total	218 831

We identified this account with the SAM's "activities" account:

Resources

Output of goods and services	203 614

Uses

Intermediate consumption	110 801
Taxes on production net of subsidies	- 895
- receipt/expenditure of the (Portuguese) General Government	-832
- receipt/expenditure of the Institutions of the European Union	-63
(B1g') Gross added value	93 707
Total costs (net of subsidies on production)	203 614

We have, therefore, a gross added value (B1g') corresponding to gross domestic product at market prices (B1g) minus net indirect taxes (on products and production). In other words, gross added value at factor cost (93 707 = 108 030 - (15 217- 895)).

Primary Distribution of Income Accounts (SNA account II.1) – which show how primary incomes, i.e. incomes that accrue as a result of involvement in processes of production or ownership of assets that may be needed for production purposes, are distributed among institutions and activities:

- Generation of income account (SNA account II.1.1)

Resources

(B1g) Gross added value/gross domestic product	108 030

Uses

Compensation of employees paid by the Portuguese institutions		52 092
- to the national institutions	51 973	
- to the rest of the world	119	
Taxes on production and imports net of subsidies paid / received by the Portuguese institutions		14 322
(B2g + B3g) Gross operating surplus + Gross mixed income		41 615
Total		108 030

- Allocation of primary income account (SNA account II.1.2)

Resources

(B2g + B3g) Gross operating surplus + Gross mixed income		41 615
Compensation of employees received by the Portuguese institutions		51 120
- from the Portuguese institutions	51 973	
- from the rest of the world	147	
Taxes on production and imports net of subsidies received/ paid by the Portuguese institutions		14 193
Property income received by the Portuguese institutions		23 417
- from the Portuguese institutions	19 442	
- from the rest of the world	3 975	
Total		131 345

Uses

Property income paid by the Portuguese institutions		25 000
- to the Portuguese institutions	19 442	
- to the rest of the world	5 559	
(B5g) Gross national income		106 345
Total		131 345

- Primary distribution of income account (generation and allocation - SNA account II.1)

Resources

(B1g) Gross added value/gross domestic product		108 030
Property income received by the Portuguese institutions from the Portuguese institutions		19 442
Primary income from the rest of the world		4 122
- compensation of employees	147	
- property income	3 975	
Total		131 593

Uses

(B5g) Gross national income	106 345
Property income paid by the Portuguese institutions to the Portuguese institutions	19 442

Primary income to the rest of the world	5 807
- compensation of employees	119
- property income	5 559
- net taxes on production and imports	129
Total	131 593

We can associate these accounts with the SAM's "factors of production" account that has the following composition:

Resources	
(B1g') Gross added value	93 707
- Labour (wages and salaries paid by the Portuguese institutions)	41 174
- Capital ((B2g' + B3g') Gross operating surplus + Gross mixed income	52 534
Compensation of factors from the rest of the world	4 122
- Labour (wages and salaries)	147
- Capital	3 975
Aggregate Income of Factors	97 829

Uses	
(B5g') National product	92 152
- Labour (wages and salaries received by the Portuguese institutions)	41 202
- Capital	50 950
Compensation of factors to the rest of the world	5 678
- Labour (wages and salaries)	119
- Capital	5 559
Aggregate Income of Factors	97 829

In establishing the connection between those accounts, we have:

National product (B5g') = Gross national income (B5g) – taxes on production and imports net of subsidies received/paid by the Portuguese institutions (92 152 = 106 345 – 14 193).

On the other hand:

Compensation of capital received by the national institutions = (Gross operating surplus + Gross mixed income (B2g' + B3g') - Employers' social contributions[4]) + compensation of capital (or property income) paid by the rest of the world - compensation of capital (or property income) received by the rest of the world = Gross operating surplus + Gross mixed income (B2g + B3g) + compensation of capital (or property income) paid by the rest of the world - compensation of capital (or property income) received by the rest of the world (50 950 = (52 534 – 10 918) + 3 975 – 5 559 = 41 615 + 3 975 – 5 559)

[4] Employers' social contributions + wages and salaries = compensation of employees.
B2g + B3g = B2g' + B3g' - employers' social contributions (transaction D12 of the National Accounts).

Secondary Distribution of Income, Redistribution of Income in Kind and Use of Income Accounts.

The first two accounts show how the balance of primary incomes (national income) is transformed into disposable income by the receipt and payment of current transfers; the third account shows how the gross disposable income is distributed between the final consumption and saving.

- Secondary distribution of income and redistribution of income in kind accounts (SNA accounts II.2 and 3)

Resources

(B5g) Gross national income	106 345
Current transfers within the Portuguese institutions[5]	72 728
Current transfers from the rest of the world[5]	4 827
Total	183 900

Uses

Current transfers within the Portuguese institutions[6]	72 728
Current transfers to the rest of the world[6]	1 381
(B6/7g) Gross disposable income	109 791
Total	183 900

- Use of income account (SNA account II.4)

Resources

(B6/7g) Gross disposable income	109 791
Adjustment for the change in the net equity of households in pension funds reserves	413
Total	110 204

Uses

Final consumption	88 648
Adjustment for the change in the net equity of households in pension funds reserves	413
(B8g) Gross saving	21 143
Total	110 204

Here is the SAM's "current" account of the Institutions:

[5] Total Current transfers (resources) = 72 728 + 4 827 = 77 555:

Current taxes on income, wealth, etc., received by the Portuguese institutions	10 606
Social contributions and benefits, received by the Portuguese institutions	45 529
- Social contributions	15 509
- Social benefits other than social transfers in kind	15 651
- Social transfers in kind	14 369
Other current transfers, received by the Portuguese institutions	21 419

[6] Total current transfers (uses) = 72 728 + 1 381 = 74 109:

Current taxes on income, wealth, etc., paid by the Portuguese institutions	10 606
Social contributions and benefits, paid by the Portuguese institutions	45 548
- Social contributions	15 509
- Social benefits other than social transfers in kind	15 670
- Social transfers in kind	14 369
Other current transfers, paid by the Portuguese institutions	17 953

Resources

(B5g') National Product	92 152
- wages and salaries	41 202
- compensation of capital	50 950
Net taxes on production paid to the Portuguese institutions	- 832
Net taxes on products paid to the Portuguese institutions	15 025
Current transfers within the Portuguese institutions	69 474
Current transfers from the rest of the world	4 827
Aggregate income	180 646

Uses

Final consumption in the economy	86 864
Current transfers within the Portuguese institutions	69 474
Current transfers to the rest of the world	3 165
- current transfers to the rest of the world	1 381
- direct purchases abroad by residents	1 784
(B8g') Domestic saving	21 143
Aggregate income	180 646

We have, on the one hand, the SAM's saving (B8g'), which we have called domestic saving, equivalent to the gross saving (B8g), and, on the other hand, the total of the SAM's current account, which we have named aggregate income, corresponding to the sum of the items:

Gross national income (B5g) + current transfers within the Portuguese institutions[7] + current transfers from the rest of the world (180 646 = 106 345 + 69 474 + 4 827)

or

Gross disposable income (B6/7g) + current transfers within the Portuguese institutions[7] + current transfers to the rest of the world (180 646 = 109 791 + 69 474 + 1 381)

Capital Account (SNA account III.1) – which records non-financial investment transactions and capital transfers, considered as the partition of property transactions:

Changes in liabilities and net worth (resources)

(B8g) Gross saving	21 143
Capital transfers within the Portuguese institutions	6 416
Capital transfers from the rest of the world	3 009
Total	30 568

Changes in assets (uses)

Gross capital formation	30 585
Capital transfers within the Portuguese institutions	6 416
Capital transfers to the rest of the world	137
- Acquisitions less disposals of non-produced non-financial assets	9
(B9) Net borrowing	- 6 570
Total	30 568

[7] Includes "Adjustment for the change in the net equity of households in pension funds reserves".

We have the following SAM's "capital" account:

Changes in liabilities and net worth (resources)

(B8g') Domestic saving	21 143
Capital transfers within the Portuguese institutions	6 416
Capital transfers from the rest of the world	3 009
Investment Funds	30 569

Changes in assets (uses)

Gross Capital Formation	30 585
Capital transfers within the Portuguese institutions	6 416
Capital transfers to the rest of the world	137
- Acquisitions less disposals of non-produced non-financial assets ……..	9
(B9') Net borrowing	- 6 570
Aggregate Investment	30 569

There is a close relationship between both capital accounts, the difference between them being only a question of rounding off the calculations.

Financial Account (SNA account III.2) – records the transactions in financial assets and liabilities between institutional units, and between these and the rest of the world:

Changes in liabilities and net worth (resources)

Financial transactions within the Portuguese institutions (net incurrence of liabilities)	46 596
Financial transactions from the rest of the world (net incurrence of external liabilities)	17 407
(B9F) Net borrowing	- 6 570
Total	57 432

Changes in assets (uses)

Financial transactions within the Portuguese institutions (net acquisition of financial assets)	46 596
Financial transactions to the rest of the world (net acquisition of external assets)	10 837
Total	57 432

We have the following SAM's "financial" account:

Changes in liabilities and net worth (resources)

Financial transactions within the Portuguese institutions (net incurrence of liabilities)	46 596
Financial transactions from the rest of the world (net incurrence of external liabilities)	17 407
(B9'F) Balance of assets and liabilities	- 6 570
Total	57 433

Changes in assets (uses)

Financial transactions within the Portuguese institutions (net acquisition of financial assets)	46 596
Financial transactions to the rest of the world (net acquisition of external assets)	10 837
Total	57 433

Therefore, generally speaking, if it were not for the taxation on production, the association of SAM accounts with national (T) accounts would be perfect – with the aggregate SAM being calculated from these accounts, the latter could also be calculated from the former, which may not be true if some disaggregation is undertaken.

Table 3 summarises what was seen for the Portuguese national accounts for 1999.

Table 3. Basic Portuguese National Accounting Matrix (NAM) for 1999 (in millions of euros)

SNA Account		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
0. Goods and services	(1)		Intermediate consumption (110 801)			Final consumption (88 648)	Gross capital formation (30 585)		Exports of goods and services (32 089)
I. Production	(2)	Output of goods and services + taxes on products net of subsidies (203 614 + 15 217)							
II.1. Primary distribution of income	(3)		Gross added value (108 030)	Property income (19 442)					Primary income from the RW (4 122)
II.2, II.3. Secondary distribution of income and redistribution of income in kind	(4)			Gross national income (106 345)	Current Transfers (72 728)				Current transfers from the RW (4827)
II.4. Use of income	(5)				Gross disposable income (109 791)	Adjustment for the change in the net equity of households in the pension funds reserve (413)			
III.1. Capital	(6)					Gross saving (21 143)	Capital Transfers (6 416)		Capital transfers from the RW (3 009)
III.2. Financial	(7)						Net borrowing (-6 570)	Financial transactions (46 596)	Financial transactions from the RW (17 407)
Rest of the world	(8)	Imports of goods and services (43 293)		Primary income to the RW (5 807)	Current transfers to the RW (1 381)		Capital transfers to the RW (137)	Financial transactions to the RW (10 837)	
Total		262 124	218 831	131 593	183 900	110 204	30 568	57 432)	61 455

Source: Round (2003); ESA (1995).

Row totals match column totals.

2.5. Specifying the SAM's blocks of sub-matrices and their cell contents

Next can be seen all the specificities of the SAM's sub-matrices with common characteristics, i.e. the SAM's blocks, as defined in Table 2. The transactions of the National Accounts will be specified, as well as the (National Accounts) tables, which are the sources of information used to construct the SAMs. The cell contents (*i,* for rows; *j,* for columns) will also be specified, as well as the method of calculation used only for those sub-matrices that are not calculated directly from the sources or whenever there are details that justify a reference to them.

2.5.1. Compensation of factors of production

Income of the institutional sectors from the compensation of the services provided through their real and financial assets to the activities of production and to the rest of the world, namely:

- Wages and salaries, in cash and in kind (transaction D11 of the National Accounts), which is the remuneration, in cash or in kind, payable by an employer to an employee in return for work done by the latter during the accounting period[8] (ISWG 93, Prg.7.32-7.42; ESA 95, Prg.4.03-4.07).
- All the above-mentioned income which is not derived from the compensation of employees, including property income (transaction D4 of the National Accounts), which is the income receivable by the owner of a financial asset or a tangible non-produced asset in return for providing funds to, or putting the tangible non-produced asset at the disposal of, another institutional unit. Property income is composed of interest, the distributed income of corporations, dividends, withdrawals from the income of quasi-corporations, reinvested earnings on direct foreign investment, property income attributed to insurance policy holders and rents (ISWG 93, Prg.7.87-7.133; ESA 95, Prg.4.41-4.76).

Sources

Tables: production account and allocation of primary and secondary distribution income accounts of the institutions (in institutional sectors accounts); employment and compensation of employees by activity; external account of primary income and current transfers (in rest of the world accounts).

Methodology

The compensation of capital in the added value submatrix is calculated through the difference between the total costs, which are equal to the production value, and the other net taxes on production, intermediate consumption and wages and salaries. In the national product submatrix, it

[8] Employers' social contributions (actual and imputed), which, with wages and salaries, constitute the compensation of employees, are included in current transfers.

is the sum of the gross operating surplus and the balance of the income from property. The gross operating surplus is gross added value (production minus intermediate consumption) minus the (other) taxes paid on production plus the (other) subsidies received on production minus the paid wages and salaries.

Cell contents

Compensation of factors of production *i* received from the activity *j* or from the rest of the world; compensation of factors of production *j* received by the institutional sector *i* or by the rest of the world.

2.5.2. Production

Output of goods and services (transaction P1 of the National Accounts), which consists of the products created during the accounting period and is subdivided into market output, output produced for own final use, other non-market output (ISWG 93, Prg.6.38-6.51; ESA 95, Prg.3.14-3.68).

Source

Table: supply of products at basic prices (current prices).

Cell contents

Output of *j* product(s) through the *i* activity/ies, with: $j = i$ or $j \neq i$.

2.5.3. Intermediate Consumption

Intermediate consumption (transaction P2 of the National Accounts), which consists of the value of the goods and services consumed as inputs by a process of production, excluding those fixed assets whose consumption is recorded as consumption of fixed capital. The goods and services may be either transformed or used up by the production process (ISWG 93, Prg.6.147-6.178; ESA 95, Prg.3.69-3.73).

Source

Table: use of products at basic prices (current prices).

Cell contents

Intermediate consumption of *i* product(s) through the *j* activity/ies, with: $i = j$ or $i \neq j$.

2.5.4. Gross Capital Formation

Gross capital formation (transaction P5 of the National Accounts), which consists of gross fixed capital formation, changes in inventories, acquisitions less disposals of valuables (ISWG 93, Prg.10.32-10.130; ESA 95, Prg. 3.100-3.127).

Sources

Tables: use of products at basic prices (current prices); capital account of the institutions (in institutional sectors accounts); gross fixed capital formation by product and institutional sector.

Methodology

The total gross capital formation by product(s) is calculated from the use of products table.

The total gross capital formation by institution(s) is calculated from the capital account of the institutions table.

The gross fixed capital formation by product(s) and institution(s) is calculated from the table with the same name.

The changes in inventories and the acquisitions less disposals of valuables by product(s) and institution(s) are calculated by applying the share of the product(s) in the total to the total value of the institution(s).

Cell contents

Gross Capital Formation on product(s) *i* by the institution(s) *j*.

2.5.5. Net Indirect Taxes

2.5.5.1. Net Taxes on Production

Other taxes on production (transaction D29 of the National Accounts) minus the other subsidies on production (transaction D39 of the National Accounts). The former consist of all taxes that enterprises incur as a result of engaging in production, regardless of the quantity or value of the goods and services produced or sold (ISWG 93, Prg.7.70; ESA 95, Prg.4.22-4.24), and that are paid to the government. The latter consist of subsidies, except those subsidies on products which resident producer units may receive as a consequence of engaging in production (ISWG 93, Prg.7.79; ESA 95, Prg.4.36-4.40), received from the government and the rest of the world (European Union Institutions).

Sources

Tables: allocation of primary income account of the institutions (in institutional sectors accounts); external account of primary income and current transfers account (in rest of the world accounts); use of products at basic prices (current prices).

Methodology

The totals by activity/ies are calculated from the use of products table.

The totals for the government and for the rest of the world are calculated from the table showing the allocation of the primary income account of the institutions (the totals for the rest of the world may also be calculated from the external account of the primary income and current transfers account, and this must be the case if some disaggregation is needed).

The values by activity/ies for the rest of the world are calculated by applying the share of the activity/ies in the total to the total value of the rest of the world. The values (by activity/ies) for the government are calculated by the difference between the total (by activity/ies) and the rest of the world's value.

Cell contents

Other taxes on production paid by *j* activity/ies minus other subsidies on production received by the same activit/ies from *i* institution(s) (government or rest of the world), or (other) net taxes on production paid by *j* activity/ies to *i* institution(s).

2.5.5.2. Net Taxes on Products

Taxes on products (transaction D21 of the National Accounts) minus the subsidies on products (transaction D31 of the National Accounts). The former consist of taxes that are payable per unit of a good or service produced or transacted (ISWG 93, Prg.7.62-7.69; ESA 95, Prg.4.16-4.21), these being paid to the government and the rest of the world. The latter consist of subsidies payable per unit of a good or service produced or imported (ISWG 93, Prg.7.73-7.78; ESA 95, Prg.4.33-4.35), received from the government and the rest of the world (European Union Institutions).

Sources

Tables: allocation of primary income account of the institutions (in institutional sectors accounts); external account of primary income and current transfers account (in rest of the world accounts); supply of products at basic prices (current prices).

Methodology

The totals by product(s) are calculated from the supply of products table.

The totals for the government and for the rest of the world are calculated from the table showing the allocation of the primary income account of the institutions (the totals for the rest of the world may also be calculated from the external account of the primary income and current transfers account, and this must be the case if some disaggregation is needed).

The values by product(s) for the rest of the world, which will be added to the imports (external trade block), are calculated by applying the share of the product(s) in the total to the total value of the rest of the world. The values (by product(s)) for the government are calculated by the difference between the total (by product(s)) and the rest of the world's value.

Cell contents

Taxes on *j* product(s) received by *i* institution(s) (government or rest of the world) minus subsidies on those products received from the same institution(s), or net taxes on *j* product(s) received by *i* institution(s).

2.5.6. Final Consumption

Actual final consumption (transaction P4 of the National Accounts) consists of the goods or services that are acquired by resident institutional units for the direct satisfaction of human needs, whether individual or collective. Goods and services for individual consumption (individual goods and services) are acquired by a household and used to satisfy the needs and requirements of members of that household. Services for collective consumption (collective services) are provided simultaneously to all members of the community or all members of a particular section of the community, such as all households living in a particular region[9] (ISWG 93, Prg.9.72-9.74, 9.90-9.92, 9.95-9.97; ESA 95, Prg.3.81-3.99).

Direct purchases abroad by residents are considered in current transfers to the rest of the world (current transfers block).

Direct purchases by non-residents in the domestic market are considered as exports (external trade block).

Sources

Tables: use of products at basic prices (current prices); use of the adjusted disposable income and the redistribution of income in kind accounts of the institutions (in institutional sectors accounts).

[9] The difference between this concept and final consumption expenditure (transaction P3 of the National Accounts) lies in the treatment given to certain goods and services financed by the government or non-profit institutions serving households but supplied to households as social transfers in kind (transaction D63 - social transfers in kind - of the National Accounts). Final consumption expenditure is a concept that refers to a sector's expenditure on consumer goods and services. In contrast, actual final consumption refers to its acquisition of consumer goods and services (ISWG 93, Prg.3.74).

Methodology

Because the available information by product and institution is supplied by the use of products table and refers to expenditure on final consumption, if some disaggregation is needed, the actual final consumption has to be determined by adding the social transfers in kind to the final consumption expenditure of the households and deducting the same transfers from the final consumption expenditures of the government and non-profit institutions serving households.

Cell contents

j institution's actual final consumption of *i* products.

2.5.7. External Trade

Transactions in goods and services (purchases, barter, gifts or grants) from non-residents to residents, or imports (transaction P7 of the National Accounts), and from residents to non-residents, or exports (transaction P6 of the National Accounts) (ESA 95, Prg.3.128-3.146[10]).

Although the National Accounts consider direct purchases abroad by residents as an import, here they are considered as a current transfer from households to the rest of the world.

Sources

Tables: supply of products at basic prices (current prices), for imports; use of products at basic prices (current prices), for exports.

Cell contents

Imports of *j* products; exports of *i* products

2.5.8. Current Transfers

Current taxes on income, wealth, etc. (transaction D5 of the National Accounts), which cover all compulsory, unrequited payments, in cash or in kind, levied periodically by general government and by the rest of the world on the income and wealth of institutional units, as well as some periodic taxes which are levied on neither income nor wealth (ISWG 93, Prg.8.43-8.54; SEC 95, Prg.4.77-4.82).

Social benefits and contributions (transaction D6 of the National Accounts). Social benefits are transfers to households, in cash or in kind, intended to relieve them of the financial burden of a

[10] ISWG 93, doesn't deal directly these transactions, which are dealt with in all the other transactions with the rest of the world in its section XIV – The Rest of the World Account (external transactions account).

number of risks or needs, made either through collectively organised schemes or outside such schemes by government units and non-profit institutions serving households; they include payments from general government to producers which individually benefit households and which are made in the context of social risks or needs. Social contributions include (employers' and employees') actual social contributions transferred to general government (ISWG 93, Prg.8.67 -8.83 and 8.99-8.106; SEC 95, Prg.4.83-4.108).

Other current transfers (transaction D7 of the National Accounts), which consist of net non-life insurance premiums, non-life insurance claims, current transfers within general government, current international co-operation and miscellaneous current transfers (ISWG 93, Prg.8.84-8.98; SEC 95, Prg.4.109-4.140).

Adjustment made for the change in the net equity of households in pension fund reserves (transaction D8 of the National Accounts), which represents the adjustment needed to cause to appear in the saving of households the change in the actuarial reserves on which households have a definite claim and which are fed by premiums and contributions recorded in the secondary distribution of income account as social contributions (ISWG 93, Prg.9.14-9.20; SEC 95, Prg. 4.141-4.144).

Sources

Tables: secondary distribution of income, redistribution of income in kind and use of adjusted income accounts of the institutions (in institutional sectors accounts); external account of primary income and current transfers account (in rest of the world accounts); "from whom to whom" matrices, made available particularly by the Portuguese Statistical Institute, for the inter-institutional flows.

Cell contents

Current transfers from *j* institution(s) to *i* institution(s), with: $i = j$ or $i \neq j$.

2.5.9. Capital Transfers

Capital transfers[11] (transaction D9 of the National Accounts), which cover capital taxes, investment grants and other capital transfers (ISWG 93, Prg.10.131-10.141; SEC 95, Prg.4.146-4.167).

Acquisitions less disposals of non-financial non-produced assets (transaction K2 of the National Accounts) - non-financial non-produced assets consist of land and other tangible non-produced

[11] Capital transfers are different from current transfers because they involve the acquisition or disposal of an asset, or assets, by at least one of the parties to the transaction. Whether made in cash or in kind, they should result in a commensurate change in the financial, or non-financial, assets shown in the balance sheets of one or both parties to the transaction (SEC 95, Prg.4.145).

assets that may be used in the production of goods and services, as well as intangible non-produced assets (ISWG 93, Prg.10.120-10.130; SEC 95, Prg.6.06-6.13).

Sources

Tables: accumulation accounts of the institutions (in institutional sectors accounts); external accumulation accounts (in rest of the world accounts); "from whom to whom" matrices, made available particularly by the Portuguese Statistical Institute, for the inter-institutional flows.

Cell contents

Capital transfers from j institution(s) to i institution(s), with: $i = j$ or $i \neq j$.

2.5.10. Domestic Saving, Trade Margins, Net lending/borrowing.

All the submatrices of this block are balances; therefore, no mention will be made of either sources or the methodology used for their calculation.

- Domestic saving measures the portion of the aggregate income that is not used for final consumption expenditure and current transfers to Portuguese institutions or to the rest of the world (saving: ISWG 93, Prg.9.17-9.20; SEC 95, Prg.8.96).

  Cell contents: gross savings of institution(s) $j \equiv i$ (the domestic saving matrix is diagonal)

- Trade margins, realised on the goods purchased for resale, are a part of the production of the wholesale trade services, retail trade services and repair services of motor vehicles, motorcycles and personal and household goods. They are recorded as part of the product trade and are therefore included in the various components of aggregate demand (the total income of the SAM products account). As the latter is equal to aggregate supply (the total outlay of the SAM products account), the difference between this and the total of its components (production, net taxes on products and imports) must be the trade margins, which total zero, since they are negative in relation to the three above-mentioned activities (because the corresponding value has already been recorded in the production submatrix), but positive and having the same amount in relation to all the other ones (ISWG 93, Prg.6.110-6.114, 15.40-15.44; SEC 95, Prg.3.60, 9.38-9.41).

  Cell contents: trade margins of j products.

- The net lending (+) or borrowing (-) of the total economy is the sum of the net lending or borrowing of the institutional sectors. It represents the net resources that the total economy makes available to the rest of the world (if it is positive) or receives from the rest of the world (if it is negative). The net lending (+) or borrowing (-) of the total economy is equal, but with an

opposite mathematical sign, to the net borrowing (-) or lending (+) of the rest of the world (SEC 95, Prg.8.98) .

Cell contents: net lending (+) or borrowing (-) of *j* institution(s) (for capital account) or *i* institution(s) (for financial account).

2.5.11. Financial Transactions (and the impossibility of working with them)

Financial transactions (F1-7 of the National Accounts) are transactions in financial assets and liabilities between institutional units, and between these and the rest of the world. They are classified as monetary gold and special drawing rights, currency and deposits, securities other than shares, loans, shares and other equity, insurance technical reserves, other accounts receivable/payable.

The outlays (expenditures) side of the (financial) account records changes in the assets, i.e. acquisitions less disposals of financial assets. The incomes (receipts) side of the same account records changes in liabilities and net worth, i.e. the incurrence of liabilities less their repayment. The balancing item of the financial account, i.e. the net acquisition of financial assets less the net incurrence of liabilities, is net lending (+)/net borrowing (-) (ISWG 93, Prg.11.1-11.111; SEC 95, Prg.5.01-5.151).

Sources

Tables: financial account of the institutions (in institutional sectors accounts); "from whom to whom" matrices, made available, until 1995, by the Portuguese Statistical Institute, for the inter-institutional flows.

The unavailability[12] of these sources made it impossible to work with these transactions in SAMs. The only available information is that of the integrated economic accounts, which only allow for the treatment that is made in Table 1.

Cell contents

Financial transactions from *j* institution(s) to *i* institution(s), with: $i = j$ or $i \neq j$.

2.6. A more detailed SAM for Portugal and the description of its cell contents

The SAM presented here as an example was constructed with the aim of studying the effects of changes in the Portuguese government's expenditure and receipts. Other influences affecting its

[12] Due to the fact that these transactions began to be processed by the Portuguese Central Bank, instead of the Portuguese Statistical Institute.

construction were the available data and previous experience in the construction of SAMs (Santos, 1999, 2001, 2003 and 2003a), basically inspired by the works of Graham Pyatt and his associates (Pyatt, 1988 and 1991; Pyatt and Roe, 1977; Pyatt and Round, 1985).

Therefore, further disaggregation was undertaken of the framework described above, always in keeping with the National Accounts Nomenclature. So, in the constructed matrix (see Table 4) the factors of production were disaggregated into labour and capital and the activities and products accounts into primary, secondary and tertiary groups[13]. On the other hand, the current and capital accounts of institutions were divided into households, enterprises (non-financial corporations), central and local government and social security funds (which constitute the general government), and other institutions (financial corporations and non-profit institutions serving households).

[13] The primary group includes agriculture, forestry and fishing (activities/products 01 to 05 of the National Accounts System). The secondary group includes industry, which in turn includes energy and construction (activities/products 10 to 45 of the National Accounts System). The tertiary group includes the rest of the economy (activities/products 50 to 95 of the National Accounts System).

Table 4: Portuguese Social Accounting Matrix for 1999 (in millions of euros)

Outlays (Expenditures) / Incomes (Receipts)				PRODUCTION												INSTITUTIONS		
				Factors of Production			Activities				Products				Current Account		
				Labour	Capital	Sum	Primary	Secondary	Tertiary	Sum	Primary	Secondary	Tertiary	Sum	Households	Enterprises	Gov(Central)
				1	2		3	4	5		6	7	8		9	10	11
PRODUCTION	Factors of Production	Labour	1	0	0	0	520	12312	28342	41174	0	0	0	0	0	0	0
		Capital	2	0	0	0	3273	16119	33142	52534	0	0	0	0	0	0	0
		Sum		0	0	0	3792	28431	61484	93707	0	0	0	0	0	0	0
	Activities	Primary	3	0	0	0	0	0	0	0	6196	362	26	6584	0	0	0
		Secondary	4	0	0	0	0	0	0	0	0	87369	763	88133	0	0	0
		Tertiary	5	0	0	0	0	0	0	0	8	281	108609	108898	0	0	0
		Sum		0	0	0	0	0	0	0	6204	88012	109398	203614	0	0	0
	Products	Primary	6	0	0	0	751	4549	502	5802	0	0	0	0	2942	0	0
		Secondary	7	0	0	0	1846	47615	16703	66165	0	0	0	0	36680	0	786
		Tertiary	8	0	0	0	400	7739	30696	38835	0	0	0	0	38732	0	4846
		Sum		0	0	0	2997	59903	47901	110801	0	0	0	0	78353	0	5631
INSTITUTIONS	Current Account	Households	9	41202	22786	63988	0	0	0	0	0	0	0	0	520	1550	12803
		Enterprises	10	0	21765	21765	0	0	0	0	0	0	0	0	0	134	2
		Gov(Central)	11	0	1206	1206	-174	-171	-413	-758	-229	9596	3968	13334	6240	3458	5855
		Gov(Local)	12	0	1218	1218	106	103	251	459	-21	863	357	1199	283	310	922
		Gov(SSF)	13	0	121	121	-122	-120	-291	-533	-8	354	146	492	4302	4364	4153
		Others	14	0	3854	3854	0	0	0	0	0	0	0	0	1697	1151	933
		Sum		41202	50950	92152	-191	-187	-454	-832	-258	10813	4471	15025	13042	10968	24668
	Capital Account	Households	15	0	0	0	0	0	0	0	0	0	0	0	5915	0	0
		Enterprises	16	0	0	0	0	0	0	0	0	0	0	0	0	11399	0
		Gov(Central)	17	0	0	0	0	0	0	0	0	0	0	0	0	0	-106
		Gov(Local)	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Gov(SSF)	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Others	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Sum		0	0	0	0	0	0	0	0	0	0	0	5915	11399	-106
REST OF THE WORLD			21	119	5559	5678	-14	-14	-34	-63	1936	36829	2936	41700	2261	62	727
Errors and Omissions			22	0	0	0	0	0	0	0	1482	18179	-19662	0	0	0	0
TOTAL				41321	56508	97829	6584	88133	108898	203614	9364	153833	97143	260340	99571	22429	30920

Source: Portuguese National Accounts

Table 4: Portuguese Social Accounting Matrix for 1999 (in millions of euros) (continued)

Outlays (Expenditures) / Incomes (Receipts)				INSTITUTIONS											REST OF THE WORLD	Errors and Omissions	TOTAL
				Current Account				Capital Account									
				Gov(Local)	Gov(SSF)	Others	Sum	Households	Enterprises	Gov(Central)	Gov(Local)	Gov(SSF)	Others	Sum			
				12	13	14		15	16	17	18	19	20		21	22	
PRODUCTION	Factors of Production	Labour	1	0	0	0	0	0	0	0	0	0	0	0	147	0	41321
		Capital	2	0	0	0	0	0	0	0	0	0	0	0	3975	0	56508
		Sum		0	0	0	0	0	0	0	0	0	0	0	4122	0	97829
	Activities	Primary	3	0	0	0	0	0	0	0	0	0	0	0	0	0	6584
		Secondary	4	0	0	0	0	0	0	0	0	0	0	0	0	0	88133
		Tertiary	5	0	0	0	0	0	0	0	0	0	0	0	0	0	108898
		Sum		0	0	0	0	0	0	0	0	0	0	0	0	0	203614
	Products	Primary	6	0	0	0	2942	219	133	0	0	0	0	352	269	0	9364
		Secondary	7	158	22	0	37646	6725	13601	2085	2297	63	1453	26224	23798	0	153833
		Tertiary	8	2386	312	0	46276	1241	2564	17	18	1	168	4009	8023	0	97143
		Sum		2545	335	0	86864	8185	16298	2102	2315	64	1621	30585	32089	0	260340
INSTITUTIONS	Current Account	Households	9	1017	11993	4053	31936	0	0	0	0	0	0	0	3647	0	99571
		Enterprises	10	1	0	517	653	0	0	0	0	0	0	0	11	0	22429
		Gov(Central)	11	8	672	603	16836	0	0	0	0	0	0	0	302	0	30920
		Gov(Local)	12	460	11	57	2043	0	0	0	0	0	0	0	24	0	4944
		Gov(SSF)	13	-29	-216	716	13291	0	0	0	0	0	0	0	762	0	14132
		Others	14	205	509	221	4715	0	0	0	0	0	0	0	81	0	8650
		Sum		1661	12969	6167	69474	0	0	0	0	0	0	0	4827	0	180646
	Capital Account	Households	15	0	0	0	5915	0	0	236	23	0	313	572	266	0	6754
		Enterprises	16	0	0	0	11399	0	0	1150	133	0	0	1282	1019	0	13701
		Gov(Central)	17	0	0	0	-106	95	31	1300	12	610	3	2051	1160	0	3104
		Gov(Local)	18	737	0	0	737	8	24	1553	199	0	4	1787	523	0	3048
		Gov(SSF)	19	0	774	0	774	0	36	30	0	0	0	66	36	0	876
		Others	20	0	0	2425	2425	0	0	195	87	62	313	657	4	0	3086
		Sum		737	774	2425	21143	103	91	4463	454	671	633	6416	3009	0	30569
REST OF THE WORLD			21	0	55	59	3165	-982	1031	58	-5	4	31	137	X	0	50617
Errors and Omissions			22	0	0	0	0	-552	-3719	-3519	283	137	800	-6570	6570	X	0
TOTAL				4944	14132	8650	180646	6754	13701	3104	3048	876	3086	30569	50617	0	X

Source: Portuguese National Accounts

Description of the SAM cell contents:

Row (*i*)	Column (*j*)	Contents
1	3	Wages and salaries paid by primary sector activities
1	4	Wages and salaries paid by secondary sector activities
1	5	Wages and salaries paid by tertiary sector activities
1	21	Wages and salaries paid by the rest of the world (from non-resident employers)
2	3	Gross operating surplus of primary sector activities
2	4	Gross operating surplus of secondary sector activities
2	5	Gross operating surplus of tertiary sector activities
2	21	Property income paid by the rest of the world
3	6	Output of primary sector products through the activities of the same sector
3	7	Output of secondary sector products through the activities of the primary sector
3	8	Output of tertiary sector products through the activities of the primary sector
4	7	Output of secondary sector products through the activities of the same sector
4	8	Output of tertiary sector products through the activities of the secondary sector
5	6	Output of primary sector products through the activities of the tertiary sector
5	7	Output of secondary sector products through the activities of the tertiary sector
5	8	Output of tertiary sector products through the activities of the same sector
6	3	Intermediate consumption of primary sector products through the activities of the same sector
6	4	Intermediate consumption of primary sector products through secondary sector activities
6	5	Intermediate consumption of primary sector products through tertiary sector activities
6	9	Households' actual final consumption of primary sector products
6	15	Gross Capital Formation on primary sector products by the enterprises classified in the household institutional sector
6	16	Gross Capital Formation on primary sector products by non-financial corporations
6	21	Exports of primary sector products
7	3	Intermediate consumption of secondary sector products through primary sector activities
7	4	Intermediate consumption of secondary sector products through the activities of the same sector
7	5	Intermediate consumption of secondary sector products through tertiary sector activities
7	9	Households' actual final consumption of secondary sector products
7	11	Central government's actual final consumption of secondary sector products
7	12	Local government's actual final consumption of secondary sector products
7	13	Social security funds' actual final consumption of secondary sector products
7	15	Gross Capital Formation on secondary sector products by the enterprises classified in the household institutional sector
7	16	Gross Capital Formation on secondary sector products by the non-financial corporations
7	17	Gross Capital Formation on secondary sector products by central government
7	18	Gross Capital Formation on secondary sector products by local government
7	19	Gross Capital Formation on secondary sector products by social security funds
7	20	Gross Capital Formation on secondary sector products by financial corporations and non-profit institutions serving households
7	21	Exports of secondary sector products

Row (*i*)	Column (*j*)	Contents
8	3	Intermediate consumption of tertiary sector products by primary sector activities
8	4	Intermediate consumption of tertiary sector products by secondary sector activities
8	5	Intermediate consumption of tertiary sector products by the activities of the same sector
8	9	Households' actual final consumption of tertiary sector products
8	11	Central government's actual final consumption of tertiary sector products
8	12	Local government's actual final consumption of tertiary sector products
8	13	Social security funds' actual final consumption of tertiary sector products
8	15	Gross Capital Formation on tertiary sector products by the enterprises classified in the household institutional sector
8	16	Gross Capital Formation on tertiary sector products by non-financial corporations
8	17	Gross Capital Formation on tertiary sector products by central government
8	18	Gross Capital Formation on tertiary sector products by local government
8	19	Gross Capital Formation on tertiary sector products by social security funds
8	20	Gross Capital Formation on tertiary sector products by financial corporations and non-profit institutions serving households
8	21	Exports of tertiary sector products (includes direct purchases in the domestic market by non-residents and the c.i.f./f.o.b. adjustment)
9	1	Wages and salaries received by households
9	2	Gross mixed income plus net property income received by households
9	9	Social benefits other than social transfers in kind and miscellaneous current transfers within households
9	10	Social benefits other than social transfers in kind and miscellaneous current transfers from non-financial corporations to households
9	11	Social benefits other than social transfers in kind, social transfers in kind and miscellaneous current transfers from central government to households
9	12	Social benefits other than social transfers in kind, social transfers in kind and miscellaneous current transfers from local government to households
9	13	Social benefits other than social transfers in kind and social transfers in kind from social security funds to households
9	14	Social benefits other than social transfers in kind from financial corporations and non-profit institutions serving households to households; social transfers in kind from non-profit institutions serving households to households; non-life insurance claims from financial corporations to households; adjustment for the change in the net equity of households in pension funds
9	21	Social benefits other than social transfers in kind, non-life insurance claims and miscellaneous current transfers received by households from the rest of the world
10	2	Gross operating surplus plus net property income received by non-financial corporations
10	10	Miscellaneous current transfers within non-financial corporations
10	11	Miscellaneous current transfers from central government to non-financial corporations
10	12	Miscellaneous current transfers from local government to non-financial corporations
10	14	Non-life insurance claims and miscellaneous current transfers from financial corporations to non-financial corporations
10	21	Non-life insurance claims received by non-financial corporations from the rest of the world
11	2	Gross operating surplus plus net property income received by central government
11	3	Net (other) taxes on production paid by primary sector activities to central

Row (*i*)	Column (*j*)	Contents
		government
11	4	Net (other) taxes on production paid by secondary sector activities to central government
11	5	Net (other) taxes on production paid by tertiary sector activities to central government
11	6	Net taxes on primary sector products received by central government
11	7	Net taxes on secondary sector products received by central government
11	8	Net taxes on tertiary sector products received by central government
11	9	Current taxes on income, wealth, etc., employees' social contributions, social contributions by self-employed and non-employed persons and miscellaneous current transfers from households to central government
11	10	Current taxes on income, wealth, etc., and miscellaneous current transfers from non-financial corporations to central government
11	11	Current transfers and miscellaneous current transfers within central government
11	12	Current transfers and miscellaneous current transfers from local government to central government
11	13	Current transfers and miscellaneous current transfers from social security funds to central government
11	14	Current taxes on income, wealth, etc. paid by financial corporations and non-profit institutions serving households to central government; non-life insurance claims paid by financial corporations to central government; miscellaneous current transfers from financial corporations and non-profit institutions serving households to central government
11	21	Current international cooperation and miscellaneous current transfers from the rest of the world to central government
12	2	Gross operating surplus plus net property income received by local government
12	3	Net (other) taxes on production paid by primary sector activities to local government
12	4	Net (other) taxes on production paid by secondary sector activities to local government
12	5	Net (other) taxes on production paid by tertiary sector activities to local government
12	6	Net taxes on primary sector products received by local government
12	7	Net taxes on secondary sector products received by local government
12	8	Net taxes on tertiary sector products received by local government
12	9	Current taxes on income, wealth, etc., employees' social contributions, social contributions by self-employed and non-employed persons and miscellaneous current transfers from households to local government
12	10	Current taxes on income, wealth, etc., and miscellaneous current transfers from non-financial corporations to local government
12	11	Current transfers from central government to local government
12	12	Current transfers within local government
12	13	Current transfers from social security funds to local government
12	14	Current taxes on income, wealth, etc. paid by financial corporations and non-profit institutions serving households to local government; non-life insurance claims paid by financial corporations to local government; miscellaneous current transfers from financial corporations and non-profit institutions serving households to local government
12	21	Current international cooperation and miscellaneous current transfers from the rest of the world to local government

Row (*i*)	Column (*j*)	Contents
13	2	Gross operating surplus plus net property income received by social security funds
13	3	Net (other) taxes on production paid by primary sector activities to social security funds
13	4	Net (other) taxes on production paid by secondary sector activities to social security funds
13	5	Net (other) taxes on production paid by tertiary sector activities to social security funds
13	6	Net taxes on primary sector products received by social security funds
13	7	Net taxes on secondary sector products received by social security funds
13	8	Net taxes on tertiary sector products received by social security funds
13	9	Employers' and employees' social contributions, social contributions by self-employed and non-employed persons and miscellaneous current transfers from households to social security funds
13	10	Employers' social contributions and miscellaneous current transfers from non-financial corporations to social security funds
13	11	Employers' social contributions and current transfers from central government to social security funds
13	12	Employers' social contributions from local government to social security funds
13	13	Employers' social contributions within social security funds
13	14	Employers' social contributions from financial corporations and non-profit institutions serving households to social security funds
13	21	Current international cooperation from the rest of the world to social security funds
14	2	Gross operating surplus plus net property income received by financial corporations and non-profit institutions serving households
14	9	Employers' and employees' social contributions, social contributions paid by self-employed and non-employed persons and net non-life insurance premiums received by financial corporations from households; miscellaneous current transfers from households to non-profit institutions serving households
14	10	Employers' social contributions and net non-life insurance premiums received by financial corporations from non-financial corporations; miscellaneous current transfers from non-financial corporations to financial corporations and non-profit institutions serving households
14	11	Employers' social contributions and net non-life insurance premiums received by financial corporations from central government; miscellaneous current transfers from central government to non-profit institutions serving households
14	12	Employers' social contributions and net non-life insurance premiums received by financial corporations from local government; miscellaneous current transfers from local government to non-profit institutions serving households
14	13	Employers' social contributions and miscellaneous current transfers from social security funds to non-profit institutions serving households
14	14	Employers' social contributions and net non-life insurance premiums paid by financial corporations and non-profit institutions serving households to financial corporations; non-life insurance claims paid by financial corporations to themselves and to non-profit institutions serving households; miscellaneous current transfers from financial corporations to non-profit institutions serving households and within the latter
14	21	Net non-life insurance premiums and non-life insurance claims received by financial corporations from the rest of the world
15	9	Gross savings of households

Row (*i*)	Column (*j*)	Contents
15	17	Investment grants from central government to households
15	18	Investment grants and other capital transfers from local government to households
15	20	Other capital transfers from financial corporations to households
15	21	Investment grants and other capital transfers from the rest of the world to households
16	10	Gross savings of non-financial corporations
16	17	Investment grants and other capital transfers from central government to non-financial corporations
16	18	Investment grants and other capital transfers from local government to non-financial corporations
16	21	Investment grants and other capital transfers from the rest of the world to non-financial corporations
17	11	Gross savings of central government
17	15	Capital taxes and other capital transfers from households to central government
17	16	Other capital transfers from non-financial corporations to central government
17	17	Investment grants within central government
17	18	Investment grants from local government to central government
17	19	Investment grants and other capital transfers from social security funds to central government
17	20	Other capital transfers from financial corporations and non-profit institutions serving households to central government
17	21	Investment grants and other capital transfers from the rest of the world to central government
18	12	Gross savings of local government
18	15	Capital taxes and other capital transfers from households to local government
18	16	Other capital transfers from non-financial corporations to local government
18	17	Investment grants and other capital transfers from central government to local government
18	18	Investment grants within local government
18	20	Other capital transfers from financial corporations and non-profit institutions serving households to local government
18	21	Investment grants and other capital transfers from the rest of the world to local government
19	13	Gross savings of social security funds
19	16	Other capital transfers from non-financial corporations to social security funds
19	17	Investment grants from central government to social security funds
19	21	Investment grants and other capital transfers from the rest of the world to social security funds
20	14	Gross savings of financial corporations and non-profit institutions serving households
20	17	Investment grants from central government to non-profit institutions serving households
20	18	Investment grants and other capital transfers from local government to non-profit institutions serving households
20	19	Investment grants from social security funds to non-profit institutions serving households
20	20	Other capital transfers within financial corporations
20	21	Investment grants from the rest of the world to non-profit institutions serving households

Row (*i*)	Column (*j*)	Contents
21	1	Wages and salaries received by the rest of the world (paid to non-resident employees)
21	2	Property income received by the rest of the world
21	3	(Minus) Other subsidies on production received by primary sector activities from the institutions and other countries of the European Union
21	4	(Minus) Other subsidies on production received by secondary sector activities from the institutions and other countries of the European Union
21	5	(Minus) Other subsidies on production received by tertiary sector activities from the institutions and other countries of the European Union
21	6	Imports of primary sector products plus the part of net taxes on those products received by the European Union institutions
21	7	Imports of secondary sector products plus the part of net taxes on those products received by the European Union institutions
21	8	Imports of tertiary sector products plus the part of net taxes on those products received by the European Union institutions
21	9	Net non-life insurance premiums and miscellaneous current transfers from households to the rest of the world; direct purchases made abroad by residents
21	10	Net non-life insurance premiums received by the rest of the world from non-financial corporations
21	11	Net non-life insurance premiums, current international cooperation and miscellaneous current transfers from central government to the rest of the world
21	13	Social benefits other than social transfers in kind from social security funds to the rest of the world
21	14	Net non-life insurance premiums received by the rest of the world from financial corporations and non-profit institutions serving households; non-life insurance claims received by the rest of the world from financial corporations
21	15	Acquisitions minus disposals of non-produced non-financial assets and other capital transfers from households to the rest of the world
21	16	Acquisitions minus disposals of non-produced non-financial assets and other capital transfers from non-financial corporations to the rest of the world
21	17	Acquisitions minus disposals of non-produced non-financial assets, investment grants and other capital transfers from central government to the rest of the world
21	18	Acquisitions minus disposals of non-produced non-financial assets from local government to the rest of the world
21	19	Acquisitions minus disposals of non-produced non-financial assets from social security funds to the rest of the world
21	20	Acquisitions minus disposals of non-produced non-financial assets from financial corporations to the rest of the world
22	6	Trade margins of primary sector products
22	7	Trade margins of secondary sector products
22	8	Trade margins of tertiary sector products
22	15	Net borrowing of households
22	16	Net borrowing of non-financial corporations
22	17	Net borrowing of central government
22	18	Net lending of local government
22	19	Net lending of social security funds
22	20	Net lending of financial corporations and non-profit institutions serving households
22	21	Net lending of the rest of the world /Net borrowing of the Portuguese economy

3. The SAM and the Input-Output table

Table 5 shows the basic SAM blocks (see Table 2) that are totally or partially "covered" by the Input-Output (IO) table. It can be seen that a significant part is not covered.

On the one hand, the IO table doesn't work with institutions whereas the SAM does. On the other hand, the IO table and the SAM can work with activities but in intermediate consumption IO table can distinguish what is domestically produced and what is imported whereas the SAM doesn't. The essence of the IO table is in recording the transactions between activities, with the structure of production being conditioned by these linkages, whereas the essence of a SAM is in recording the transactions (and transfers) between institutions, with the distribution of income being conditioned by these (Pyatt, 1999). Even if institutions were introduced into the IO table, the lower right-hand corner of the SAM would still not be comprised - "The social accounting system offers a more extensive capture of flows and transactions, endogenizing even more of the entries in the primary inputs and final demand components of the input-output table and, most importantly, affording the opportunity to account for both earned and unearned income (income from rents, dividends etc.)"[14]

Therefore, the SAM cannot be seen as an extension of the IO table, although a SAM could be used to consistently study the interdependence of income distribution and production structure (Pyatt, 1999).

[14] G. Hewings: *New Developments in Input-Output Modelling: a short course*, session 4, Summer School – 5th edition, Department of Economics - Institute of Economics and Business Administration (ISEG – Instituto Superior de Economia e Gestão), Lisbon, July 2003.

Table 5. Basic SAM blocks "covered" by the IO table

Outlays (expenditures) (*j*) / Incomes (receipts) (*i*)		Production			Institutions			Rest of the World (RW)	Errors and Omissions
		Factors	Activities	Products	Current A.	Capital A.	Financial A.		
Production	Factors	0		0	0	0	0		0
	Activities	0	0		0	0	0	0	0
	Products	0		0			0		0
Institutions	Current A.					0	0		0
	Capital A.	0	0	0			0		0
	Financial A.	0	0	0	0	0			
Rest of the World								0	
Errors and Omissions		0	0		0		0		0

Blocks:

- Compensation of the factors of production
- Production
- Intermediate Consumption
- Blocks "covered" by IO table
- Final Consumption
- Net Indirect Taxes
- Gross Capital Formation
- External Trade
- Current Transfers
- Capital Transfers
- Domestic Saving, Trade Margins, Net lending/ borrowing
- Financial Transactions

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