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Institutional interrelations in distributive transactions seen through a magnifying glass.

A proposal to improve national accounts data for use in input-output analysis.

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Institutional interrelations in distributive transactions seen through a *magnifying glass*.

A proposal to improve national accounts data for use in input-output analysis.

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(September 2024)

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Abstract:

"A System of National Accounts" released in 1968 and conceived under the chairmanship of Richard Stone, was the first step to integrate input-output analysis in national accounts. In the first paragraph of its third chapter, with the title "The system as a basis for input-output analysis" of Stone's authorship, according with his autobiography (Stone, 1992), it can be read: "The input-output data contained in the system appear in the rows and columns relating to commodities and industries. In order to explain and illustrate how these data can be used for input-output analysis, a *magnifying glass* has been applied to the relevant parts of table 2.1 …" (UN, 1968, p. 35; table 2.1 is an illustration of the complete system, in a matrix form, that is, in a social accounting matrix).

Later, in 1981, Richard Stone wrote "… from a formal point of view, input-output analysis could be carried out with other parts of the national accounts or, indeed, with several related parts. In a ... study ..., published in 1977... Graham Pyatt and his associates presented an analysis ... in which they wanted to emphasise the distribution of income … to set up a framework within which they could analyse actual and potential policies …" (Stone, 1981, pp. 62-63).

This paper is based on the works of Richard Stone, Graham Pyatt and some of their followers and addresses the measurement of institutional interrelations in distributive transactions, within the conceptual framework of the current version of the "System of National Accounts".

Without an "A" before, the "System of National Accounts" (SNA, for short) in its current version was released in 2008 and conceived under the responsibility of the Intersecretariat Working Group on National Accounts (ISWGNA, 2009). It covers industry interrelations in transactions in products with the supply and use tables (from which input-output accounts can be conceived). It covers institutional interrelations in financial transactions with the flow-of-funds tables or matrices, but it does not cover distributive transactions. This means that, in the study of the economic system, while the parts relating to the production and financial processes can be supported by (more or less, powerful) *magnifying glasses* provided by the national accounts, the part relating to the distribution process has no support at all.

Thus, for the six groups of institutional sectors identified by the SNA, starting from the published totals of the current and capital accounts, organized in the defined sequence, the nine categories of distributive transactions (disaggregated at the second level) are analysed individually and the possibilities of filling in the so called from-whom-to-whom matrices are explored. Since the resources of some are the uses of others, it will be shown how information about the origin of the resources (from-whom), or the destination of the uses (to-whom) can complete the filling in of these matrices.

Therefore, albeit for a reduced magnification level, this proposal can be seen as a starting point for something more amplified, capable of being used within the scope of input-output analysis. Its implementation would enable a better treatment of the networks of transactions between institutional sectors underlying the distribution process, which would certainly be reflected in the study of the distribution and redistribution of income, in any possible aspect, namely, inequality, poverty, wealth, corruption, etc.

Key words: National Accounts; Social Accounting Matrices; Input-Output Analysis

JEL Codes: E01; E16; D57

OUTLINE

1. Introduction 1

2. Carrying out input-output analysis in the study of income distribution with data from national accounts

2.1. Background 4

2.2. A SAM-based approach 8

3. Institutional sectors and distributive transactions in national accounts

3.1. Meaning and disaggregation 12

3.2. Positioning in flow accounts 12

3.3. Role in the distribution process 25

3.4. Inclusion in matrix representations 34

4. Construction of from-whom-to-whom matrices for distributive transactions 38

4.1. Compensation of employees 39

4.2. Taxes on production and imports 43

4.3. Subsidies 48

4.4. Property income 51

4.5. Current taxes on income, wealth, etc. 56

4.6. Social contributions and benefits 58

4.7. Other current transfers 61

4.8. Adjustment for the change in pension entitlements 64

4.9. Capital transfers 65

5. A possible use of from-whom-to-whom matrices for distributive transactions to extend input-output analysis to income distribution 68

6. Concluding remarks 74

References 77

Annexes

1. Summary of the sequence of national accounts that record transactions 80

2. Recording of the resources of distributive transactions extended to origin institutional sectors . 86

3. The distribution process without *residual difference* 91

4. Association of the from-whom-to-whom matrices to the accounts of the aggregated national accounting matrix of transactions with gross balancing items 94

5. A disaggregated version of the social accounting matrix of transactions with gross balancing items. Supporting information and data 97

ACRONYMS AND ABBREVIATIONS

cif … cost-insurance-freight included (prices)

CPC … Central Product Classification

fob … free on board (prices)

GDP … Gross Domestic Product

GNI … Gross National Income

ISIC … International Standard Industrial Classification of All Economic Activities

ISWGNA … Intersecretariat Working Group on National Accounts

NPISHs … Non-Profit Institutions Serving Households

p. … page; pp … pages

pg. … paragraph

RD … *residual difference*

SAM … Social Accounting Matrix

SNA … System of National Accounts

LIST OF TABLES[2]

3.2-1a. Generation of income account - uses 15

3.2-1b. Generation of income account - resources 16

3.2-2a. Allocation of primary income account - uses 17

3.2-2b. Allocation of primary income account - resources 18

3.2-3a. Redistribution of income accounts - uses 19

3.2-3b. Redistribution of income accounts - resources 20

3.2-4a. Use of income accounts - uses 21

3.2-4b. Use of income accounts - resources 22

[2] The numbering of tables is preceded by a dash and the number of the section in which they are inserted, starting with each one.

3.2.5a. Capital account - changes in assets 23

3.2-5b. Capital account - changes in liabilities and net worth. 24

3.3-1. Net taxes on production and imports 26

3.3-2. Factor income originating 27

3.3-3. From factor income originating to factor income retained 28

3.3-4. Chain of redistribution – first round 28

3.3-5. Chain of redistribution – second round 29

3.3-6. Chain of redistribution – second sub-round 30

3.3-7. Chain of redistribution – third round 31

3.3-8. Chain of redistribution – fourth round..... 32

3.4-1. Aggregated national accounting matrix of transactions, with gross balancing items 36

3.4-2. Aggregated social accounting matrix of transactions, with gross balancing items 37

4.1-1. Recording of compensation of employees in the generation of income account 39

4.1-2. Recording of compensation of employees in the allocation of primary income account 39

4.1-3. Possible filling in of the from-whom-to-whom matrices relating to compensation of employees, from the distribution of income accounts..... 40

4.1-4. Recording of the uses of compensation of employees in the generation of income account, extended to destination institutional sectors 41

4.1-5. Recording of the uses and the resources of compensation of employees in the allocation of primary income account, extended to destination and origin institutional sectors 42

4.1-6. Filling in of the from-whom-to-whom matrices relating to compensation of employees, from the distribution of income accounts, extended to destination and origin institutional sectors 43

4.2-1. Recording of taxes on production and imports in the generation of income account 44

4.2-2. Recording of taxes on production and imports in the allocation of primary income account 44

4.2-3. Possible filling in of the from-whom-to-whom matrices relating to taxes on production and imports, from the distribution income accounts..... 45

4.2-4. Recording the uses of taxes on production and imports in the generation of income account, extended to destination institutional sectors 46

4.2-5. Filling in of the from-whom-to-whom matrices relating to taxes on production and imports, from the corresponding uses in the generation of income account, extended to destination institutional sectors 47

4.3-1. Recording of subsidies in the generation of income account 48

4.3-2. Recording of subsidies in the allocation of primary income account 48

4.3-3. Possible filling in of the from-whom-to-whom matrices relating to subsidies, from the distribution income accounts 49

4.3-4. Recording the uses of subsidies in the generation of income account, extended to destination institutional sectors 50

4.3-5. Filling in of the from-whom-to-whom matrices relating to subsidies, from the corresponding uses in the generation of income account, extended to destination institutional sectors 51

4.4-1. Recording of property income in the allocation of primary income account 52

4.4-2. Possible filling in of the from-whom-to-whom matrices relating to property income, from the allocation of primary income account 53

4.4-3. Recording of the uses of property income in the allocation of primary income account, extended to destination institutional sectors 54

4.4-4. Filling in of the from-whom-to-whom matrices relating to property income, from the corresponding uses in the allocation of primary income account, extended to destination institutional sectors..... 55

4.5-1. Recording of the uses of current taxes on income, wealth, etc. in the secondary distribution of income account 56

4.5-2. Possible filling in of the from-whom-to-whom matrices relating to current taxes on income, wealth, etc., from the secondary distribution of income account 57

4.5-3. Recording of the uses of current taxes on income, wealth, etc. in the secondary distribution of income account, extended to destination institutional sectors..... 58

4.6-1. Recording of social contributions and benefits in the redistribution of income accounts 59

4.6-2. Possible filling in of the from-whom-to-whom matrices relating to social contributions and benefits, from the redistribution of income accounts 59

4.6-3. Recording of the uses of social contributions and benefits in the redistribution of income accounts, extended to destination institutional sectors 60

4.7-1. Recording of other current transfers in the secondary distribution of income account 61

4.7-2. Possible filling in of the from-whom-to-whom matrices relating to other current transfers, from the secondary distribution of income account 62

4.7-3. Recording of the uses of other current transfers in the secondary distribution of income account, extended to destination institutional sectors 63

4.7-4. Filling in of the from-whom-to-whom matrices relating to other current transfers, from the corresponding uses in the secondary distribution of income account, extended to destination institutional sectors. 64

4.8-1. Recording of adjustment for the change in pension entitlements in the use of income accounts 65

4.8-2. Filling in of the from-whom-to-whom matrices relating to adjustment for the change in pension entitlements, from the use of income accounts 65

4.9-1. Recording of capital transfers in the capital account 66

4.9-2. Possible filling in of the from-whom-to-whom matrices relating to capital transfers, from the capital account 66

4.9-3. Recording of capital transfers payable in the capital account, extended to destination institutional sectors 67

4.9-4. Filling in of the from-whom-to-whom matrices relating to capital transfers, from the transfers payable of capital account, extended to destination institutional sectors..... 68

5.1-1. Association of the from-whom-to-whom matrices relating to compensation of employees and property income to the accounts of the aggregated and disaggregated social accounting matrices of transactions 69

5.1-2. Association of the from-whom-to-whom matrices relating to taxes and subsidies on products to the accounts of the aggregated and disaggregated social accounting matrices of transactions 70

5.1-3. Association of the from-whom-to-whom matrices relating to (other) taxes and subsidies on production to the accounts of the aggregated and disaggregated social accounting matrices of transactions 71

5.1-4. Association of the from-whom-to-whom matrices to the current transactions of the aggregated and disaggregated social accounting matrices of transactions 72

5.1-5. Association of the from-whom-to-whom matrices to the capital transactions of the aggregated and disaggregated social accounting matrices of transactions 73

A.1-1a. Current Accounts: production and distribution of income – uses..... 80

A.1-1b. Current Accounts: production and distribution of income – resources 81

A.1-2a. Current Accounts: redistribution and use of income – uses 82

A.1-2b. Current Accounts: redistribution and use of income – resources 83

A.1-3a. Accumulation accounts: capital and financial – changes in assets 84

A.1-3b. Accumulation accounts: capital and financial – changes in liabilities and net worth 85

A.2-1. Taxes on production and imports 86

A.2-2. Subsidies 86

A.2-3. Property income 87

A.2-4. Current taxes on income, wealth, etc. 88

A.2-5. Social contributions and benefits 88

A.2-6. Other current transfers 89

A.2-7. Capital transfers, receivable 90

A.3-1. Net taxes on production and imports 91

A.3-2. Factor income originating 91

A.3-3. From factor income originating to factor income retained 92

A.3-4. Chain of redistribution – first round 92

A.3-5. Chain of redistribution – second round 92

a.3-6. Chain of redistribution – second sub-round 93

A.3-7. Chain of redistribution – third round 93

A.3-8. Chain of redistribution – fourth round 93

A.4-1. Association of the from-whom-to-whom matrices to the distribution of income and the rest of the world accounts of the aggregated national accounting matrix of transactions 94

A.4-2. Association of the from-whom-to-whom matrices to the redistribution of income and the rest of the world accounts of the aggregated national accounting matrix of transactions ... 95

A.4-3. Association of the from-whom-to-whom matrices to the use of income, capital, and the rest of the world accounts of the aggregated national accounting matrix of transactions ... 96

A.5-1. Accounts description 97

A.5-2. Supply Table at purchasers' prices 98

A.5-3. Use Table at purchasers' prices 99

A.5-4(a-e). Disagregated social accounting matrix 100

1. Introduction

Under the chairmanship of Richard Stone, "A System of National Accounts and Supporting Tables" was released in 1953 and revised twice, in 1960 and 1964. In the introduction to Chapter II (basic concepts) we can read:

> "The aim of national accounting is to describe the structure of an economic system in terms of transactions. Production may be taken as basic concept ... concepts ... related to products … the finance of the expenditure on … products … and ... its ultimate source either in domestic productive activity or in the rest of the world. By setting out the matter in this way a complete description is given of the transactions in an economic system. It is apparent, however, that when this stage has been reached great advantages accrue from presenting the network of transactions in terms of system of accounts" (UN, 1953, 1960, 1964, p. 4).

That network of transactions was retaken and improved in the new version of that system, that is in "A System of National Accounts" released in 1968, also under the chairmanship of Richard Stone.

The first step was then taken to integrate input-output analysis in national accounts, in the part relating to transactions on production. Thus, in the first paragraph to Chapter III (the system as a basis for input-output analysis) of Stone's authorship, according with his biography (Stone, 1992), we can read:

> "The input-output data contained in the system appear in the rows and columns relating to commodities and industries. In order to explain and illustrate how these data can be used for input-output analysis, a *magnifying glass* has been applied to the relevant parts of table 2.1…" (UN, 1968, p. 35; table 2.1 is an illustration of the complete system, in a matrix form, that is, in a social accounting matrix).

Although not as developed, a first approach to flow-of funds tables was also carried out, in the part relating to transactions in financial assets and liabilities. On the other hand, transactions on distribution of income were left out.

Later, in 1981, Richard Stone wrote:

> "… from a formal point of view, input-output analysis could be carried out with other parts of the national accounts or, indeed, with several related parts. In a ... study ..., published in 1977[3]... Graham Pyatt[4] and his associates presented an analysis ... in which they wanted to emphasise the distribution of income … to set up a framework within which they could analyse actual and potential policies …" (Stone, 1981, pp. 62-63).

[3] Pyatt, G., & Roe, A. (1977). *Social Accounting for Development Planning with special reference to Sri Lanka*. Cambridge University Press. With a Foreword by Professor Richard Stone.

[4] Who was Richard Stone' assistant in the Department of Applied Economics, at the University of Cambridge.

Conceived under the responsibility of the Intersecretariat Working Group on National Accounts[5], without an "A" before, two versions of the "System of National Accounts"(SNA, for short), were released after 1968, one in 1993 and the current in 2008 (ISWGNA, 1993 and 2009). A new one is scheduled to 2025.

2008 SNA covers, on the one hand, industry interrelations in transactions related to products with the supply and use tables, from which input-output accounts can be conceived, and, on the other, institutional interrelations in financial transactions with the flow-of-funds tables or matrices. Institutional interrelations in distributive transactions continue to be left out. This means that, in the study of the economic system, while the parts relating to the production and financial processes are supported by (more or less, powerful) *magnifying glasses* provided by the national accounts, the study of the distribution and redistribution of income has no support at all.

From what was available when this text was written, we get to know that the 2025 SNA[6], in a part dedicated to "extended and thematic accounts and tables", has a chapter (37) in which institutional interrelations are approached, however, neither from the annotated outline nor from the draft chapter, it was possible to understand a treatment of distributive transactions as proposed here.

This paper addresses the measurement of institutional interrelations in distributive transactions and makes a related proposal, within its scope, to improve national accounts data for use in input-output analysis (among others).

Based on the work of Richard Stone, Graham Pyatt[7] and some of their followers, namely Jeffery Round, this paper results from my research work on the SAM-based approach, with about three decades.

With applications that have mainly involved the use of national accounts data, it has been a work accompanied by a growing need to know and understand the complex system that underlay them.

On the other hand, it has been a work applied mainly to Portugal and dedicated to distribution of income by using input-output analyses. For that, have been used national accounts data, published by the Portuguese Statistical Office, and from-whom-to-whom matrices, not-published but provided by it, within the scope of that research work, with the recommendation of confidentiality. Thus, those who have needed to work institutional interrelations in distributive transactions and are not privileged in the access to from-whom-to-whom matrices, as I have been, must make their own estimates, certainly, with intuition and all the subjectivity that this involves.

[5] ISWGNA, for short, with representatives of the United Nations, European Commission, International Monetary Fund, Organisation for Economic Cooperation and Development and World Bank.

[6] *https://unstats.un.org/unsd/nationalaccount/SNAUpdate/2025/chapters.asp*

[7] Whom I had the great pleasure of meeting in 2011, at the *19th International Input-Output Conference* - Alexandria, VA (USA), to whom I owe the availability of an exhaustive list of R. Stone's work, which allowed me a better knowledge of the SAM-based approach and national accounts.

From occasional contacts I had over time with professionals from that source of information, I understood that those from-whom-to-whom matrices are used to calculate the published national accounts statistics and that the arguments used to its non-publication and the restriction to their disclosure are associated to statistical secrecy and to uncertainty regarding the used sources and methods. This is also, I suppose, what happens in statistical offices of other countries.

Even so, I believe that professionals working on national accounts, with access to a wider range of data from different sources of information and with in-depth knowledge of sampling and error handling methods, are better able and available to produce the best possible quantitative description of the institutional interrelations in the distributive transactions of the country they are dealing with. Therefore, my proposal is that to the data of national accounts published regularly, in the part relating to the accounts of institutional sectors, others be added relating to the origin of resources (from-whom) and/or to the destination of uses (to-whom) of distributive transactions.

Thus, after this introduction, Chapter 2 addresses the use of input-output analysis in the study of income distribution with data from national accounts. To this end, a background is first defined by bringing together a set of passages and references to works by Richard Stone and making a brief approach to the sequence of versions of the SNA that followed the 1953 one and the way in which institutional interrelations in the part relating to the distribution of income were successively omitted. Then, I will present my own approach to the use of input-output analysis in the study of distribution of income based on national accounts, using passages and references to some of my works.

Chapter 3 provides a framework of what is supposed to be published by the national accounts regarding institutional sectors and distributive transactions. This framework involves a summary of the corresponding meaning and disaggregation, positioning in flow accounts, role in the distribution process and inclusion in matrix representations.

Chapter 4 explores the construction of from-whom-to-whom matrices for each of the nine categories of distributive transactions, firstly from what is supposed to be published by the national accounts and then filling in the lack of knowledge with estimates of data relating to the origin of resources (from-whom) or to the destination of uses (to-whom) of distributive transactions of institutional sectors.

In Chapter 5 a possible use of the constructed from-whom-to-whom matrices in the disaggregation of a social accounting matrix is shown and the corresponding use to extend input-output analysis to income distribution is explained.

The concluding remarks, in Chapter 6, bring together several arguments defending the proposal made and stressing some aspects treated in this paper.

Within the scope of this proposal and complementing Santos (2022), Santos (2023) makes a first experiment of "Measurement of institutional interrelations in distributive transactions" applied to the "National Accounts of Portugal in 2018" (at current prices, in millions of euros). Now an identical experiment is carried out but, to simplify and generalize, with an application to the numerical example

used in the 2008 SNA - with the different parts gathered in Annex 2[8], hereinafter referred to: "national accounts of a fictious country, in a specific year, at current prices, in currency units".

2. Carrying out input-output analysis in the study of income distribution with data from national accounts.

2.1. Background

Richard Stone started his Nobel Lecture, in 1984, under the title "The Accounts of Society", by expressing the intention to "discuss how accounting can be useful in describing and understanding society". Thus, after considering that "the three pillars on which an analysis of society ought to rest are studies of economic, socio-demographic and environmental phenomena", he restricts his focus to the first, although considering that most of the accounting ideas developed in the corresponding context are equally applicable in the other two fields. In this regard he says:

> "By organising our data in the form of accounts we can obtain a coherent picture of the stocks and flows, incomings and outgoings of whatever variables we are interested in, whether these be goods and services, human beings or natural resources, and thence proceed to analyse the system of which they form part. The function of the national accounts in this process can... be... illustrated… with a diagram" (Stone, 1986, pp. 5-6).

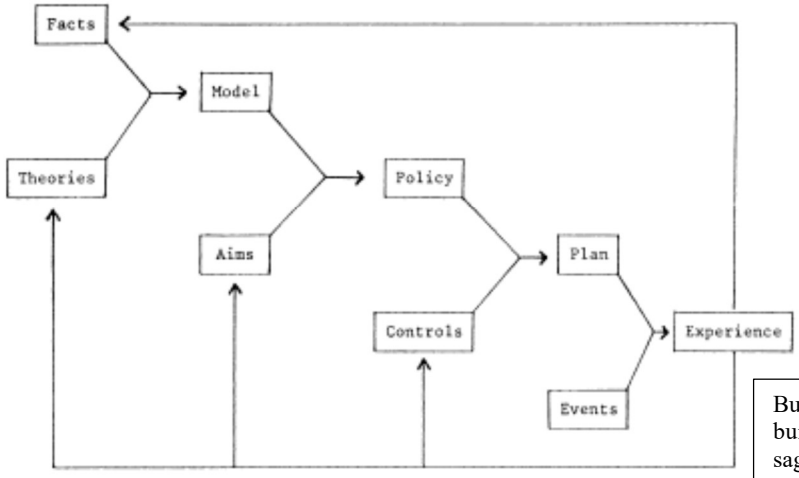
The mentioned diagram is shown below. To systematize the interpretation, the text boxes surrounding the diagram transcribe the main ideas associated to each of its boxes.

From the process described through that diagram Richard Stone identifies the following main concerns associated with the corresponding involvement in society: scientist - collecting and ordering facts, formulating theories and building models; politician – formulating aims and sketching out policies; administrator – defining a set of controls to combine with a policy model to draw up a plan.

Considering all the interactions represented in that diagram, national accounts, data and systems, are represented by the box labelled 'facts', to which the rest of that lecture is dedicated, with the presentation of the already mentioned 1968 SNA and his important contribution to the national accounts.

[8] The access to a pdf file and an *excel* file can be found in: *https://unstats.un.org/unsd/nationalaccount/sna2008.asp*.
In this table: cells with a zero entry are those where an entry is possible but in practice it may be negligible; blank cells indicate either an entry is not possible, or a disaggregation is not provided.

Diagram 1
MODELS, POLICIES AND PLANS



.. facts, organised as far as possible into a coherent set of accounts

Given this, we can formulate some hypotheses, or theories, about the technical and behavioural relationships that connect them

By combining facts and theories we can construct a model which when translated into quantitative terms will give us an idea of how the system under investigation actually works

Since no system works perfectly, we may want to change ours in order to try to improve it. This implies formulating some aims, and by introducing these aims into our descriptive model we can sketch out a policy. But for practical purposes this is not the end

The policy model needs to be combined with a set of controls which specify the way in which we propose to realise the policy, thus enabling us to draw up a plan. This plan can now be run through the computer to show us the probable repercussions of the intended changes throughout the system.

But since no model-builder however sagacious can think of everything and no model however detailed can reflect all the complexities of the real world, it is likely that when the plan is actually put into practice, events will reveal its deficiencies. This experience will lead us to reconsider the facts we took into account and our methods of recording and measuring them, the theories we used in relating them, the precise aims we thought desirable, and the controls to be used in achieving these aims

As experience feeds back to modify facts, theories, aims and controls, so the whole picture will change and hopefully we shall get a better model, a better policy and a better plan.

Richard Stone's contribution to input-output analysis", was also important, as surveyed in the article from which the following passages were excerpted:

> "Most of his work incorporates a variety of tools and methods and shows a steady determination to reconcile theory with empirical evidence.
> With such a perspective, the adoption of input-output analysis was effective … (and)… essentially driven by practical objectives, in particular the increase in understanding of how the different elements of the economic system are interrelated.
> Input-output analysis became important to Stone when he was working on the development of the new Social National Accounts …, a work he began at the outbreak of war" (Marangoni & Rossignoli, 2016, pp. 220-221).

Within the scope of that contribution, a Stone's survey of the literature on input-output analysis and its importance to economic planning, is introduced with the above diagram, and the following statement:

> "Input-output analysis is a simple form of economic modelling, widely used to represent industrial interdependence but applicable in many other areas of economic and social life. Economic planning is a means of organising an economy or· some smaller economic unit with a view to ensuring that certain aims can be realised." (Stone, 1984, p. 67)

The following statement complement what was just said:

> "Input-output analysis can be dated from Wassily Leontief's paper of 1936 and ... book … five years later[9] … provided us with an input-output model and a database in the form of small tables…The new ideas took on and were rapidly developed in a number of areas which can be outline as follows... The construction of input-output tables … Input-output taxonomy … Input-output and national accounts … Prices and quantities … Dynamics … The stability of coefficients, updating and projection … Regional studies…" (Stone, 1986a, pp. 14-17)

In the part relating to "Input-output and national accounts" Stone notes that it was the experience with the main database for the model of the British economy – a social accounting matrix (SAM), within the scope of the Cambridge Growth Project[10], that "provided some ideas for the revision of the UN's system of national accounts ...". He was, certainly, referring to the version of 1968 of that system and the introduction of input-output data, in the matrix form of the complete system, that is, in the social accounting matrix, to study the industrial interdependence.

The later presentation also mentions "extensions of the input-output model... in the sense that they were not regarded as part of input-output analysis in the early days", within which "the distribution of income" is mentioned, together with "accounting of pollution", "international trade and world models", and "wealth and flow of funds". (Stone, 1986a, pp. 21-23).

Before these statements, "A System of National Accounts" was published by the United Nations, in the form of report, in a first version in 1953[11] (43 pages long) and in a second version in 1968 (229 pages long). Both were prepared by a group of national income experts under the chairmanship of Richard Stone. As mentioned in the preface to the first version "the purpose (…) is to set out a

[9] Leontief, W. (1936), Quantitative input and output relations in the economic system of the United States. *The Review of Economic Statistics*, 18(3): 105-125.

Leontief, W. (1941), *The Structure of American Economy*. 1st ed. (1919-1929), Cambridge: Harvard University Press, 1941; 2nd ed. (1919-1939), New York: Oxford University Press, 1951.

[10] Started after the second world war in the Department of Applied Economics in Cambridge, under Stone's directorship, with Keynes involvement (Stone, 1992, p.111; Pesaran, 1991, p.94). The aim of the project was to study "quantitatively in as great detail as possible the present structure and future prospects of the British economy, the possibilities of stimulating its rate of growth and the problems to which this would give rise" (Stone et. al., 1962, introduction). Stone's work in this project has been "instrumental in the development of appropriate econometric methodology for the construction and analysis of large disaggregated macro-econometric models" (Pesaran, 1991, p.85).

[11] With two revisions: UN (1960) and UN (1964).

standard national accounting system in order to provide a framework for reporting national income and product statistics which is of general applicability" (UN, 1953, p. vii). In turn, the preface to the second version mentions a "new System" that is a "revision and extension of the SNA which was formulated in 1952" (UN, 1968, p. iii).

According with the introduction to the latter, "a start is made" in order that: "the production account could be subdivided so as to display the commodity flows between industries which are the central feature of input-output studies..."; "be possible to introduce all relevant financial flows"; "the accounting structure ... be completed by adding balance sheets..."; "... the principal product flows and stocks ... be ... express(ed) in constant prices". It is also recognized that "The information needed for input-output and flow-of-funds analysis is treated in considerable detail; the information relating to holdings of assets and liabilities is treated more summarily. Information on distribution and redistribution of income..., is confined to flows between broad sectors …" (UN, 1968, pp. 1, 14).

In fact, flows regarding distribution and redistribution of income are only confined to the totals by broad institutional sectors of origin and destination. We are talking about corporations and quasi-corporations, or non-financial enterprises, financial institutions, general government, households, and private non-profit institutions. The flows associated to distribution and redistribution of income are, mainly, transactions recorded, within consumption accounts, in income and outlay accounts, which "delineate the receipt and the disposition of incomes by institutional units; and are linked directly with the production accounts and the final consumption expenditure" (UN, 1968, p. 120). Establishing parallelism with the current system, which we will see in Chapters 3 and 4, we also have capital transfers, recorded, within accumulation accounts, in capital finance accounts, which "portray the ways in which institutional units finance their accumulation of capital; and have direct ties with the capital formation and income and outlay accounts" (UN, 1968, p. 120).

As systematized in "an illustration of the complete system" and described in the Chapter II (the structure of the system), in which it is integrated, transactions recorded in income and outlay accounts are components of the value added and forms of income. Compensation of employees, operating surplus, and (net) indirect taxes are components of the value added. Wages and salaries, employers' contributions, social security contributions, property income and current transfers are examples of forms of income. (UN, 1968, pp.17-34).

The next two (much more detailed) versions of the SNA, the one from 1993 version (814 pages long) and the current one from 2008 (610 pages long), prepared by the ISWGNA, continue to pay great attention to the treatment of transactions associated with production and generation of income, in the form of supply and use tables. However, distribution and redistribution of income transactions and the corresponding institutional interrelations continue to be left out, as shown in Chapter 4 of this paper, for the current version. This means that countries or groups of countries who adopt or adapt the SNA to produce their national accounts only have guidelines to produce data on transactions associated with production and generation of income for use in input-output analysis.

Authored by Richard Stone, the Foreword to the book of Pyatt, G., & Roe, A. (1977). *Social Accounting for Development Planning with special reference to Sri Lanka*, which he considers as an example of use of input-output analysis in the part of the national accounts relating to distribution of income, as previously mentioned, he states:

> "National accounting systems can be built up from two points of view, the general and the particular; though whichever line is followed the ultimate purpose is the same: to provide a data base for economic analysis and policy.
> Systems established by international organisations, like the SNA rather naturally start from a general point of view…What is needed is a systematic and coherent framework which can accommodate … bodies of data..., needed for a statistical description of the functioning of an economy. ... the user is left free to put his emphasis where he pleases and to leave some parts of the system completely aggregated while other parts are elaborated in detail.
> … this book has been devised from a particular point of view: to provide a data base for the kind of economic analyses and policy considered by the authors to be of relevance ... their particular aim has been to rearrange and extend the framework of the SNA so as to ensure that it can be used to analyse questions relating to employment and the distribution of income… the extension is designed to divide the household sector into a number of groups distinguished by location (urban, rural), organisation (estates and other rural) and income" (Stone, 1977, pp. xviii-xix).

Going towards this statement and adapted to the current version of the SNA, the proposal made in this paper has the aim of improving the body of data regarding institutional interrelations in distributive transactions from a general point of view. This would allow a more consistent work of "particular points of view", within or out the scope of the national accounts.

2.2. A SAM-based approach

Many other works preceded Santos (2022a) with a SAM-based approach, which has been progressively conceived. In all of them, applications that involved the use of national accounts – data and systems, were developed, especially with experiments involving institutional interrelations in distributive transactions. Among the many references to these works and revealing their relevance, are common to almost all: Stone (1986); Pyatt and Round (1985); Pyatt (1988, 1991).

A SAM is a square matrix, in which the sum of the rows is equal to the corresponding sum of the columns. In terms of flows, the entries made in the rows represent resources and changes in liabilities and net worth (or: inflows, incomings, incomes, receipts), and entries made in columns represent uses and changes in assets (or: outflows, outgoings, outlays, expenditures).

The SAM-based approach is used to measure and model the economic activity of a country. For that, empirical and theoretical descriptions are given, respectively, through numerical and algebraic versions of the SAM. Each cell of the former is filled with numerical values, whereas of the latter is

filled with algebraic expressions that, together with those of all the other cells, form a SAM-based model, the calibration of which involves a replication of the numerical version.

Thus, by adopting the SNA as the underlying base source of information, a basic aggregated structure, representing a summary set of the national accounts, is defined and the consistency of the whole system is ensured. That basic structure also represents the controlling totals for other level of disaggregation, therefore, using a top-down method of construction. Under the scope of the 2008 SNA, examples of aggregated and disaggregated numerical versions can be found in Section 3.4, and Chapter 5, respectively.

As mentioned before, mainly applied to Portugal that empirical approach has been developed by using national accounts data, published by the Portuguese Statistical Office, and from-whom-to-whom matrices, not-published but provided by it, within the scope of the underlying research project, with the recommendation of confidentiality. Therefore, with few exceptions and for the level of disaggregation disclosed by that source of information, it was not necessary to make estimates or use special techniques to balance the matrices representative of the system. A detailed description of the construction of aggregated and disaggregated numerical versions of SAMs from the national accounts of Portugal in 2018 can be found in Santos (2022).

Adopting the systematization made by Santos (2022a), the following formulation of a SAM algebraic version, representative of an accounting multiplier model, illustrates a possible theoretical description of a country's economic activity within the scope of input-output analysis.

“a) Four main assumptions:

a.1) structural features of the numerical version do not change;

a.2) resources’ endowment is provided and there is no full employment;

a.3) production technology is provided;

a.4) relevant transactions are those that are measured by the national accounts, as defined by the underlying system.

b) Static analysis, at current prices.

c) SAM accounts and the corresponding transactions are organised into two main groups:

c.1) endogenous, if defined in the modelling process; and

c.2) exogenous, if defined outside the modelling process and if exerts an influence on the endogenous group.

d) Description and formalisation of the network of linkages between accounts.

To simplify: resources and changes in liabilities and net worth, represented in rows, are only mentioned as resources; uses and changes in assets, represented in columns, are only mentioned as uses.

Multiplications are identified by ".", if they are not at the end of a sentence.

d-1) Transactions within endogenous accounts: N = matrix; n = (column) vector of the corresponding row sums.

d-2) Transactions within exogenous accounts: R = matrix; r = (column) vector of the corresponding row sums.

d-3) Uses of exogenous in endogenous accounts, or injections into endogenous from exogenous accounts: X = matrix; x = (column) vector of the corresponding row sums.

d-4) Resources of exogenous from endogenous accounts, or leakages from endogenous into exogenous accounts: L= matrix; l = (column) vector of the corresponding row sums.

d-5) Total injections into endogenous accounts from exogenous accounts = total leakages from endogenous accounts into exogenous accounts:

$$i'.x = i'.l, \quad (1)$$

with i'= unitary (row) vector.

d-6) Total resources of the endogenous accounts: y_n = (column) vector of the corresponding row sums:

$$y_n = n + x. \quad (2)$$

Consequently, total uses of the endogenous accounts: y'_n = (row) vector of the corresponding column sums.

d-7) Total resources of the exogenous accounts: y_x = (column) vector of the corresponding row sums:

$$y_x = l + r. \quad (3)$$

Thus, total uses of the exogenous accounts: y'_x = (row) vector of the corresponding column sums.

d-8) Average use propensities of endogenous accounts:

- in endogenous accounts: $A_n = N.\hat{y}n^{-1}$; (4)

- in exogenous accounts: $Al = L.\hat{y}n^{-1}$; (5)

with $\hat{y}n^{-1}$ = inverse of the diagonal matrix of y_n. Thus, the structure of uses, or the initial direct effect of each additional monetary unit of the endogenous accounts' resources (with exogenous origin) is derived from the A_n and A_l matrices.

d-9) From d-1), d-4), and d-8) we can define:

$$N = A_n.\hat{y}n; \quad (6)$$

$$L = Al.\hat{y}n; \quad (7)$$

with $\hat{y}n$ = diagonal matrix of y_n.

d-10) From d-6), d-8), and d-9), it is possible the following development:

$$y_n = n + x = y_n = A_n.y_n + x = (I-A_n)^{-1}.x = M_a.\ x, \quad (8)$$

in the endogenous accounts' resources of each monetary unit of a change defined in d-3), with $M_a = (I-A_n)^{-1}$ = accounting multiplier matrix. This matrix represents the global effects with the assumptions described in a).

d-11) From d.4), d-9), and d-10), the following development is also possible:

$$l = A_l.y_n = A_l.\ (I-A_n)^{-1}.\ x = A_l.\ M_a.\ x. \qquad (9)$$

Accounting multipliers can be decomposed in several different ways, as described and exemplified, for instance, in Santos (2004). On the other hand, instead of working with average propensities, it is possible to work with marginal propensities and obtain, rather than the accounting multipliers, the so-called fixed-price multipliers, as described and exemplified, for instance, in Santos (2007). The last reference is also illustrative of a work with transposed matrices, that is to say, exchanging uses by resources." (Santos, 2022a, pp. 33-34)

Without belittling the work of other authors, the above formulation has been used in my research work to study the effects of changes associated to distribution and redistribution of income. For that, from a specific reality (Portugal), portrayed by SAM numerical versions, constructed from the national accounts; and, by using the corresponding algebraic version, I constructed scenarios representing macroeconomic impacts of possible policy measures with incidence, among others, on: (other) net taxes on the production of real estate activities (Santos, 2022a); (other) current transfers from the government to the households and households' compensation of employees (Santos, 2018); factors income (labour and other) and current transactions of institutional sectors (Santos, 2018a); households unincorporated enterprises' factors income (gross mixed income) (Santos, 2016); social benefits in the form of households' retirement pensions (Santos, 2014).

In these studies, depending on the available data, more or less powerful *magnifying glasses* were applied to the parts identified as the focus of interest, allowing more or less detail in the quantification of the effects of the studied changes.

In next chapters the parts related with distribution and redistribution of income are explored with the view of having data on institutional interrelations in distributive transactions, of the best possible quality and without restrictions. This would allow a better performance in measuring and modelling the various aspects of countries' economic activity, namely the distribution and redistribution of income. To this end, it is understandable that distributive transactions should be explicitly identified in the accounts and corresponding cells of the matrix representation of the complete economic system.

3. Institutional sectors and distributive transactions in national accounts

3.1. Meaning and disaggregation

SNA defines institutional sectors as mutually exclusive groups of institutional units, that is, of entities with legal responsibility for their actions and various economic functions in the country. Depending on whether they are involved in the country's economic activity for a year or more, institutional units are considered resident and non-resident, respectively.

The resident institutional units constitute the total (domestic) "economy" (code S1) and are grouped on the basis of their main functions, behaviours and objectives. Two types of resident institutional units are distinguished: 1) persons or groups of persons; and 2) legal or social entities whose existence is recognized by law or by society, regardless of the persons, or other entities, that may own or control them. The institutional sector corresponding to the first type is that of "households" (code S14). The second type is organized in the following sectors: "non-financial corporations" (code S11); "financial corporations" (code S12); "general government" (code S13); and "non-profit institutions serving households"- NPISHs for short (code S15).

All non-resident institutional units which have economic links with resident units constitute the "rest of the world" (code S2) institutional sector.

The SNA foresee some levels of disaggregation for any of the above-mentioned sectors, for which some national accounts are produced. We will not go into that detail because we will not consider it.

(ISWGNA, 2009, Chapter 4)

In turn, distributive transactions (codes D) are one of the four groups of flows recorded by national accounts. They include, on the one hand, transactions in which the income generated in the production process is distributed among labour, capital and taxes on production and imports and, on the other hand, transactions involving redistribution of the income and wealth. As we will see in Chapter 4, this group has nine categories of transactions, in which there may be several levels of disaggregation, although we will not go beyond the second.

(ISWGNA, 2009, Chapters 7, 8 and 10)

3.2. Positioning in flow accounts

Distributive transactions are recorded in the current and capital (flow) accounts (the last, within accumulation accounts). Their positioning will be identified in the corresponding parts of the sequence of accounts defined by the SNA. Annex 1 provides a summary of the sequence of national accounts that record transactions.

For the set to be more visible, some tables have a smaller font size, so when reading the file, the use the zoom + function is suggested.

i) Current accounts - record the uses and resources of transactions associated, on the one hand, to the production and (intermediate and final) consumption of goods and services, and, on the other hand, to the generation, distribution, and redistribution of income. The former are transactions in products. The latter are distributive transactions.

Given the focus of this paper, we will exclude the production account.

i.1) Distribution of income accounts – composed of the generation of income account and the allocation of primary income account, record the distribution of income generated in the production process - added value, or domestic product, through the receipt and payment of remuneration of production factors and taxes on product and imports, net of subsidies. Tables 3.2-1 and 2 (a and b) represent them with records relating to four categories of distributive transactions: compensation of employees (code D1); taxes on production and imports (code D2); subsidies (code D3); and property income (code D4). For the economy (all domestic sectors), the balancing item of these accounts is the balance of primary income, also known as national product or national income (code B5). In turn, the part relating to the transactions with the rest of the world integrates the current external balance (code B12).

(ISWGNA, 2009, Chapter 7)

i.2) Redistribution of income accounts – composed of the secondary distribution of income account and the redistribution of income in kind account, record the redistribution of the balance of primary income - national income, through the receipt and payment of current transfers. Tables 3.2-3 (a and b) represent them with records relating to three categories of distributive transactions: current taxes on income, wealth, etc. (code D5); social contributions and benefits (code D6); and other current transfers (code D7). The partition of transactions relating to social contributions and benefits (code D6), on the one hand, into net social contributions (code D61) and social benefits except social transfers in kind (code D62) and, on the other hand, into social transfers in kind (code D63), is associated to the distinction between the secondary distribution of income and the redistribution of income in kind. The former records the redistribution through the current transfers other than social transfers in kind, which balancing item for the economy is the disposable income (code B6). The latter records the redistribution through the social transfers in kind, made by the general government and the NPISH to households, which balancing item is the adjusted disposable income (code B7). The latter is equal to the former to the total economy and financial and non-financial corporations and is different for the remaining institutional sectors. The transactions with the rest of the world, within the scope of the redistribution of income accounts, are also part of the current external balance (code B12).

(ISWGNA, 2009, Chapter 8)

i.3) Use of income accounts – composed of use of disposable income account and use of adjusted disposable income account, record the distribution of disposable income between final consumption and savings. Table 3.2-4 represents them, both recording the adjustment for the change in pension

entitlements (code D8), which is not considered a distributive transaction, but an adjustment item, as will be seen in Section 3.3, in the approach of the fourth round of the chain of redistribution. For the economy, the balancing item of this account is the saving (code B8). Regarding the transactions with the rest of the world, if there are any related to the adjustment for the change in pension entitlement, they are the last accounted for the current external balance (code B12), which accumulated total appears here.

(ISWGNA, 2009, Chapter 9)

ii) Capital account – within the scope of accumulation accounts, records: acquisitions and disposals of non-financial assets, produced and not produced; internal bookkeeping transactions linked to production (such as changes in inventories, acquisitions less disposals of valuables and consumption of fixed capital); and redistribution of wealth by means of capital transfers. Table 3.2-5 (a and b) represents it, in which is recorded the last category of distributive transactions: capital transfers (code D9). The balancing item of this account, both for the economy (all domestic sectors) and for the rest of the world, is the net lending (+) / net borrowing (–) (code B9).
In this account, instead of uses and resources, we have changes in assets and changes in liabilities and net worth. On the other hand, for reasons beyond the scope of this work, capital transfers appear in the side of changes in liabilities and net worth with the distinction “receivable” and “payable”, the latter of which has a negative sign. We will treat “capital transfers payable” and “capital transfers receivable” in the same way as the uses and resources, respectively, of the other eight categories of transactions.

(ISWGNA, 2009, Chapter 10)

We therefore have the nine categories of distributive transactions properly positioned in the national accounts where they are recorded and a first approach to their meaning. For the first eight categories (codes D1 to D8) we have information on the total uses and resources of the various institutional sectors. For the last category (code D9) we have information on the total payable and receivable by the various institutional sectors. Next, an exercise will be made to articulate and understand the role of these transactions, as well as to position them in possible matrix representations of the system of national accounts, for the part related to the flow accounts that record the transactions.

Table 3.2-1a. Generation of income account - uses.

Total	S.2 **Rest of the world**	S.1 **Total economy**	S.15 **NPISHs**	S.14 **Households**	S.13 **General government**	S.12 **Financial corporations**	S.11 **Non-financial corporations**	Code	Transactions and balancing items
								B1g	*Value added, gross / Gross domestic product*
								B1n	*Value added, net / Net domestic product*
1 150		1 150	11	11	98	44	986	D1	Compensation of employees
950		950	6	11	63	29	841	D11	Wages and salaries
200		200	5	0	35	15	145	D12	Employers' social contributions
235		235						D2	Taxes on production and imports
141		141						D21	Taxes on products
94		94	1	0	1	4	88	D29	Other taxes on production
- 44		- 44						D3	Subsidies
- 8		- 8						D31	Subsidies on products
- 36		- 36	0	- 1	0	0	- 35	D39	Other subsidies on production
452		*452*	*3*	*84*	*27*	*46*	*292*	*B2g*	*Operating surplus, gross*
61		*61*		*61*				*B3g*	*Mixed income, gross*
214		214	3	15	27	12	157	P51c1	Consumption of fixed capital on gross operating surplus
8		8		8				P51c2	Consumption of fixed capital on gross mixed income
238		*238*	*0*	*69*	*0*	*34*	*135*	*B2n*	*Operating surplus, net*
53		*53*		*53*				*B3n*	*Mixed income, net*

Table 3.2-1b. Generation of income account - resources.

'ode	Transactions and balancing items	S.11 **Non-financial corporations**	S.12 **Financial corporations**	S.13 **General government**	S.14 **Households**	S.15 **NPISHs**	S.1 **Total economy**	S.2 **Rest of the world**	**Total**
B1g	*Value added, gross / Gross domestic product*	*1 331*	*94*	*126*	*155*	*15*	*1 854*		*1 854*
B1n	*Value added, net / Net domestic product*	*1 174*	*82*	*99*	*132*	*12*	*1 632*		*1 632*
D1	Compensation of employees								
D11	Wages and salaries								
D12	Employers' social contributions								
D2	Taxes on production and imports								
D21	Taxes on products								
D29	Other taxes on production								
D3	Subsidies								
D31	Subsidies on products								
D39	Other subsidies on production								
B2g	*Operating surplus, gross*								
B3g	*Mixed income, gross*								
P51c1	Consumption of fixed capital on gross operating surplus								
P51c2	Consumption of fixed capital on gross mixed income								
B2n	*Operating surplus, net*								
B3n	*Mixed income, net*								

Table 3.2-2a. Allocation of primary income account - uses.

Total	S.2 **Rest of the world**	S.1 **Total economy**	S.15 **NPISHs**	S.14 **Households**	S.13 **General government**	S.12 **Financial corporations**	S.11 **Non-financial corporations**	Code	Transactions and balancing items
								B2g	*Operating surplus, gross*
								B3g	*Mixed income, gross*
								B2n	*Operating surplus, net*
								B3n	*Mixed income, net*
6	6							D1	Compensation of employees
6	6							D11	Wages and salaries
0	0							D12	Employers' social contributions
								D2	Taxes on production and imports
								D21	Taxes on products
								D29	Other taxes on production
								D3	Subsidies
								D31	Subsidies on products
								D39	Other subsidies on production
435	44	391	6	41	42	168	134	D4	Property income
230	13	217	6	14	35	106	56	D41	Interest
79	17	62				15	47	D42	Distributed income of corporations
14	14	0				0	0	D43	Reinvested earnings on foreign direct investment
47	0	47				47		D44	Investment income disbursements
65		65	0	27	7	0	31	D45	Rent
1 864		*1 864*	*4*	*1 381*	*198*	*27*	*254*	*B5g*	*Balance of primary incomes, gross / National income, gross*
1 642		*1 642*	*1*	*1 358*	*171*	*15*	*97*	*B.5n*	*Balance of primary incomes, net / National income, net*

[illustrated by the national accounts of a fictious country, in a specific year, at current prices, in currency units]

Table 3.2-2b. Allocation of primary income account - resources.

le	Transactions and balancing items	S.11 **Non-financial corporations**	S.12 **Financial corporations**	S.13 **General government**	S.14 **Households**	S.15 **NPISHs**	S.1 **Total economy**	S.2 **Rest of the world**	**Total**
B2g	*Operating surplus, gross*	*292*	*46*	*27*	*84*	*3*	*452*		*452*
B3g	*Mixed income, gross*				*61*		*61*		*61*
B2n	*Operating surplus, net*	*135*	*34*	*0*	*69*	*0*	*238*		*238*
B3n	*Mixed income, net*				*53*		*53*		*53*
D1	Compensation of employees				1 154		1 154	2	1 156
D11	Wages and salaries				954		954	2	956
D12	Employers' social contributions				200		200	0	200
D2	Taxes on production and imports			235			235	0	235
D21	Taxes on products			141			141	0	141
D29	Other taxes on production			94			94	0	94
D3	Subsidies			- 44			- 44	0	- 44
D31	Subsidies on products			- 8			- 8	0	- 8
D39	Other subsidies on production			- 36			- 36	0	- 36
D4	Property income	96	149	22	123	7	397	38	435
D41	Interest	33	106	14	49	7	209	21	230
D42	Distributed income of corporations	10	25	7	20	0	62	17	79
D43	Reinvested earnings on foreign direct investment	4	7	0	3	0	14	0	14
D44	Investment income disbursements	8	8	1	30	0	47	0	47
D45	Rent	41	3	0	21	0	65	0	65
B5g	*Balance of primary incomes, gross / National income, gross*								
B.5n	*Balance of primary incomes, net / National income, net*								

Table 3.2-3a. Redistribution of income accounts - uses.

	Total	S.2 Rest of the world	S.1 Total economy	S.15 NPISHs	S.14 Households	S.13 General government	S.12 Financial corporations	S.11 Non-financial corporations	Code	Transactions and balancing items
Secondary distribution of income account									*B5g*	*Balance of primary incomes, gross / National income, gross*
									B.5n	*Balance of primary incomes, net / National income, net*
	213	1	212	0	178	0	10	24	D5	Current taxes on income, wealth, etc.
	204	1	203	0	176	0	7	20	D51	Taxes on income
	9		9	0	2	0	3	4	D59	Other current taxes
	333	0	333		333				D61	Net social contributions
	384	0	384	5	0	112	205	62	D62	Social benefits other than social transfers in kind
	299	16	283	2	71	136	62	12	D7	Other current transfers
	58	2	56	0	31	4	13	8	D.71	Net non-life insurance premiums
	60	12	48				48		D.72	Non-life insurance claims
	96	0	96			96			D.73	Current transfers within general government
	32	1	31			31			D.74	Current international cooperation
	53	1	52	2	40	5	1	4	D.75	Miscellaneous current transfers
	1 826		*1 826*	*37*	*1 219*	*317*	*25*	*228*	*B6g*	*Disposable income, gross*
	1 604		*1 604*	*34*	*1 196*	*290*	*13*	*71*	*B6n*	*Disposable income, net*
Redistribution of income in kind account									*B6g*	*Disposable income, gross*
									B6n	*Disposable income, net*
	215		215	31		184			D63	Social transfers in kind
	211		211	31		180			D631	Social transfers in kind - non-market production
	4		4	0		4			D632	Social transfers in kind - purchased market production
	1 826		*1 826*	*6*	*1 434*	*133*	*25*	*228*	*B7g*	*Adjusted disposable income, gross*
	1 604		*1 604*	*3*	*1 411*	*106*	*13*	*71*	*B7n*	*Adjusted disposable income, net*

[illustrated by the national accounts of a fictious country, in a specific year, at current prices, in currency units]

Table 3.2-3b. Redistribution of income accounts - resources.

	Transactions and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy	S.2 Rest of the world	Total	
B5g	*Balance of primary incomes, gross / National income, gross*	*254*	*27*	*198*	*1 381*	*4*	*1 864*		*1 864*	Secondary distribution of income account
B.5n	*Balance of primary incomes, net / National income, net*	*97*	*15*	*171*	*1 358*	*1*	*1 642*		*1 642*	
D5	Current taxes on income, wealth, etc.			213			213	0	213	
D51	Taxes on income			204			204	0	204	
D59	Other current taxes			9			9		9	
D61	Net social contributions	66	213	50	0	4	333	0	333	
D62	Social benefits other than social transfers in kind				384		384	0	384	
D7	Other current transfers	6	62	104	36	36	244	55	299	
D.71	Net non-life insurance premiums		47				47	11	58	
D.72	Non-life insurance claims	6	15	1	35	0	57	3	60	
D.73	Current transfers within general government			96			96	0	96	
D.74	Current international cooperation			1			1	31	32	
D.75	Miscellaneous current transfers	0	0	6	1	36	43	10	53	
B6g	*Disposable income, gross*									
B6n	*Disposable income, net*									
B6g	*Disposable income, gross*	*228*	*25*	*317*	*1 219*	*37*	*1 826*		*1 826*	Redistribution of income in kind account
B6n	*Disposable income, net*	*71*	*13*	*290*	*1 196*	*34*	*1 604*		*1 604*	
D63	Social transfers in kind				215		215		215	
D631	Social transfers in kind - non-market production				211		211		211	
D632	Social transfers in kind - purchased market production				4		4		4	
B7g	*Adjusted disposable income, gross*									
B7n	*Adjusted disposable income, net*									

[illustrated by the national accounts of a fictious country, in a specific year, at current prices, in currency units]

Table 3.2-4a. Use of income accounts - uses.

	Total	S.2 Rest of the world	S.1 Total economy	S.15 NPISHs	S.14 Households	S.13 General government	S.12 Financial corporations	S.11 Non-financial corporations	Code	Transactions and balancing items
Use of disposable income account									*B6g*	*Disposable income, gross*
									B6n	*Disposable income, net*
	1 399		1 399	32	1 015	352			P3	Final consumption expenditure
	11	0	11	0		0	11	0	D8	Adjustment for the change in pension entitlements
	427		*427*	*5*	*215*	*- 35*	*14*	*228*	*B8g*	*Saving, gross*
	205		*205*	*2*	*192*	*- 62*	*2*	*71*	*B8n*	*Saving, net*
	- 13	*- 13*							*B12*	*Current external balance*
Use of adjusted disposable income account									*B7g*	*Adjusted disposable income, gross*
									B7n	*Adjusted disposable income, net*
	1 399		1 399	1	1 230	168			P4	Actual final consumption
	11	0	11	0	0	0	11	0	D8	Adjustment for the change in pension entitlements
	427		*427*	*5*	*215*	*- 35*	*14*	*228*	*B8g*	*Saving, gross*
	205		*205*	*2*	*192*	*- 62*	*2*	*71*	*B8n*	*Saving, net*
	- 13	*- 13*							*B12*	*Current external balance*

Table 3.2-4b. Use of income accounts - resources.

Code	Transactions and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy	S.2 Rest of the world	Total	
B6g	*Disposable income, gross*	*228*	*25*	*317*	*1 219*	*37*	*1 826*		*1 826*	**Use of disposable income account**
B6n	*Disposable income, net*	*71*	*13*	*290*	*1 196*	*34*	*1 604*		*1 604*	
P3	Final consumption expenditure								1 399	
D8	Adjustment for the change in pension entitlements				11		11	0	11	
B8g	*Saving, gross*									
B8n	*Saving, net*									
B12	*Current external balance*									
B7g	*Adjusted disposable income, gross*	*228*	*25*	*133*	*1 434*	*6*	*1 826*		*1 826*	**Use of adjusted disposable income account**
B7n	*Adjusted disposable income, net*	*71*	*13*	*106*	*1 411*	*3*	*1 604*		*1 604*	
P4	Actual final consumption								1 399	
D8	Adjustment for the change in pension entitlements				11		11	0	11	
B8g	*Saving, gross*									
B8n	*Saving, net*									
B12	*Current external balance*									

Table 3.2.5a. Capital account - changes in assets.

Total	S.2 **Rest of the world**	S.1 **Total economy**	S.15 **NPISHs**	S.14 **Households**	S.13 **General government**	S.12 **Financial corporations**	S.11 **Non-financial corporations**	Code	Transactions and balancing items
								B8n	*Saving, net*
								B12	*Current external balance*
414		414	5	55	38	8	308	P5g	Gross capital formation
192		192	2	32	11	- 4	151	P5n	Net capital formation
376		376	5	48	35	8	280	P51g	Gross fixed capital formation
- 222		- 222	- 3	- 23	- 27	- 12	- 157	P51c	Consumption of fixed capital
28		28	0	2	0	0	26	P52	Changes in inventories
10		10	0	5	3	0	2	P53	Acquisitions less disposals of valuables
0	0	0	1	4	2	0	- 7	NP	Acquisitions less disposals of non-produced assets
								D9r	Capital transfers, receivable
								D91r	Capital taxes, receivable
								D92r	Investment grants, receivable
								D99r	Other capital transfers, receivable
								D9p	Capital transfers, payable
								D91p	Capital taxes, payable
								D92p	Investment grants, payable
								D99p	Other capital transfers, payable
0	*- 10*	*10*	*- 4*	*174*	*- 103*	*- 1*	*- 56*	*B9*	*Net lending (+) / net borrowing (–)*

Table 3.2-5b. Capital account - changes in liabilities and net worth.

Code	Transactions and balancing items	S.11 **Non-financial corporations**	S.12 **Financial corporations**	S.13 **General government**	S.14 **Households**	S.15 **NPISHs**	S.1 **Total economy**	S.2 **Rest of the world**	**Total**
B8n	*Saving, net*	*71*	*2*	*- 62*	*192*	*2*	*205*		*205*
B12	*Current external balance*							*- 13*	*- 13*
P5g	Gross capital formation								414
P5n	Net capital formation								192
P51g	Gross fixed capital formation								376
P51c	Consumption of fixed capital								- 222
P52	Changes in inventories								28
P53	Acquisitions less disposals of valuables								10
NP	Acquisitions less disposals of non-produced assets								0
D9r	Capital transfers, receivable	33	0	6	23	0	62	4	66
D91r	Capital taxes, receivable			2			2		2
D92r	Investment grants, receivable	23	0	0	0	0	23	4	27
D99r	Other capital transfers, receivable	10	0	4	23	0	37		37
D9p	Capital transfers, payable	- 16	- 7	- 34	- 5	- 3	- 65	- 1	- 66
D91p	Capital taxes, payable	0	0	0	- 2	0	- 2	0	- 2
D92p	Investment grants, payable			- 27			- 27		- 27
D99p	Other capital transfers, payable	- 16	- 7	- 7	- 3	- 3	- 36	- 1	- 37
B9	*Net lending (+) / net borrowing (–)*								

3.3. Role in the distribution process

Within the scope of the SNA of 1968, under the title "the generation, distribution and use of income", Richard Stone published, in that year, an article with a paper prepared for a conference in the previous year. In that article he recognises that the system contains information on the subject, "but not in the detail that would be desirable for socio-economic analysis". Regarding the formulation of a complementary system of income distribution statistics he also suggests "a possible connecting link between the two systems", and adds:

> "My point of departure will be to trace the chain of redistribution among sectors as it appears in a social accounting system and then demonstrate how, at various points and in various ways, the information set out can be elaborated along socio-economic lines with help of detailed cross-section studies."
>
> (Stone, 1968, p. 148)

The following description is based on a version of that approach, published in 1977, in the Chapter III, under the title "sectors and the generation, distribution and use of income", of the 10th edition of the book "National Income and Expenditure" (Stone and Stone, 1977, pp. 67-74). Thus, we will attempt to adapt that approach to the current SNA, in which there continues to be the lack of detail felt by Stone for almost six decades and, since that system came in force, no complementary system of income distribution statistics took shape, regardless of a position for or against it.

Therefore, a distribution process will be described through the total uses and resources of institutional sectors of the various categories of distributive transactions and related balancing items, presented in the previous section. These balancing items, in most cases relevant macroeconomic aggregates, will be treated in gross terms, that is, before the deduction of consumption of fixed capital. All data are part of the tables presented in the previous section, which are extracted and reorganised in a sequence of columns, distributed across several tables, that are going to accompany a description of that process. Part of the terminology adopted by the mentioned reference will also be used here.

Because the taxes on production and imports (code D2) and subsidies (code D3), will intervene in several parts of our description, let's consider them first and out of it.

As can be seen in tables from where the data in Table 3.3-1 was extracted and will be seen with more detail in Sections 4.2 and 4.3, both taxes on production and imports and subsidies have two components. In the former are taxes on products (code D21), and other taxes on production (D29). In the latter are subsidies on products (code D31), and other subsidies on production (D39). Because the system does not provide information regarding the uses of institutional sectors for the first components, in this section we will consider them as a *residual difference,* to fulfil the totals.

We will treat, as usual, taxes on production and imports net of subsidies, although the importance of a separate treatment, especially without *residual difference*, should not be neglected and seriously

considered in deepen studies and the intention to have data on the distribution process from the national accounts.

Table 3.3-1. Net taxes on production and imports.

		net taxes on production and imports (D2-D3)		
		Resources	*less* uses	Net gain or loss (-)
		a	b	c
S11	Non-financial corporations		-53	-53
S12	Financial corporations		-4	-4
S13	General government	191	-1	190
S14	Households		1	1
S15	NPISHs		-1	-1
	residual difference (D21-D31)		-133	-133
S1	All domestic sectors (total economy)	191	-191	0
S2	Rest of the world	0	0	0
	Total	191	-191	0

[extracted from Tables 3.2-1 and 3.2-2]

The beginning of the distribution process is associated with the categories of distributive transactions in which the income generated in the production process is distributed through the receipt and payment of remuneration of production factors and taxes on product and imports, net of subsidies. We are, therefore, dealing with the transactions recorded in the distribution of income accounts, approached in i.1) of the previous section, to which we add (in an intermediate form) the two balancing items, calculated in the transition from the generation to the allocation of income accounts. Thus, we are considering the income associated to the use of production factors, or factor income, in which we identify income from employment and other income. The former, corresponds to compensation of employees (code D1) that includes wages and salaries and employers' social contributions. The latter, corresponds to the property income (code D4), as well as the compensation of self-employed workers and employers, generated within the scope of the activity of unincorporated households' enterprises, that is, the gross mixed income (code B3g), and compensation of capital, that is, the gross operating surplus (code B2g).

Table 3.3-2, in columns 1-3, shows the decomposition of the factor income originating in each institutional sector, that is, of the gross value added of the domestic sectors and a part of the current external balance of the rest of the world. If we add the uses of net taxes on production and imports (column b of Table 3.3-1) to that total, we obtain the gross domestic product (code B1g) for domestic sectors, remaining the same the part for the rest of the world, relating to a part of the current external balance (code B12). For example, the factor income originating in non-financial corporations totalled 1278, with 986 of income from employment and 292 of other income, in this case, income from

capital, in the form of gross operating surplus. The households totalled 156, with 11 of income from employment and 145 of other income, in this case, 61 of gross mixed income and 84 of gross operating surplus. The rest of the world totalled 50, 6 of income from labour and 44 of other income, in the form of property income. The same reading can be made for the other sector.

Table 3.3-2. Factor income originating.

		Factor income originating			Factor income originating, with net taxes on production and imports (B1g, GDP; B12 part)
		Income from employment (D1)	Other income (B2&3g,D4)	Total	
		1	2	3	3-b
S11	Non-financial corporations	986	292	1278	1331
S12	Financial corporations	44	46	90	94
S13	General government	98	27	125	126
S14	Households	11	145	156	155
S15	NPISHs	11	3	14	15
	residual difference (D21-D31)				133
S1	All domestic sectors (total economy)	1150	513	1663	1 854
S2	Rest of the world	6	44	50	50
	Total	1156	557	1713	1 904

[extracted from Tables 3.2-1a and 3.2-2a]

Note that the totals of 1713 and 1904, without and with net taxes on production and imports, will remain until the end of the process. In fact, we will see that, throughout the distribution process and the four rounds of the redistribution chain, which we will identify in it, the composition of these totals will change, that is, some sectors will become richer to the detriment of others. In the whole, however, nothing changes, that is no value is added. This is the big difference between the distribution process and the production process, where there is added value, that is, where income is generated.

Table 3.3-3, in columns 4-12, shows how the factor income originating in each sector is paid to and retained by other sectors. Thus, the factor income originating from employment in various sectors, including the rest of the world, is paid to and retained by the households and the rest of the world. In the same way, property income, in the form of interest, distributed income of corporations, reinvested earnings on foreign direct investment, investment income disbursements and rent, is paid to and received by all sectors - domestic and the rest of the world. Therefore, factor income retained in each sector is measured by adding to the corresponding factor income originating the factor income received from the other sectors and subtracting all factor income paid by the sector. If we add the resources of net taxes on production and imports (column a of Table 3.3-1) to the sum of the factor income retained, we obtain the gross national income (code B5g), for domestic sectors, remaining the same the part of the rest of the world, relating to a part of the current external balance (code B12).

Tables 3.3-2 and 3.3-3, in columns 1-12, systematize the measurement of institutional sectors' contribution to the production of goods and services. From here, the chain of redistribution will link the factor income retained by institutional sectors with their use of these same goods and services, measured through their net final expenditure.

Table 3.3-3. From factor income originating to factor income retained.

		Factor income originating	Redistribution: receipts and payments of factor income						Factor income retained			Factor income retained, with net taxes on production and imports (B5g; B12 part)
			Income from employment (D1)			Other income (D4)			Income from employment (D1)	Other income (B2&3g,D4)	Total	
			Resources	*less* uses	Net gain or loss (-)	Resources	*less* uses	Net gain or loss (-)				
		3	4	5	6	7	8	9	10	11	12	12+a
S11	Non-financial corporations	1278	0	-986	-986	96	-134	-38	0	254	254	254
S12	Financial corporations	90	0	-44	-44	149	-168	-19	0	27	27	27
S13	General government	125	0	-98	-98	22	-42	-20	0	7	7	198
S14	Households	156	1154	-11	1143	123	-41	82	1154	227	1381	1381
S15	NPISHs	14	0	-11	-11	7	-6	1	0	4	4	4
	residual difference (D21-D31)											
S1	All domestic sectors (total economy)	1663	1154	-1150	4	397	-391	6	1154	519	1673	1 864
S2	Rest of the world	50	2	-6	-4	38	-44	-6	2	38	40	40
	Total	1713	1156	-1156	0	435	-435	0	1156	557	1713	1 904

[extracted from Tables 3.2-2a and b]

From here, the chain of redistribution will develop into four rounds of redistributions, each of them successively involving distributive transactions.

The first round, represented in Table 3.3-4, columns 13-16, consists in the transformation of the factor income retained into income before taxes, through the resources and uses of social benefits other than social transfers in kind (code D62) and other current transfers (code D7).

Table 3.3-4. Chain of redistribution – first round.

		Factor income retained	Redistribution: social benefits.., other current transfers (D62,D7)			Income before taxes
			Resources	*less* uses	Net gain or loss (-)	
		12	13	14	15	16
S11	Non-financial corporations	254	6	- 74	- 68	186
S12	Financial corporations	27	62	- 267	-205	-178
S13	General government	7	104	- 248	-144	-137
S14	Households	1381	420	- 71	349	1730
S15	NPISHs	4	36	- 7	29	33
	residual difference (D21-D31)					
S1	All domestic sectors (total economy)	1 673	628	- 667	- 39	1634
S2	Rest of the world	40	55	- 16	39	79
	Total	1 713	683	- 683	0	1713

[extracted from Tables 3.2-3a and b]

For example, the non- financial corporations, with a factor income retained of 254, have 6 of resources of other current transfers (non-life insurance claims); and 74 of uses, corresponding to 62 of social benefits other than social transfers in kind and 12 of other current transfers (8 of net non-life insurance premiums and 4 of miscellaneous current transfers). This results in a net loss of 68 and an income before taxes of 186 (254-68). In the case of the households, a factor income retained of 1381, in this round, the income before taxes is transformed into 1730. In fact, to the net gain of 349, contributed: 420 of resources, relating to 384 of social benefits other than social transfers in kind and 36 of other transfers (35 of non-life insurance claims and 1 of miscellaneous current transfers); and 71 of uses in other current transfers (31 of net non-life insurance premiums and 40 of miscellaneous current transfers). The same reading can be made for the other sectors.

Note that in the total income (retained and before taxes) of 1713, in this round, the total of domestic sectors decreases from 1673 to 1634 to the detriment of the rest of the world, that increases from 40 to 79.

The second round, represented in Table 3.3-5, columns 17-20, consists in the transformation of the income before taxes into available income, through the resources and uses of current taxes on income, wealth, etc. (code D5) and net social contributions (D61).

Table 3.3-5. Chain of redistribution – second round.

		Income before taxes	Redistribution: taxes on income, ..social contributions (D5, D61)			Disposable income	Disposable income, with net taxes on production and imports (B6g; B12 part)
			Resources	*less* uses	Net gain or loss (-)		
		16	17	18	19	20	20+a
S11	Non-financial corporations	186	66	- 24	42	228	228
S12	Financial corporations	-178	213	- 10	203	25	25
S13	General government	-137	263	0	263	126	317
S14	Households	1730	0	- 511	-511	1219	1219
S15	NPISHs	33	4	0	4	37	37
	residual difference (D21-D31)						
S1	All domestic sectors (total economy)	1634	546	- 545	1	1635	1 826
S2	Rest of the world	79	0	- 1	- 1	78	78
	Total	1713	546	- 546	0	1713	1904

[extracted from Tables 3.2-3a and b]

In our illustrative case, all the domestic sectors, except households, are gainers, with the general government in first place, with resources of 263 (213 of current taxes on income, wealth, etc. and 50 of net social contributions) and 0 of uses, allowing the transformation of a negative income before taxes of 137 to a positive disposable income of 126.

Although the rest of world also have registered a slight loss, as mentioned, within domestic sectors, the only losers in this round are the households, with 0 resources and uses in the amount of 511, corresponding to 178 of current taxes on income, wealth, etc. and 333 of net social contributions (includes the employers' social contributions, considered as income from employment in the measurement of the factor income originating and retained).

From the first to the second rounds, the income of all domestic sectors and of the rest of the world only registered a difference of 1 more for the first and less for the second.

The result of the second round, represented in column 20, is the income available for spending in final consumption and saving, in the case of the general government, households and NPISHs; and only for saving in the case of non-financial and financial corporations, who do not have final consumption. By adding the resources of net taxes on production and imports (column a of Table 3.3-1) to that result, we obtain the balancing item of the national accounts with the same name (code B6g), for domestic sectors, with the same result the rest of the world, corresponding to a part of the current external balance (code B12).

Within the second round for domestic sectors, although not representing monetary flows between the involved institutional sectors, let us say, a "sub-round" can be identified by considering the resources of the households and the uses of the general government and the NPISHs, in social transfers in kind (code D63), in a total of 215, as represented in Table 3.3-6, columns i, ii, and iii, in which only changes disposable income of these sectors, that comes to be considered as "adjusted".

Table 3.3-6. Chain of redistribution – second sub-round.

		Disposable income	Disposable income, with net taxes on production and imports (B6g; B12 part)	Redistribution: social transfers in kind (D63)			Adjusted disposable income	Adjusted Disposable income, with net taxes on production and imports (B7g)
				Resources	*less* uses	Net gain or loss (-)		
		20	20+a	i	ii	iii	20'	20'+a
S11	Non-financial corporations	228	228				228	228
S12	Financial corporations	25	25				25	25
S13	General government	126	317		-184	-184	- 58	133
S14	Households	1219	1219	215		215	1 434	1 434
S15	NPISHs	37	37		-31	-31	6	6
	residual difference (D21-D31)							
S1	All domestic sectors (total economy)	1635	1 826	215	-215	0	1 635	1 826

[extracted from Tables 3.2-3a and b]

Therefore, the second round of distribution results in disposable income, as represented in column 20, which can be adjusted with the consideration of the social transfers in kind, as represented in column 20'. This time, by adding the resources of the net taxes on production and imports (column a of Table 3.3-1), we obtain the adjusted disposable income (code B7g).

As can be confirmed in the tables from where the data was extracted, the first two rounds - Tables 3.3-4. and 3.3-5, involve transactions recorded by the secondary distribution of income account and the second sub-round - Table 3.3-6, involve transactions recorded by the redistribution of income in kind account, within the scope of the redistribution of income accounts, approached in i.2) of the previous section. According with that approach, in these accounts, the national income is going to be redistributed through the receipt and payment of current transfers. Because we are working the net taxes on production and products separately, our departure point is the factor income retained.

Until now, to obtain the balancing items recorded by the national accounts, usually relevant macroeconomic aggregates, we saw that the net taxes on production and imports were considered with the factor income originated, by adding the corresponding uses of the institutional sectors and a *residual difference* to obtain the gross domestic product (code B1g); with the factor income retained, by adding the corresponding resources of the general government to obtain the gross national income (code B5g); and with the disposable income by also adding the corresponding resources of the general government (code B6g). In fact, although this (net) taxes integrate the costs of production and are collected by the general government from the producers, they allocate them to the prices of the products, paid by the purchasing sectors.

Table 3.3-7. Chain of redistribution – third round.

		Disposable income	net taxes on production and imports (D2-D3)			Final Income
			Resources	*less* uses	Net gain or loss (-)	
		20	a	b	c	21
S11	Non-financial corporations	228		-53	-53	175
S12	Financial corporations	25		-4	-4	21
S13	General government	126	191	-1	190	316
S14	Households	1219		1	1	1 220
S15	NPISHs	37		-1	-1	36
	residual difference (D21-D31)			-133	-133	- 133
S1	All domestic sectors (total economy)	1 635	191	-191	0	1 635
S2	Rest of the world	78	0	0	0	78
	Total	1 713	191	-191	0	1 713

[Table 3.3-1 included]

Thus, with the restriction of a *residual difference* ("imposed" by the SNA), the third round of redistributions consists in the final income formation, by adding the net gain or loss of institutional sectors relating to net taxes on production and imports, as represented in column c of Table 3.3-1, to the disposable income, as represented in column 21 of Table 3.3-7. In this round we identify the part of the final income that each institutional sector has to use in transactions related to products and non-financial assets (produced and not produced), namely, in the form of final consumption, capital

formation, and net acquisitions of (non-financial) non-produced assets. It would be the total final income if the *residual difference* did not exist.

In national accounts, the use of income in the form of final consumption is recorded in the use of income account, within the current accounts, and in the form of capital formation and transactions with (non-financial) no-produced assets, in the capital account, within the accumulation accounts. The former is approached in i.3) and the latter in ii), of the previous section. Both involve the last two categories of distributive transactions, which are the adjustment for the change in pension entitlements (code D8) and the capital transfers (code D9). Although the former is not considered a distributive transaction in itself, we include it here since, on the one hand, it is an adjustment to the employers' social contributions, which affected the transformation of the factor income originating into retained and the second round of redistributions and, on the other, it affects the net lending / net borrowing of the institutional sectors, included in the fourth round of redistributions.

Thus, not forgetting the *residual difference,* as shown in Table 3.3-8, columns 22-26, the fourth, and last, round of redistributions will then measure the use of income in the mentioned transactions related to products and non-financial assets (produced and not produced), after considering the net gain or loss in those distributive transactions, as well as the net lending or borrowing (code B9) of institutional sectors. Net lending or borrowing mean that institutional sectors, respectively, did not need to use all their income or needed more than their income to meet their transactions related to products and non-financial assets.

Table 3.3-8. Chain of redistribution – fourth round.

		Final Income	Redistribution: adjustment..in pension entitlements, capital transfers (D8, D9)			Net lending (+) / net borrowing (–) (B9)	Use of Income
			Resources	*less* uses	Net gain or loss (-)		
		21	22	23	24	25	26
S11	Non-financial corporations	175	33	- 16	17	-56	136
S12	Financial corporations	21	0	- 18	-18	-1	2
S13	General government	316	6	- 34	-28	-103	185
S14	Households	1 220	34	- 5	29	174	1423
S15	NPISHs	36	0	- 3	-3	-4	29
	residual difference (D21-D31)	- 133					-133
S1	All domestic sectors (total economy)	1 635	73	- 76	- 3	10	1 642
S2	Rest of the world	78	4	- 1	3	-10	71
	Total	1 713	77	- 77	0	0	1 713

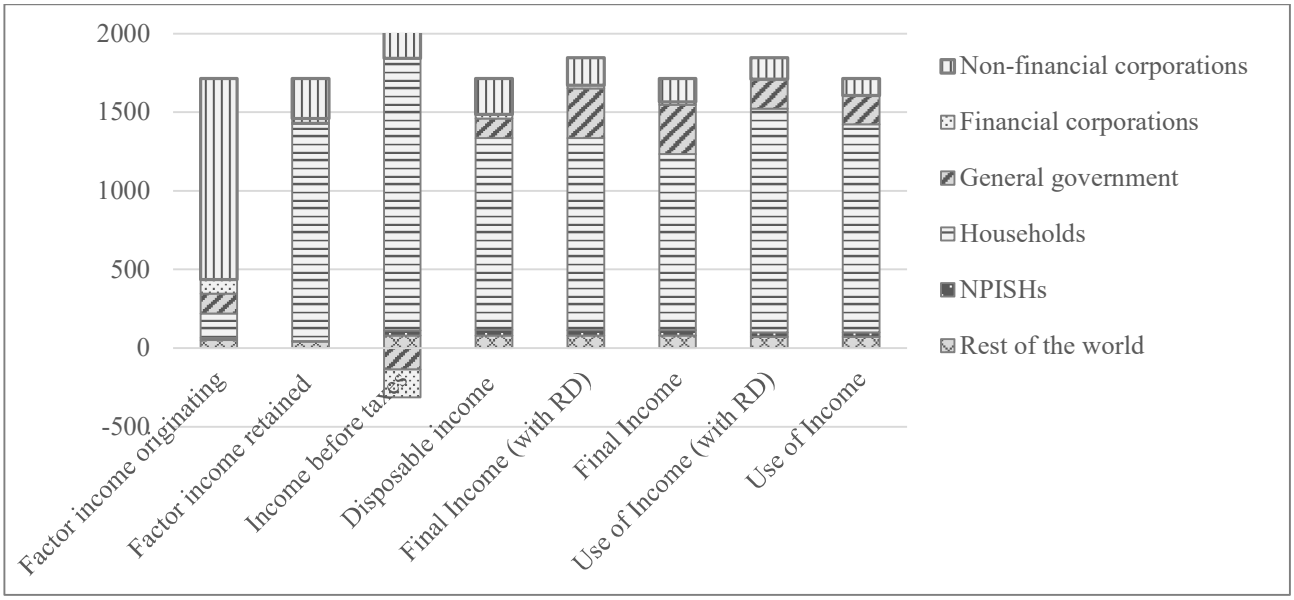
[extracted from Tables 3.2-4 and 3.2-5]

For example, not considering the corresponding net gain of loss in net taxes on products, the non-financial corporations, with a final income of 175, registered a net gain of 17 in capital transfers (23

of investment grants less 6 of net other capital transfers), and a net borrowing of 56. Therefore, because this institutional sector does not have final consumption, its use of income, in the amount of 136 should correspond to (net) transactions related with capital formation and (non-financial) non-produced assets. Comparing with the corresponding records in the capital account (net taxes on production and imports included), we have a net amount of transactions (acquisitions less disposals) in non-financial produced assets, or capital formation (code P5) of 308 and 151, before and after deducting the consumption of fixed capital; and in (non-financial) non-produced assets (code NP) of -7. Therefore, non-financial corporations with a contribution to the production of goods and services, that is, with a factor income retained of 254, arrive at the end of the redistribution chain with a use of income of 136. The latter is 165 and 8 below what is recorded by the national accounts, before and after deducting the consumption of fixed capital, difference that certainly covers "our" *residual difference* and anything else that is worth investigating.

The same exercise can be made and is encouraged for the other sectors, with the benefits of a better understanding of the distribution process and the importance of considering, on the one hand, all the institutional sectors – domestic and the rest of the world, and, on the other, all the distributive transactions, with information on institutional interrelations, of undeniable usefulness in approaches within the scope of input-output analysis, among others.

Chart 3.3-1. Summary of the representation of institutional sectors throughout the distribution process.



[constructed from Tables 3.3-2 to 3.3-8 and A.3-7 and A.3-8]

An estimate of the distribution process without *residual difference* (RD) is provided in Annex 3, with differences at the level of all the balancing items of the national accounts, as well as of the final income (column 21) and use of income (column 26), in the third and fourth rounds of the chain of

distribution. The representation of institutional sectors in last two and in the other four main types of income identified above is summarized in Chart 3.3-1, of which it is worth highlighting the representation, on the one hand, of households in the factor income originating and in the following types of income and, on the other hand, of the other sectors, which, although not as relevant, should not be neglected, as often happens in the studies of income distribution.

3.4. Inclusion in matrix representations

I distinguish matrix representations of national accounts in supply and use tables and accounting matrices.

Supply and use tables represent the production process and the corresponding industry interrelations, with information regarding the generation of income. They allow the disaggregation, by industries and products, of production transactions and three categories of distributive transactions: compensation of employees, taxes on production and imports, and subsidies. The totals of these transactions are represented in the production, goods and services and distribution of income accounts, as can be confirmed in Section 3.2. Therefore, with the supply and use tables the national accounts provide estimates from which industry interrelations, among other aspects, can be derived. An illustration of supply and use tables can be found in Tables A.5-2 and A.5-3, as part of supporting information to an accounting matrix that will be approached below. Input-Output matrices can be derived from supply and use tables, providing *magnifying glasses* applied to the mentioned parts of the economic system, capable of being used for input-output analysis – adopting the words of Richard Stone previously quoted (UN,1968, p.35).

(ISWGNA, 2009, Chapters 14 and 28)

Accounting matrices can broaden the scope of the previous ones to the income and wealth distribution process and the corresponding institutional interrelations, although the national accounts do not provide all the needed information to do so. They can represent only flows, that is, transactions and other flows, or flows and *stocks*, that is, they can represent all or part of the sequence of national accounts. With different treatments at the level of current and goods and services accounts, I identified national accounting and social accounting matrices. The first, representing exactly the sequence of national accounts, defined, in broad terms, in the last two versions of the System of National Accounts (ISWGNA,1993, Chapter XX, and ISWGNA, 2009, Chapter 28). The second, representing a version developed within the scope of my research work, as mentioned before, based on the works of Richard Stone, Graham Pyatt, and some of their followers, namely, Jeffery Round, in line with the first two versions of that System (UN, 1953 and 1968).

With the purpose of making a proposal to measure the institutional interrelations in distributive transactions, which, as we saw in Section 3.2, are recorded in the current and capital (flow) accounts. This paper will be restricted to the representations that cover them. Therefore, the following approach

is based on so-called aggregated versions of matrices of transactions, worked with gross balancing items, that is, before deducting the consumption of fixed capital. These versions are matrix representations of the totals given in the sequence of national accounts, which can be considered as the grand totals of other levels of disaggregation, defined in accordance with our aims and the available information.

In both the case of the national accounting matrix and the social accounting matrix, which are square matrices, independently of the level of disaggregation, each column-row pair represents an account with the uses represented in column and the resources in row. In turn, reflecting the existence of equilibrium in the accounts, the sum of each column is equal to the sum of the corresponding row.

For the illustrative case we have been working with, Tables 3.4-1 and 3.4-2 show the aggregated version of these matrices, representing the totals of transactions recorded in the sequence of national accounts, where in the description of the accounts, in the rows and columns, the number of the tables in which they are represented in the Section 3.2 are in square brackets. In turn, to the description of the cells that explicitly include distributive transactions, in which institutional interrelations can be identified, in addition to a thicker border, to facilitate the association with the development we are doing, identifying SNA codes are in curved brackets. The association between the from-whom-to-whom matrices constructed in Chapter 4 and those matrix representations will be made, on the one hand, in Annex 4 for the matrix represented in Table 3.4-1, showing the possibilities of the corresponding disaggregation and, on the other hand, in Chapter 5 for the matrix represented in Table 3.4-2. From these presentations we will see how the information can be expanded, as if we were using a *magnifying glass*.

The second accounting matrix (social accounting matrix) was chosen to be developed not only due to its greater proximity to the initial part of the distribution process, as described in Section 3.3, but mainly due to the fact of its explicit representation of all the nine categories of distributive transactions, contrarily to the first. As shown in Annex 4, in the national accounting matrix, taxes on production and imports and subsidies are not explicitly represented, which restricts its use, given the importance, on the one hand, of these categories in distribution process, as shown in Section 3.3, and, on the other, of being able to work with each category of distributive transactions, allowing a better approach, as described in Section 2.2.

Table 3.4-1. Aggregated national accounting matrix of transactions, with gross balancing items.

Uses/Changes in Assets / Resources/Changes in liabilities and net worth			**Economy**							(rw) **Rest of the world** account [Table 3.2-1,2,3,4 and 5]	Total
			(gs) Goods and services account	Current accounts				Accumulation accounts			
				(i.0) Production	(i.1) Distribution of income [Tables 3.2-1 and 2]	(i.2) Redistribution of income [Table 3.2-3]	(i.3) Use of income [Table 3.2-4]	(ii) Capital [Table 3.2-5]	Financial		
Economy	(gs) Goods and services account			Intermediate consumption = 1 883			Final consumption = 1 399	Gross capital formation = 414		Exports = 540	4 236
	Current accounts	(i.0) Production	Output of goods and services + Taxes on products, net of subsidies 3 737								3 737
		(i.1) Distribution of income [Tables 3.2-1 and 2]		*Value added, gross/Gross domestic product (GDP) = 1 854*	Property income (D4) = 353					Compensation of employees (D1)+ Property income (D4) = 50	2 257
		(i.2) Redistribution of income [Table 3.2-3]			*Balance of primary incomes, gross / National income, gross (GNI) = 1 864*	Current transactions (D5,D61,D62,D7) = 1 157				Current transactions (D5,D61,D62,D7) = 17	3 038
		(i.3) Use of income [Table 3.2-4]				*Gross Disposable Income (GDI) = 1 826*	Adjustment for the change in pension funds reserve (D8) = 11				1 837
	Accumulation accounts	(ii) Capital [Table 3.2-5]					*Gross Saving = 427*	Capital transfers (D9) = 61		Capital transfers (D9) = 1	489
		Financial						*Net lending (+) /borrowing (-) =* 10	Net acquisitions of financial assets/ Net incurrence of liabilities = 379	Net incurrence of liabilities = 47	436
(rw) **Rest of the world** account [Table 3.2-1,2,3,4 and 5]			Imports = 499		Compensation of employees (D1)+ Property income (D4) = 40	Current transactions (D5,D61,D62,D7) = 55		Capital transfers (D9) = 4	Net acquisitions of financial assets = 57		655
Total			4 236	3 737	2 257	3 038	1 837	489	436	655	

[illustrated by the national accounts of a fictious country, in a specific year, at current prices, in currency units]

Table 3.4-2. Aggregated social accounting matrix of transactions, with gross balancing items.

Uses/Changes in assets / Resources/ Changes in liabilities and net worth			**Economy**						(rw) **Rest of the world** account [Tables 3.2-1,2,3,4 and 5]	Total
			Production accounts			Institutions accounts				
			(f) Factors of production [Tables 3.2-1 and 2]	(a) Activities (industries)	(p) Products (goods and services)	(dic) Current [Tables 3.2-3 and 4]	(dik) Capital [Table 3.2-5]	Financial		
Economy	Production accounts	(f) Factors of production [Tables 3.2-1e2]		Value added, gross [excluding taxes on production and imports, net of subsidies] = 1 663					Compensation of employees (D1) + Property income (D4) = 50	1 713
		(a) Activities (industries)			Output of goods and services = 3 604					3 604
		(p) Products (goods and services)		Intermediate consumption = 1 883	Trade and transport margins = 0	Final consumption = 1 399	Gross capital formation = 414		Exports = 540	4 236
	Institutions accounts	(dic) Current [Tables 3.2-3 and 4]	National income, gross [excluding taxes on production and imports, net of subsidies] = 1 673	Other taxes on production, net of subsidies (D29-D39) = 58	Taxes on products, net of subsidies (D21-D31) = 133	Current transactions (D5,D61, D62,D7, D8) = 1 168			Current transactions (D5,D61,D62,D7) = 17	3 049
		(dik) Capital [Table 3.2-5]				Gross saving = 427	Capital transfers (D9) = 61		Capital transfers (D9) = 1	489
		(dif) Financial					Net lending (+) / net borrowing (–) = 10	Net acquisitions of financial assets/ Net incurrence of liabilities = 379	Net incurrence of liabilities = 47	436
(rw) **Rest of the world** account [Tables 3.2-1,2,3,4 and 5]			Compensation of employees (D1)+ Property income (D4) = 40		Imports = 499	Current transactions (D5,D61,D62,D7) = 55	Capital transfers (D9) = 4	Net acquisitions of financial assets = 57		655
Total			1 713	3 604	4 236	3 049	489	436	655	

[illustrated by the national accounts of a fictious country, in a specific year, at current prices, in currency units]

4. Construction of from-whom-to-whom matrices for distributive transactions

In transactions between institutional sectors, the resources of some are the uses of others, or what some receive is paid by others. Thus, the measurement of institutional interrelations is possible both from information about the origin of the resources (from-whom), or the part received, and from information about the destination of the uses (to-whom), or the part paid. As mentioned previously, this is not part of what is supposed to be available in the national accounts. However, if this were the case, the possibilities of disaggregating the distributive transactions in matrix representations, for possible uses in input-output analysis or others, would be expanded, avoiding, in many cases, the use of users' intuition and subjectivity in estimates to satisfy their needs.

This chapter will explore these possibilities, by proposing a possible way to improve what is currently defined to be available by the national accounts to cover all the possible institutional interrelations in distributive transactions, allowing the construction of from-whom-to-whom matrices.

As mentioned in Chapter 1, this paper adopts an illustrative example compiled from the current SNA (ISWGNA, 2009). In this chapter, the above-mentioned proposal will be based on estimates not included in that example that were defined without sophisticated methods, in most cases, based on the experience in Santos (2023)[12].

Once again, for the set to be more visible, some tables have a smaller font size, so when reading the file, the use the zoom + function is suggested.

We will continue to have uses represented in column and resources in row.

For a better understanding of the various steps in the construction of from-whom-to-whom matrices, the amounts calculated from those considered as available will be represent in italics.

In the categories of transactions for which we have information to work with at the second level of disaggregation, the totals will be calculated by the sum of the components.

[12] This experience was made for Portugal in 2018, which began with the treatment of a small series, for the period 2017-2020, of from-whom-to-whom matrices not published but provided particularly by Portuguese Statistical Office, with the non-disclosure recommendation. Thus, from the first level of disaggregation in the institutional sectors and from the second level in the distributive transactions, coefficients representative of the proportions of each cell (interinstitutional flows) in the total of each row (of resources of the institutional sector) and of each column (of uses of the institutional sector) were calculated. The intention was, in a first approach, to explore the stability of these coefficients and identify behaviours so that they can, eventually, from broader series, update and design matrices of coefficients that could be applied to the published information, that is, totals in row and column. The failure of such an intention, the experience of that work and some contacts with someone involved in the production of those matrices, led to the proposal made in this paper.

4.1. Compensation of employees

With two components - wages and salaries and employers' social contributions, the compensation of employees (code D1) is recorded in distribution of income accounts. The generation of income account records it as uses of the total economy and its five institutional sectors - Table 4.1-1. The allocation of primary income account records it as resources of households and the rest of the world and as uses of the rest of the world - Table 4.1-2.

Table 4.1-1. Recording of compensation of employees in the generation of income account.

S.1 **Total economy**	S.15 **NPISHs**	S.14 **Households**	S.13 **General government**	S.12 **Financial corporations**	S.11 **Non-financial corporations**	Code	Transactions and balancing items
Uses							
1 150	11	11	98	44	986	D1	Compensation of employees
950	6	11	63	29	841	D11	Wages and salaries
200	5	0	35	15	145	D12	Employers' social contributions

[excerpt from Table 3.2-1a]

Table 4.1-2. Recording of compensation of employees in the allocation of primary income account.

S.2 **Rest of the world**	Code	Transactions and balancing items	S.14 **Households**	S.2 **Rest of the world**
Uses				Resources
6	D1	Compensation of employees	1 154	2
6	D11	Wages and salaries	954	2
0	D12	Employers' social contributions	200	0

[excerpts from Tables 3.2-2a and b]

In the construction of from-whom-to-whom matrices from the information in the tables above, it is possible to fill in the rows and columns of the totals (S1+S2) and deduce the amounts corresponding to some cells, as can be seen in Table 4.1-3.

Thus, for both components of compensation of employees, we have information regarding the total uses (in column):
- of all sectors of resident institutional units (S1), in the economy and in the rest of the world (S1+S2), amounting to 1 150;
- of the rest of the world, that is, of non-resident institutional units (S2), in the economy (S1), amounting to 6.

In turn, also for both components of compensation of employees, we have information regarding the total resources (in row):
- of households (S14), from the economy and the rest of the world (S1+S2), amounting to 1 154;
- of the rest of the world (S2), from the economy (S1), amounting to 2.

With the above information, knowing that the resources of the rest of the world are uses of the economy and vice versa, we can calculate the total transactions (that we are analysing) in the economy, that is, only between resident institutional units, in this case: 1 148 = 1 150 – 2 = 1 154 – 6.

Table 4.1-3. Possible filling in of the from-whom-to-whom matrices relating to compensation of employees, from the distribution of income accounts.

D11 Wages and salaries

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13								
S14						*948*	*6*	954
S15								
S1	*0*	*0*	*0*	*0*	*0*	*948*	*6*	954
S2						*2*		2
S1+S2	841	29	63	11	6	950	6	956

D12 Employers' social contributions

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13								
S14						*200*	*0*	200
S15								
S1	*0*	*0*	*0*	*0*	*0*	*200*	*0*	200
S2	0	0	0	0	0	*0*		0
S1+S2	145	15	35	0	5	200	0	200

D1 Compensation of employees (D11+D12)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13								
S14						*1 148*	*6*	*1 154*
S15								
S1	*0*	*0*	*0*	*0*	*0*	*1 148*	*6*	*1 154*
S2						*2*		*2*
S1+S2	*986*	*44*	*98*	*11*	*11*	*1 150*	*6*	*1 156*

Since, on the one hand, in the economy (S1), only households (S14) have resources and all sectors (S1) have uses and, on the other hand, the rest of the world (S2) has resources and uses, we can now deduce the following:

a) of the total received by households (S14), 1 148 originates from the economy (S1) and 6 from the rest of the world (S2), we do not know the distribution of the first amount by domestic institutional sectors (S11-S15);
b) we do not know the origin by institutional sectors (S11-S15) of the total resources of the rest of the world (S2), amounting 2;
c) of the total used by the sectors of the economy (S1), 1 148 have as destination the economy (S1), that is, the households (S14) and 2 the rest of the world (S2), we do not know the distribution of both amounts by domestic institutional sectors (S11-S15).

Note that the reading made in c) is equivalent to that made in a) and b), which means that the unknown parts of our matrices correspond to the shaded parts, that is, the origin of the resources of households and the rest of the world, or the destination of the uses of all institutional sectors.

Such lack of knowledge can be overcome with information on the institutional sectors of destination of the uses or of origin of the resources, that is by extending Tables 4.1-1 and 4.1-2, as shown in Tables 4.1-4 and 4.1-5, respectively. This makes it possible to complete the filling of the from-whom-to-whom matrices, as shown in Table 4.1-6.

Table 4.1-4. Recording of the uses of compensation of employees in the generation of income account, extended to destination institutional sectors.

S.1 **Total economy**	S.15 **NPISHs**	S.14 **Households**	S.13 **General government**	S.12 **Financial corporations**	S.11 **Non-financial corporations**	Code	Transactions and balancing items
Uses							
1 150	11	11	98	44	986	D1	Compensation of employees
							S11 - Non-Financial Corporations
							S12 - Financial Corporations
							S13 - General Government
1 148	11	11	98	44	984		S14 - Households
							S15 - NPISHs
2	0	0	0	0	2		S2 - Rest of the World
950	6	11	63	29	841	D11	Wages and salaries
							S11 - Non-Financial Corporations
							S12 - Financial Corporations
							S13 - General Government
948	6	11	63	29	839		S14 - Households
							S15 - NPISHs
2	0	0	0	0	2		S2 - Rest of the World
200	5	0	35	15	145	D12	Employers' social contributions
							S11 - Non-Financial Corporations
							S12 - Financial Corporations
							S13 - General Government
200	5	0	35	15	145		S14 - Households
							S15 - NPISHs
0	0	0	0	0	0		S2 - Rest of the World

Table 4.1-5. Recording of the uses and the resources of compensation of employees in the allocation of primary income account, extended to destination and origin institutional sectors.

S.2 **Rest of the world**	Code	Transactions and balancing items	S.14 **Households**	S.2 **Rest of the world**
Uses				Resources
6	D1	Compensation of employees	1 154	2
		S11 - Non-Financial Corporations	984	2
		S12 - Financial Corporations	44	0
		S13 - General Government	98	0
6		S14 - Households	11	0
		S15 - NPISHs	11	0
		S2 - Rest of the World	6	0
6	D11	Wages and salaries	954	2
		S11 - Non-Financial Corporations	839	2
		S12 - Financial Corporations	29	
		S13 - General Government	63	
6		S14 - Households	11	
		S15 - NPISHs	6	
		S2 - Rest of the World	6	
0	D12	Employers' social contributions	200	0
		S11 - Non-Financial Corporations	145	0
		S12 - Financial Corporations	15	0
		S13 - General Government	35	0
0		S14 - Households	0	0
		S15 - NPISHs	5	0
		S2 - Rest of the World	0	0

Table 4.1-6. Filling in of the from-whom-to-whom matrices relating to compensation of employees, from the distribution of income accounts, extended to destination and origin institutional sectors.

D11 Wages and salaries

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13								
S14	*839*	*29*	*63*	*11*	*6*	*948*	*6*	954
S15								
S1	*839*	*29*	*63*	*11*	*6*	*948*	*6*	954
S2	*2*	*0*	*0*	*0*	*0*	*2*		2
S1+S2	841	29	63	11	6	950	6	956

D12 Employers' social contributions

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13								
S14	145	15	35	0	5	*200*	*0*	200
S15								
S1	*145*	*15*	*35*	*0*	*5*	*200*	*0*	200
S2	*0*	*0*	*0*	*0*	*0*	*0*		0
S1+S2	145	15	35	0	5	200	0	200

D1 Compensation of employees (D11+D12)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13								
S14	*984*	*44*	*98*	*11*	*11*	*1 148*	*6*	*1 154*
S15								
S1	*984*	*44*	*98*	*11*	*11*	*1 148*	*6*	*1 154*
S2	*2*	*0*	*0*	*0*	*0*	*2*		*2*
S1+S2	*986*	*44*	*98*	*11*	*11*	*1 150*	*6*	*1 156*

These transactions intervene at the beginning of the distribution process, representing income from employment, in the composition of the factor income originating and retained (Tables 3.3-2 and 3.3-3).

In terms of matrix representations, it is possible to explicitly identify these transactions with the rest of the world - cells (rw, i.1) and (i.1, rw) in the national accounting matrix (Table 3.4-1); and cells (rw, f) and (f, rw) in the social accounting matrix (Table 3.4-2). In turn, transactions in the economy are implicit in the cells representing value added and national income – cells (i.1, i.0) and (i.2, i.1) in the national accounting matrix; cells (f, a) and (dic, f) in the social accounting matrix.

4.2. Taxes on production and imports

With two components - taxes on products and other taxes on production, the taxes on production and imports (code D2) are recorded in distribution of income accounts[13]. The generation of income

[13] Total taxes on products is also recorded as resource of the total economy in the production account and in the goods and services account.

account records them as uses of the total economy and its five institutional sectors, without apportioning the taxes on the products among the latter - Table 4.2-1. The allocation of primary income account records them as resources of the general government and possibly of the rest of the world - Table 4.2-2.

Table 4.2-1. Recording of taxes on production and imports in the generation of income account.

S.1 **Total economy**	S.15 **NPISHs**	S.14 **Households**	S.13 **General government**	S.12 **Financial corporations**	S.11 **Non-financial corporations**	Code	Transactions and balancing items
Uses							
235						D2	Taxes on production and imports
141						D21	Taxes on products
94	1	0	1	4	88	D29	Other taxes on production

[excerpt from Table 3.2-1a]

Table 4.2-2. Recording of taxes on production and imports in the allocation of primary income account.

Code	Transactions and balancing items	S.13 **General government**	S.2 **Rest of the world**	**Total**
				Resources
D2	Taxes on production and imports	235	0	235
D21	Taxes on products	141	0	141
D29	Other taxes on production	94	0	94

[excerpt from Table 3.2-2b]

In the construction of from-whom-to-whom matrices from this information, it is possible to fill in the rows and columns of the totals (S1+S2), as can be seen in Table 4.2-3.

Table 4.2-3. Possible filling in of the from-whom-to-whom matrices relating to taxes on production and imports, from the distribution of income accounts.

D21 Taxes on products

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13						*141*		141
S14								
S15								
S1	*0*	*0*	*0*	*0*	*0*	*141*		141
S2	0	0	0	0	0	*0*		0
S1+S2						141		141

D29 Other taxes on production

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	88	4	1	0	1	*94*		94
S14								
S15								
S1	*88*	*4*	*1*	*0*	*1*	*94*		94
S2	0	0	0	0	0	*0*		0
S1+S2	88	4	1	0	1	94		94

D2 Taxes on production and imports(D21+D22)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13						*235*		*235*
S14								
S15								
S1	*0*	*0*	*0*	*0*	*0*	*235*		*235*
S2	0	0	0	0	0	*0*		*0*
S1+S2						*235*		*235*

Thus, only the economy (S1) has uses and resources of taxes on production and imports, which amount of 235. All domestic institutional sectors (S11-S15) have or can have uses, while only the general government (S13) has resources, although it is also possible for the rest of the world[14].

Because we do not know the distribution by domestic institutional sectors (S11-S15) of the taxes on products, it is not possible to make any deduction, which means that the unknown parts of our matrices correspond to the shaded parts in Table 4.2-3.

This lack of knowledge can be overcome by completing and extending the information in Table 4.2-1, that is the uses of institutional sectors regarding the category of transactions under analysis, extended to destination sectors, as shown by Table 4.2-4. This information makes it possible to fill in all the corresponding from-whom-to-whom matrices, as can be confirmed in Table 4.2-5.

[14] See, for example, in Section 3.2 of Santos (2023), the case of Portugal where a part of these taxes is channelled to the institutions of the European Union.

Table 4.2-4. Recording the uses of taxes on production and imports in the generation of income account, extended to destination institutional sectors.

S.1 **Total economy**	S.15 **NPISHs**	S.14 **Households**	S.13 **General government**	S.12 **Financial corporations**	S.11 **Non-financial corporations**	Code	Transactions and balancing items
Uses							
235	2	106	5	5	117	D2	Taxes on production and imports
							S11 - Non-Financial Corporations
							S12 - Financial Corporations
235	2	106	5	5	117		S13 - General Government
							S14 - Households
							S15 - NPISHs
0	0	0	0	0	0		S2 - Rest of the World
141	1	106	4	1	29	D21	Taxes on products
							S11 - Non-Financial Corporations
							S12 - Financial Corporations
141	1	106	4	1	29		S13 - General Government
							S14 - Households
							S15 - NPISHs
0	0	0	0	0	0		S2 - Rest of the World
94	1	0	1	4	88	D29	Other taxes on production
							S11 - Non-Financial Corporations
							S12 - Financial Corporations
94	1	0	1	4	88		S13 - General Government
							S14 - Households
							S15 - NPISHs
0	0	0	0	0	0		S2 - Rest of the World

Table 4.2-5. Filling in of the from-whom-to-whom matrices relating to taxes on production and imports, from the corresponding uses in the generation of income account, extended to destination institutional sectors.

D21 Taxes on products

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	*29*	*1*	*4*	*106*	*1*	*141*		141
S14								
S15								
S1	*29*	*1*	*4*	*106*	*1*	*141*		141
S2	*0*	*0*	*0*	*0*	*0*	*0*		0
S1+S2	*29*	*1*	*4*	*106*	*1*	141		141

D29 Other taxes on production

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	88	4	1	0	1	*94*		94
S14								
S15								
S1	*88*	*4*	*1*	*0*	*1*	*94*		94
S2	*0*	*0*	*0*	*0*	*0*	*0*		0
S1+S2	88	4	1	0	1	94		94

D2 Taxes on production and imports(D21+D22)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	*117*	*5*	*5*	*106*	*2*	*235*		*235*
S14								
S15								
S1	*117*	*5*	*5*	*106*	*2*	*235*		*235*
S2	*0*	*0*	*0*	*0*	*0*	*0*		*0*
S1+S2	*117*	*5*	*5*	*106*	*2*	*235*		*235*

The extension of the information in Table 4.2-2, that is of the resources of the taxes on production and imports extended to origin institutional sectors, in Table A.2-1 of the Annex, is an alternative to overcome the mentioned lack of knowledge.

These transactions often appear net of subsidies, that is, deducted from the corresponding subsidy amounts, which we will see in the following section. This is the case of their intervention in the distribution process and in matrix representations.

In the distribution process, as described in Section 3.3, because they intervene in several parts of the same, they are considered firstly and out of the description and then in the description to meet balancing items of the national accounts and to identify the third round of the chain of redistribution.

In the case of matrix representations, as presented in Section 3.4, in the national accounting matrix (Table 3.4-1) it is possible to identify them implicitly in the part regarding transactions in the economy - cells (i.1, i.0) and (i.2, i.1), representative of value added and national income. In turn, in the part

regarding the social accounting matrix (Table 3.4-2) it is possible to identify them explicitly, in transactions in the economy – cells (dic, a) and (dic, p).

4.3. Subsidies

With two components – subsidies on products and other subsidies on production, subsidies (code D3) are recorded in distribution of income accounts. As mentioned in the previous section, subsidies are often deducted from the values of taxes on production and imports (code D2) and, as such, their registration is identical to them and preceded by the minus sign[15]. Therefore, the generation of income account records them as uses of the total economy and its five institutional sectors, without apportioning the subsidies on products among the latter - Table 4.3-1. The allocation of primary income account, in turn, records them as resources of general government and, possibly, of the rest of the world - Table 4.3-2.

Table 4.3-1. Recording of subsidies in the in the generation of income account.

S.1 **Total economy**	S.15 **NPISHs**	S.14 **Households**	S.13 **General government**	S.12 **Financial corporations**	S.11 **Non-financial corporations**	Code	Transactions and balancing items
Uses							
- 44						D3	Subsidies
- 8						D31	Subsidies on products
- 36	0	- 1	0	0	- 35	D39	Other subsidies on production

[excerpt from Table 3.2-1a]

Table 4.3-2. Recording of subsidies in the allocation of primary income account.

Code	Transactions and balancing items	S.13 **General government**	S.2 **Rest of the world**	**Total**
				Resources
D3	Subsidies	- 44	0	- 44
D31	Subsidies on products	- 8	0	- 8
D39	Other subsidies on production	- 36	0	- 36

[excerpt from Table 3.2-2b]

Regarding the construction of from whom-to-whom matrices from the information in the Tables 4.3-1 and 2, as in the previous section, because we do not know the distribution by institutional sectors (S11-S15), this time, of the subsidies on products, it is not possible to make any deduction, which means that the unknown parts of our matrices correspond to the shaded parts in Table 4.3-3.

[15] Similarly to taxes on products, the total of subsidies on products is also recorded (preceded by the minus sign) as resource of the total economy in the production account and the goods and services account.

Table 4.3-3. Possible filling in of the from-whom-to-whom matrices relating to subsidies, from the distribution of income accounts.

D31 Subsidies on products

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13						*- 8*		- 8
S14								
S15								
S1	*0*	*0*	*0*	*0*	*0*	*- 8*		- 8
S2	0	0	0	0	0	*0*		0
S1+S2						- 8		- 8

D39 Other subsidies on production

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13						*- 36*		- 36
S14								
S15								
S1	*0*	*0*	*0*	*0*	*0*	*- 36*		- 36
S2	0	0	0	0	0	*0*		0
S1+S2	- 35	0	0	- 1	0	- 36		- 36

D3 Subsidies (D31+D32)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13						*- 44*		*- 44*
S14								
S15								
S1	*0*	*0*	*0*	*0*	*0*	*- 44*		*- 44*
S2	0	0	0	0	0	*0*		*0*
S1+S2						*- 44*		*- 44*

Just like for taxes, let us overcome this lack of knowledge by completing and extending the information in Table 4.3-1, that is the uses of institutional sectors regarding the category of transactions under analysis, extended to destination sectors, as shown by Table 4.3-4, from which it becomes possible to fill in all the corresponding from-whom-to-whom matrices, as can be confirmed in Table 4.3-5.

Also here, the extension of the information in Table 4.3-2, that is of the resources of subsidies extended to origin institutional sectors, in Table A.2-2 of the Annex, is also an alternative to overcome that lack of knowledge.

On the other hand, the treatment of this category of transactions could also be done with positive amounts, transposing the from-whom-to-whom matrices.

Table 4.3-4. Recording the uses of subsidies in the generation of income account, extended to destination institutional sectors.

S.1 **Total economy**	S.15 **NPISHs**	S.14 **Households**	S.13 **General government**	S.12 **Financial corporations**	S.11 **Non-financial corporations**	Code	Transactions and balancing items
Uses							
- 44	0	- 7	- 1	0	- 36	D3	Subsidies
							S11 - Non-Financial Corporations
							S12 - Financial Corporations
- 44	0	- 7	- 1	0	- 36		S13 - General Government
							S14 - Households
							S15 - NPISHs
0	0	0	0	0	0		S2 - Rest of the World
- 8	0	- 6	- 1	0	- 1	D31	Subsidies on products
							S11 - Non-Financial Corporations
							S12 - Financial Corporations
- 8	0	- 6	- 1	0	- 1		S13 - General Government
							S14 - Households
							S15 - NPISHs
0	0	0	0	0	0		S2 - Rest of the World
- 36	0	- 1	0	0	- 35	D39	Other subsidies on production
							S11 - Non-Financial Corporations
							S12 - Financial Corporations
- 36	0	- 1	0	0	- 35		S13 - General Government
							S14 - Households
							S15 - NPISHs
0	0	0	0	0	0		S2 - Rest of the World

Table 4.3-5. Filling in of the from-whom-to-whom matrices relating to subsidies, from the corresponding uses in the generation of income account, extended to destination institutional sectors.

D31 Subsidies on products

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	*- 1*	*0*	*- 1*	*- 6*	*0*	*- 8*		- 8
S14								
S15								
S1	*- 1*	*0*	*- 1*	*- 6*	*0*	*- 8*		- 8
S2	*0*	*0*	*0*	*0*	*0*	*0*		0
S1+S2	*- 1*	*0*	*- 1*	*- 6*	*0*	- 8		- 8

D39 Other subsidies on production

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	*- 35*	*0*	*0*	*- 1*	*0*	*- 36*		- 36
S14								
S15								
S1	*- 35*	*0*	*0*	*- 1*	*0*	*- 36*		- 36
S2	*0*	*0*	*0*	*0*	*0*	*0*		0
S1+S2	- 35	0	0	- 1	0	- 36		- 36

D3 Subsidies (D31+D32)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	*- 36*	*0*	*- 1*	*- 7*	*0*	*- 44*		*- 44*
S14								
S15								
S1	*- 36*	*0*	*- 1*	*- 7*	*0*	*- 44*		*- 44*
S2	*0*	*0*	*0*	*0*	*0*	*0*		*0*
S1+S2	*- 36*	*0*	*- 1*	*- 7*	*0*	*- 44*		*- 44*

The addition of the matrices represented in Tables 4.2-5 with 4.3-5 gives us the from-whom-to-whom matrices relating to taxes on production and imports net of subsidies, with a reading and remarks like those of the previous section, with the due adaptations.

In turn, we remit to the previous section the approach of the intervention of subsidies, both in the distribution process and in matrix representations, where they appear deducted to taxes on production and imports.

4.4. Property income

With five components - interest, distributed income of corporations, reinvested earnings on foreign direct investment, investment income disbursements and rent, property income (code D4) is recorded in the allocation of primary income account - Table 4.4-1.

Table 4.4-1. Recording of property income in the allocation of primary income account.

Total	S.2 Rest of the world	S.1 Total economy	S.15 NPISHs	S.14 Households	S.13 General government	S.12 Financial corporations	S.11 Non-financial corporations	Code	Transactions and balancing items
Uses									
435	44	391	6	41	42	168	134	D4	Property income
230	13	217	6	14	35	106	56	D41	Interest
79	17	62				15	47	D42	Distributed income of corporations
14	14	0				0	0	D43	Reinvested earnings on foreign direct investment
47	0	47				47		D44	Investment income disbursements
65		65	0	27	7	0	31	D45	Rent

ode	Transactions and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy	S.2 Rest of the world	Total
									Resources
D4	Property income	96	149	22	123	7	397	38	435
D41	Interest	33	106	14	49	7	209	21	230
D42	Distributed income of corporations	10	25	7	20	0	62	17	79
D43	Reinvested earnings on foreign direct investment	4	7	0	3	0	14	0	14
D44	Investment income disbursements	8	8	1	30	0	47	0	47
D45	Rent	41	3	0	21	0	65	0	65

[excerpts from Tables 3.2-2a and b]

When constructing from-whom-to-whom matrices from the information in the tables above, it is possible, once again, to fill in the rows and columns of the totals (S1+S2) and deduce the amounts corresponding to some cells, as can be seen in Table 4.4-2.

The fact that we are working with a category of transactions with five components and that all of them record uses and resources of all, or almost all, institutional sectors, restricts us to the possibility of deducing only the total transactions in the economy, except for the case of investment income disbursements.

Table 4.4-2. Possible filling in of the from-whom-to-whom matrices relating to property income, from the allocation of primary income account.

D41 Interest

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11						*0*		33
S12						*0*		106
S13						*0*		14
S14						*0*		49
S15						*0*		7
S1	*0*	*0*	*0*	*0*	*0*	*196*	*13*	209
S2						*21*		21
S1+S2	56	106	35	14	6	217	13	230

D44 Investment income disbursements

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11		8				*8*		8
S12		8				*8*		8
S13		1				*1*		1
S14		30				*30*		30
S15		0				*0*		0
S1		*47*				*47*	*0*	47
S2						*0*		0
S1+S2		47				47	0	47

D42 Distributed income of corporations

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11						*0*		10
S12						*0*		25
S13						*0*		7
S14						*0*		20
S15						*0*		0
S1	*0*	*0*				*45*	*17*	62
S2						*17*		17
S1+S2	47	15				62	17	79

D45 Rent

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11						*41*		41
S12						*3*		3
S13						*0*		0
S14						*21*		21
S15						*0*		0
S1	*31*	*0*	*7*	*27*	*0*	*65*		65
S2								
S1+S2	31	0	7	27	0	65		65

D43 Reinvested earnings on foreign direct investment

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11						*0*		4
S12						*0*		7
S13						*0*		0
S14						*0*		3
S15						*0*		0
S1	*0*	*0*				*0*	*14*	14
S2						*0*		0
S1+S2	0	0				0	14	14

D4 Property income (D41+D42+D43+D44+D45)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11						*0*		*96*
S12						*0*		*149*
S13						*0*		*22*
S14						*0*		*123*
S15						*0*		*7*
S1	*0*	*0*	*0*	*0*	*0*	*353*	*44*	397
S2						*38*		*38*
S1+S2	*134*	*168*	*42*	*41*	*6*	*391*	*44*	*435*

Thus, from the column reading, we know that the resident institutional units (S1) recorded a total of uses in the economy and in the rest of the world (S1+S2) in the amount of 391. Because the resources of the rest of the world (S2), which totalled 38, are uses of the economy (S1), we can deduce the amount of transactions in the economy (S1), that is, among the resident institutional units: 353 = 391 – 38.

We arrive at the same figure by reading in row, that is, starting from the total resources of the resident institutional units (S1), from the economy and the rest of the world (S1+S2), that is, 397. This time we have uses of the rest of the world (S2), which total 44, which are resources of the economy (S1), which allow us to deduce the amount of transactions in the economy (S1), that is, among the resident institutional units: 353 = 397 – 44.

Moreover, we do not know the entire network of institutional interrelations of property income, and its components, represented by the shaded parts in Table 4.4-2. Such lack of knowledge could be overcome with information on the institutional sectors of destination of the uses or of origin of the resources.

Table 4.4-3, by expanding the first part of Table 4.4-1, illustrates the first case. Table 4.4-4, in turn, shows how this information makes it possible to fill in all the from-whom-to-whom matrices related to the category of transactions under analysis.

Table 4.4-3. Recording of the uses of property income in the allocation of primary income account, extended to destination institutional sectors.

Total	S.2 Rest of the world	S.1 Total economy	S.15 NPISHs	S.14 Households	S.13 General government	S.12 Financial corporations	S.11 Non-financial corporations	Code	Transactions and balancing items
Uses									
435	44	391	6	41	42	168	134	D4	Property income
96	7	88	6	19	5	18	39		S11 - Non-Financial Corporations
149	23	126	0	13	2	77	34		S12 - Financial Corporations
22	2	20	0	0	0	15	4		S13 - General Government
123	11	112	0	9	21	44	39		S14 - Households
7	0	7	0	0	0	6	0		S15 - NPISHs
38	0	38	0	0	14	7	17		S2 - Rest of the World
230	13	217	6	14	35	106	56	D41	Interest
33	1	32	6	2	1	8	15		S11 - Non-Financial Corporations
106	9	97		12	2	62	21		S12 - Financial Corporations
14	1	13		0	0	10	3		S13 - General Government
49	2	47		0	18	14	14		S14 - Households
7	0	7		0	0	6	0		S15 - NPISHs
21		21	0	0	14	5	3		S2 - Rest of the World
79	17	62	0	0	0	15	47	D42	Distributed income of corporations
10	3	7				2	5		S11 - Non-Financial Corporations
25	7	18				6	12		S12 - Financial Corporations
7	2	5				4	1		S13 - General Government
20	5	15				0	14		S14 - Households
0	0	0				0	0		S15 - NPISHs
17		17				2	15		S2 - Rest of the World
14	14	0	0	0	0	0	0	D43	Reinvested earnings on foreign direct investment
4	4	0							S11 - Non-Financial Corporations
7	7	0							S12 - Financial Corporations
0	0	0							S13 - General Government
3	3	0							S14 - Households
0	0	0							S15 - NPISHs
0		0							S2 - Rest of the World
47	0	47	0	0	0	47	0	D44	Investment income disbursements
8		8				8			S11 - Non-Financial Corporations
8		8				8			S12 - Financial Corporations
1		1				1			S13 - General Government
30		30				30			S14 - Households
0		0				0			S15 - NPISHs
0		0							S2 - Rest of the World
65	0	65	0	27	7	0	31	D45	Rent
41		41		17	4		20		S11 - Non-Financial Corporations
3		3		1	0		1		S12 - Financial Corporations
0		0		0	0		0		S13 - General Government
21		21		9	2		10		S14 - Households
0		0		0	0		0		S15 - NPISHs
0		0							S2 - Rest of the World

Table 4.4-4. Filling in of the from-whom-to-whom matrices relating to property income, from the corresponding uses in the allocation of primary income account, extended to destination institutional sectors.

D41 Interest

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11	15	8	1	2	6	*32*	1	*33*
S12	21	62	2	12		*97*	9	*106*
S13	3	10	0	0		*13*	1	*14*
S14	14	14	18	0		*47*	2	*49*
S15	0	6	0	0		*7*	0	*7*
S1	*53*	*101*	*21*	*14*	*6*	*196*	*13*	*209*
S2	3	5	14	0	0	*21*		*21*
S1+S2	*56*	*106*	*35*	*14*	*6*	*217*	*13*	*230*

D42 Distributed income of corporations

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11	5	2				*7*	3	*10*
S12	12	6				*18*	7	*25*
S13	1	4				*5*	2	*7*
S14	14	0				*15*	5	*20*
S15	0	0				*0*	0	*0*
S1	*32*	*13*				*45*	*17*	*62*
S2	15	2				*17*		*17*
S1+S2	*47*	*15*				*62*	*17*	*79*

D43 Reinvested earnings on foreign direct investment

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11						*0*	4	*4*
S12						*0*	7	*7*
S13						*0*	0	*0*
S14						*0*	3	*3*
S15						*0*	0	*0*
S1	*0*	*0*				*0*	*14*	*14*
S2	0	0				*0*		*0*
S1+S2	*0*	*0*				*0*	*14*	*14*

D44 Investment income disbursements

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11		8				*8*		*8*
S12		8				*8*		*8*
S13		1				*1*		*1*
S14		30				*30*		*30*
S15		0				*0*		*0*
S1		*47*	*0*	*0*	*0*	*47*	*0*	*47*
S2						*0*		*0*
S1+S2		*47*	*0*	*0*	*0*	*47*	*0*	*47*

D45 Rent

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11	20	0	4	17	0	*41*		*41*
S12	1	0	0	1	0	*3*		*3*
S13	0	0	0	0	0	*0*		*0*
S14	10	0	2	9	0	*21*		*21*
S15	0	0	0	0	0	*0*		*0*
S1	*31*	*0*	*7*	*27*	*0*	*65*		*65*
S2						*0*		*0*
S1+S2	*31*	*0*	*7*	*27*	*0*	*65*		*65*

D4 Property income (D41+D42+D43+D44+D45)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11	*39*	*18*	*5*	*19*	*6*	*88*	*7*	*96*
S12	*34*	*77*	*2*	*13*	*0*	*126*	*23*	*149*
S13	*4*	*15*	*0*	*0*	*0*	*20*	*2*	*22*
S14	*39*	*44*	*21*	*9*	*0*	*112*	*11*	*123*
S15	*0*	*6*	*0*	*0*	*0*	*7*	*0*	*7*
S1	*117*	*161*	*28*	*41*	*6*	*353*	*44*	*397*
S2	*17*	*7*	*14*	*0*	*0*	*38*		*38*
S1+S2	*134*	*168*	*42*	*41*	*6*	*391*	*44*	*435*

Therefore, with the extension proposed in Table 4.4-3, that is, with the information related to the destination institutional sectors of the uses of property income and its components, we come to know all the corresponding institutional interrelations and to be able to complete the filling in of the corresponding from-whom-to-whom matrices. The same would be possible with the extension of the second part of Table 4.4-1, that is, with the information regarding the origin institutional sectors of the resources of the property income and its components, an exercise that we leave to the interested parties, based on the Table A.2-3 of the Annex.

Like compensation of employees, these transactions intervene at the beginning of the distribution process, this time representing other income, in the composition of the factor income originating and retained (Tables 3.3-2 and 3.3-3).

In turn, within the scope of matrix representations, the national accounting matrix (Table 3.4-1), allows the explicit identification of this category of transactions both in the economy - cell (i.1, i.1) and with the rest of the world - cells (rw, i.1) and (i.1, rw). The same does not happen with the social accounting matrix (Table 3.4-2), which only allows the explicit identification of transactions with the rest of the world - cells (rw, f) and (f, rw), with transactions in the economy, once again, implicit in the cells representing value added and national income - cells (f, a) and (dic, f).

4.5. Current taxes on income, wealth, etc.

With two components - taxes on income and other current taxes, the current taxes on income, wealth, etc. (code D5) are recorded in the secondary distribution of income account - Table 4.5-1. It is a category with uses by all institutional sectors, except in the case of other current taxes by the rest of the world, and with resources only by general government and (possibly) the rest of the world in the case of taxes on income.

Table 4.5-1. Recording of current taxes on income, wealth, etc. in the secondary distribution of income account.

Total	S.2 **Rest of the world**	S.1 **Total economy**	S.15 **NPISHs**	S.14 **Households**	S.13 **General government**	S.12 **Financial corporations**	S.11 **Non-financial corporations**	Code	Transactions and balancing items
Uses									
213	1	212	0	178	0	10	24	D5	Current taxes on income, wealth, etc.
204	1	203	0	176	0	7	20	D51	Taxes on income
9		9	0	2	0	3	4	D59	Other current taxes

Code	Transactions and balancing items	S.13 **General government**	S.2 **Rest of the world**	**Total**
				Resources
D5	Current taxes on income, wealth, etc.	213	0	213
D51	Taxes on income	204	0	204
D59	Other current taxes	9		9

[excerpts from Tables 3.2-3a e b]

When constructing from-whom-to-whom matrices from the information in Table 4.5-1, we fill in the rows and columns of the totals (S1+S2), from which is possible to deduce the amounts of all cells representing institutional interrelations, as shown in Table 4.5-2.

Table 4.5-2. Possible filling in of the from-whom-to-whom matrices relating to current taxes on income, wealth, etc., from the secondary distribution of income account.

D51 Taxes on income

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	*20*	*7*	*0*	*176*	*0*	*203*	*1*	204
S14								
S15								
S1	*20*	*7*	*0*	*176*	*0*	*203*	*1*	204
S2						*0*		0
S1+S2	20	7	0	176	0	203	1	204

D59 Other current taxes

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	*4*	*3*	*0*	*2*	*0*	*9*		9
S14								
S15								
S1	*4*	*3*	*0*	*2*	*0*	*9*		9
S2						*0*		0
S1+S2	4	3	0	2	0	9		9

D5 Impostos correntes sobre o rendimento, património, etc. (D51+D59)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	*24*	*10*	*0*	*178*	*0*	*212*	*1*	*213*
S14								
S15								
S1	*24*	*10*	*0*	*178*	*0*	*212*	*1*	*213*
S2						*0*		*0*
S1+S2	*24*	*10*	*0*	*178*	*0*	*212*	*1*	*213*

Thus, from the column reading, we know that the resident institutional units (S1) recorded a total of uses in the economy and in the rest of the world (S1+S2) in the amount of 212. Because the rest of the world (S2) does not have resources, which are uses of the economy (S1), that amount corresponds only to transactions in the economy (S1) and with the general government (S13).

When reading in row, we see a total of resources of resident institutional units (S1), in this case, of general government (S13), coming from the economy and the rest of the world (S1+S2) in the amount of 213. Being the resources from the rest of the world its uses in the economy, in the amount of 1, we deduce the amount of transactions in the economy (S1), that is, among the resident institutional units, in this case, general government resources from all resident institutional units: 212 = 213 – 1.

We therefore have the matrix for the category in study, and its components, which are row vectors, filled in.

Although we have completed the filling in of the from-whom-to-whom matrices relating to the category of transactions under analysis it is also possible to expand the uses, represented in Table 4.5-1, to destination institutional sectors, as shown in Table 4.5.-3, on the one hand, or the origin institutional sectors of the resources, as shown in Table A.2-4 of the Annex.

Table 4.5-3. Recording of the uses of current taxes on income, wealth, etc. in the secondary distribution of income account, extended to destination institutional sectors.

Total	S.2 Rest of the world	S.1 Total economy	S.15 NPISHs	S.14 Households	S.13 General government	S.12 Financial corporations	S.11 Non-financial corporations	Code	Transactions and balancing items
Uses									
213	1	212	0	178	0	10	24	D5	Current taxes on income, wealth, etc.
0	0	0	0	0	0	0	0		S11 - Non-Financial Corporations
0	0	0	0	0	0	0	0		S12 - Financial Corporations
213	1	212	0	178	0	10	24		S13 - General Government
0	0	0	0	0	0	0	0		S14 - Households
0	0	0	0	0	0	0	0		S15 - NPISHs
0	0	0	0	0	0	0	0		S2 - Rest of the World
204	1	203	0	176	0	7	20	D51	Taxes on income
0		0							S11 - Non-Financial Corporations
0		0							S12 - Financial Corporations
204	1	203	0	176	0	7	20		S13 - General Government
0		0							S14 - Households
0		0							S15 - NPISHs
0		0							S2 - Rest of the World
9		9	0	2	0	3	4	D59	Other current taxes
0		0							S11 - Non-Financial Corporations
0		0							S12 - Financial Corporations
9		9	0	2	0	3	4		S13 - General Government
0		0							S14 - Households
0		0							S15 - NPISHs
0		0							S2 - Rest of the World

This category of transactions intervenes in the second round of redistributions of the chain of redistribution, contributing to the transformation of income before taxes into disposable income (Table 3.3-5).

It is also integrated into current transactions in the economy and with the rest of the world, represented, respectively: in the national accounting matrix (Table 3.4.-1), by cells (i.2, i.2), (rw, i.2) and (i.2, rw); and in the social accounting matrix (Table 3.4.-2), by cells (dic, dic), (rw, dic) and (dic, rw).

4.6. Social contributions and benefits

With three components - net social contributions, social benefits other than social transfers in kind, and social transfers in kind, social contributions and benefits (code D6) are recorded in the redistribution of incomes accounts - Table 4.6-1. The secondary distribution of income account records the first two components and the redistribution of income in kind account records the last component.

Table 4.6-1. Recording of social contributions and benefits in the redistribution of income accounts.

Total	S.2 Rest of the world	S.1 Total economy	S.15 NPISHs	S.14 Households	S.13 General government	S.12 Financial corporations	S.11 Non-financial corporations	Code	Transactions and balancing items
Uses									
333	0	333		333				D61	Net social contributions
384	0	384	5	0	112	205	62	D62	Social benefits other than social transfers in kind
215		215	31		184			D63	Social transfers in kind

	Transactions and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy	S.2 Rest of the world	Total
									Resources
D61	Net social contributions	66	213	50	0	4	333	0	333
D62	Social benefits other than social transfers in kind				384		384	0	384
D63	Social transfers in kind				215		215		215

[excerpts from Tables 3.2-3a e b]

As shown in Table 4.6-2, the amounts in Table 4.6-1 allow filling in the rows and columns of the totals (S1+S2) of the from-whom-to-whom matrices, as well as deducing some of the amounts needed for its construction, following a methodology identical to the one previously adopted.

Table 4.6-2. Possible filling in of the from-whom-to-whom matrices relating to social contributions and benefits, from the redistribution of income accounts.

D61 Net social contributions

	S11	S12	S13	S14	S15	S1	S2	S1+S2
S11				*66*		*66*		66
S12				*213*		*213*		213
S13				*50*		*50*		50
S14				*0*		*0*		0
S15				*4*		*4*		4
S1				*333*		*333*	*0*	333
S2				*0*		*0*		0
S1+S2				333		333	0	333

D63 Social transfers in kind

	S11	S12	S13	S14	S15	S1	S2	S1+S2
S11								
S12								
S13								
S14			*184*		*31*	*215*		215
S15								
S1			*184*		*31*	*215*		215
S2								
S1+S2			184		31	215		215

D62 Social benefits other than social transfers in kind

	S11	S12	S13	S14	S15	S1	S2	S1+S2
S11								
S12								
S13								
S14	*62*	*205*	*112*	*0*	*5*	*384*	*0*	384
S15								
S1	*62*	*205*	*112*	*0*	*5*	*384*	*0*	384
S2						*0*		0
S1+S2	62	205	112	0	5	384	0	384

D6 Social contributions and benefits (D61+D62+D63)

	S11	S12	S13	S14	S15	S1	S2	S1+S2
S11	*0*	*0*	*0*	*66*	*0*	*66*		*66*
S12	*0*	*0*	*0*	*213*	*0*	*213*		*213*
S13	*0*	*0*	*0*	*50*	*0*	*50*		*50*
S14	*62*	*205*	*296*	*0*	*36*	*599*		*599*
S15	*0*	*0*	*0*	*4*	*0*	*4*		*4*
S1	*62*	*205*	*296*	*333*	*36*	*932*	*0*	*932*
S2						*0*		*0*
S1+S2	*62*	*205*	*296*	*333*	*36*	*932*	*0*	*932*

Thus, we learn that: net social contributions (D61) record resources by all institutional sectors and uses by households; social benefits other than social transfers in kind (D62) record resources by households and the rest of the world and uses (possibly) by all institutional sectors; and that only households register resources related to social transfers in kind (D63), of which general government and non-profit institutions serving households record uses. It is therefore possible to deduce institutional interrelations under the three components as shown in Table 4.6-2. Once again, we can

expand the uses, represented in Table 4.6-1, to the destination institutional sectors, as shown in Table 4.6-3, or the resources to the institutional sectors of origin, an exercise that we leave to the interested parties from Table A.2-5. of the Annex.

Table 4.6-3. Recording of the uses of social contributions and benefits in the redistribution of income accounts, extended to destination institutional sectors.

Total	S.2 **Rest of the world**	S.1 **Total economy**	S.15 **NPISHs**	S.14 **Households**	S.13 **General government**	S.12 **Financial corporations**	S.11 **Non-financial corporations**	Code	Transactions and balancing items
Uses									
333	0	333		333				D61	Net social contributions
66		66		66					S11 - Non-Financial Corporations
213		213		213					S12 - Financial Corporations
50		50		50					S13 - General Government
0		0		0					S14 - Households
4		4		4					S15 - NPISHs
0		0		0					S2 - Rest of the World
384	0	384	5	0	112	205	62	D62	Social benefits other than social transfers in kind
									S11 - Non-Financial Corporations
									S12 - Financial Corporations
									S13 - General Government
384		384	5	0	112	205	62		S14 - Households
									S15 - NPISHs
									S2 - Rest of the World
215		215	31		184			D63	Social transfers in kind
									S11 - Non-Financial Corporations
									S12 - Financial Corporations
									S13 - General Government
215		215	31		184				S14 - Households
									S15 - NPISHs
									S2 - Rest of the World

Each component of this category of transactions has different interventions in the previously described distribution process, in the part regarding the chain of redistribution: social benefits other than social transfers in kind (D62), intervene in the first round (Table 3.3-4), contributing to the transformation of factor income retained in income before taxes; net social contributions (D61), intervene in the second round (Table 3.3-5), contributing to the transformation of income before taxes into disposable income; and social transfers in kind (D63), intervene in a so-called second sub-round (Table 3.3-6). The intervention of the latter cannot be considered like the other two because it does not represent monetary flows between the involved institutional sectors.

That is also the reason why it is not possible to identify social transfers in kind (D63) in our matrix representations, in which the other two components (D61 and D62) are integrated into current transactions in the economy and with the rest of the world, represented, respectively: in the national accounting matrix (Table 3.4-1), by cells (i.2, i.2), (rw, i.2) and (i.2, rw); and in the social accounting matrix (Table 3.4-2), through the cells (dic, dic), (rw, dic) and (dic, rw).

4.7. Other current transfers

With five components - net non-life insurance premiums, non-life insurance claims, current transfers within general government, current international cooperation, and miscellaneous current transfers, other current transfers (code D7) are recorded, within the scope of redistribution accounts, in the secondary distribution of income account - Table 4.7-1.

Table 4.7-1. Recording of other current transfers in the secondary distribution of income account.

Total	S.2 Rest of the world	S.1 Total economy	S.15 NPISHs	S.14 Households	S.13 General government	S.12 Financial corporations	S.11 Non-financial corporations	Code	Transactions and balancing items
Uses									
299	16	283	2	71	136	62	12	D7	Other current transfers
58	2	56	0	31	4	13	8	D.71	Net non-life insurance premiums
60	12	48				48		D.72	Non-life insurance claims
96	0	96			96			D.73	Current transfers within general government
32	1	31			31			D.74	Current international cooperation
53	1	52	2	40	5	1	4	D.75	Miscellaneous current transfers

Code	Transactions and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy	S.2 Rest of the world	Total
									Resources
D7	Other current transfers	6	62	104	36	36	244	55	299
D.71	Net non-life insurance premiums		47				47	11	58
D.72	Non-life insurance claims	6	15	1	35	0	57	3	60
D.73	Current transfers within general government			96			96	0	96
D.74	Current international cooperation			1			1	31	32
D.75	Miscellaneous current transfers	0	0	6	1	36	43	10	53

[excerpts from Tables 3.2-3a e b]

When constructing from-whom-to-whom matrices from the information in Table 3.7-1, it is possible, once again, to fill in the rows and columns of the totals (S1+S2) and deduce the amounts corresponding to some cells, as can be seen in Table 4.7-2.

Thus, it was possible to deduce the content of those matrices in the case of the components: current transfers within general government (D73), with only one cell to fill in, as the name suggests; and current international cooperation (D74), with two records of transactions, between the general government and the rest of the world, as the name also suggests.
On the other hand, in the remaining components, we verify uses and resources of all, or almost all, institutional sectors, which restricts the possibilities of deducing the amounts of the shaded cells in the corresponding matrices.

In terms of category totals (D7), reading the column, we know that the resident institutional units (S1) recorded a total of uses in the economy and in the rest of the world (S1+S2) in the amount of 283. Because the resources of the rest of the world (S2), which totalled 55, are uses of the economy (S1),

we can deduce the amount of transactions in the economy (S1), that is, among the resident institutional units: 228 = 283 - 55.

In the same way, reading in row, we have a total of resources of the resident institutional units (S1), coming from the economy and the rest of the world (S1+S2) amounting to 244. In turn, we have uses of the rest of the world (S2), which total 16 that are resources of the economy (S1), which allow us to deduce the amount of transactions in the economy (S1), that is, among the resident institutional units: 228 = 244 – 16.

The above-mentioned lack of information regarding three of its components makes the entire network of institutional interrelations of the total of the other current transfers (D7), represented by the shaded parts in Table 4.7-2, unknown.

Table 4.7-2. Possible filling in of the from-whom-to-whom matrices relating to other current transfers, from the secondary distribution of income account.

D71 Net non-life insurance premiums

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12						*45*	*2*	47
S13								
S14								
S15								
S1	*0*	*0*	*0*	*0*	*0*	*45*	*2*	47
S2						*11*		11
S1+S2	8	13	4	31	0	56	2	58

D72 Non-life insurance claims

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11						*0*		6
S12						*0*		15
S13						*0*		1
S14						*0*		35
S15						*0*		0
S1		*45*				*45*	*12*	57
S2		*3*				*3*		3
S1+S2		48				48	12	60

D73 Current transfers within general government

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13			*96*			*96*		96
S14								
S15								
S1			*96*			*96*		*96*
S2								0
S1+S2			96			*96*	0	*96*

D74 Current international cooperation

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13						*0*	*1*	1
S14								
S15								
S1			*0*			*0*	*1*	1
S2			*31*			*31*		31
S1+S2			31			31	1	32

D75 Miscellaneous current transfers

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11						*0*		0
S12						*0*		0
S13						*0*		6
S14						*0*		1
S15						*0*		36
S1	*0*	*0*	*0*	*0*	*0*	*42*	*1*	43
S2						*10*		10
S1+S2	4	1	5	40	2	52	1	53

D7 Other current transfers (D71+D72+D73+D74+D75)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11						*0*		*6*
S12						*0*		*62*
S13						*0*		*104*
S14						*0*		*36*
S15						*0*		*36*
S1	*0*	*0*	*0*	*0*	*0*	*228*	*16*	*244*
S2						*55*		*55*
S1+S2	*12*	*62*	*136*	*71*	*2*	*283*	*16*	*299*

Once again, we used an extension of the first part of Table 4.7-1, that is, the information regarding the institutional sectors of destination for the uses of other current transfers, represented in Table 4.7-3, to overcome this lack of knowledge, as can be seen in Table 4.7-4, with all from-whom-to-whom matrices related to the category of transactions under analysis filled in.

Table 4.7-3. Recording of the uses of other current transfers in the secondary distribution of income account, extended to destination institutional sectors.

Total	S.2 **Rest of the world**	S.1 **Total economy**	S.15 **NPISHs**	S.14 **Households**	S.13 **General government**	S.12 **Financial corporations**	S.11 **Non-financial corporations**	Code	Transactions and balancing items
Uses									
299	16	283	2	71	136	62	12	D7	Other current transfers
6	3	3				3			S11 - Non-Financial Corporations
62	11	51	0	31	4	10	5		S12 - Financial Corporations
104	1	103	1	4	96	1	1		S13 - General Government
36	0	36	0	1	0	35	0		S14 - Households
36	1	35	1	28	4	0	2		S15 - NPISHs
55	0	55	0	7	32	12	4		S2 - Rest of the World
58	2	56	0	31	4	13	8	D.71	Net non-life insurance premiums
0		0							S11 - Non-Financial Corporations
47	2	45	0	31	4	5	5		S12 - Financial Corporations
0		0							S13 - General Government
0		0							S14 - Households
0		0							S15 - NPISHs
11		11		0	0	8	3		S2 - Rest of the World
60	12	48				48		D.72	Non-life insurance claims
6	3	3				3			S11 - Non-Financial Corporations
15	9	6				6			S12 - Financial Corporations
1		1				1			S13 - General Government
35		35				35			S14 - Households
0		0				0			S15 - NPISHs
3		3				3			S2 - Rest of the World
96	0	96			96			D.73	Current transfers within general government
0		0							S11 - Non-Financial Corporations
0		0							S12 - Financial Corporations
96		96			96				S13 - General Government
0		0							S14 - Households
0		0							S15 - NPISHs
0		0							S2 - Rest of the World
32	1	31			31			D.74	Current international cooperation
0		0							S11 - Non-Financial Corporations
0		0							S12 - Financial Corporations
1	1	0							S13 - General Government
0		0							S14 - Households
0		0							S15 - NPISHs
31		31			31				S2 - Rest of the World
53	1	52	2	40	5	1	4	D.75	Miscellaneous current transfers
0		0							S11 - Non-Financial Corporations
0		0							S12 - Financial Corporations
6	0	6	1	4	0	0	1		S13 - General Government
1	0	1	0	1	0	0	0		S14 - Households
36	1	35	1	28	4	0	2		S15 - NPISHs
10		10	0	7	1	1	1		S2 - Rest of the World

Table 4.7-4. Filling in of the from-whom-to-whom matrices relating to other current transfers, from the corresponding uses in the secondary distribution of income account, extended to destination institutional sectors.

D71 Net non-life insurance premiums

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12	5	5	4	31	0	*45*	2	*47*
S13								
S14								
S15								
S1	*5*	*5*	*4*	*31*	*0*	*45*	*2*	*47*
S2	3	8	0	0		*11*		*11*
S1+S2	*8*	*13*	*4*	*31*	*0*	*56*	*2*	*58*

D72 Non-life insurance claims

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11		3				*3*	3	*6*
S12		6				*6*	9	*15*
S13		1				*1*		*1*
S14		35				*35*		*35*
S15		0				*0*		*0*
S1		*45*				*45*	*12*	*57*
S2		3				*3*		*3*
S1+S2		*48*				*48*	*12*	*60*

D73 Current transfers within general government

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13			96			*96*		*96*
S14								
S15								
S1			*96*			*96*	*0*	*96*
S2						*0*		*0*
S1+S2			*96*			*96*	*0*	*96*

D74 Current international cooperation

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13						*0*	1	*1*
S14								
S15								
S1			*0*			*0*	*1*	*1*
S2			31			*31*		*31*
S1+S2			*31*			*31*	*1*	*32*

D75 Miscellaneous current transfers

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11						*0*		*0*
S12						*0*		*0*
S13	1	0	0	4	1	*6*	0	*6*
S14	0	0	0	1	0	*1*	0	*1*
S15	2	0	4	28	1	*35*	1	*36*
S1	*3*	*0*	*4*	*33*	*2*	*42*	*1*	*43*
S2	1	1	1	7	0	*10*		*10*
S1+S2	*4*	*1*	*5*	*40*	*2*	*52*	*1*	*53*

D7 Other current transfers (D71+D72+D73+D74+D75)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11		*3*				*3*	*3*	*6*
S12	*5*	*10*	*4*	*31*	*0*	*51*	*11*	*62*
S13	*1*	*1*	*96*	*4*	*1*	*103*	*1*	*104*
S14	*0*	*35*	*0*	*1*	*0*	*36*	*0*	*36*
S15	*2*	*0*	*4*	*28*	*1*	*35*	*1*	*36*
S1	*8*	*50*	*104*	*64*	*2*	*228*	*16*	*244*
S2	*4*	*12*	*32*	*7*	*0*	*55*		*55*
S1+S2	*12*	*62*	*136*	*71*	*2*	*283*	*16*	*299*

Like what we have been referring to, the same would have been possible with the extension of the second part of Table 4.7-1, that is, with the information regarding the institutional sectors of origin of the resources of the other current transfers and their components, an exercise that we leave to those interested, based on Table A.2-6 of the Annex.

This category of transactions intervenes in the distribution process, described in Section 3.2, in the first round of the chain of redistribution (Table 3.3-4), contributing to the transformation of factor income retained in income before taxes.

It is also integrated into current transactions in the economy and with the rest of the world, represented, respectively: in the national accounting matrix (Table 3.3.-1), by cells (i.2, i.2), (rw, i.2) and (i.2, V); and in the social accounting matrix (Table 3.3.-2), by cells (dic, dic), (rw, dic) and (dic, rw).

4.8. Adjustment for the change in pension entitlements

Without decomposition, the adjustment for the change in pension entitlements (code D8) is recorded in the same way in both use of income accounts - Table 4.8-1, as a use of financial corporations and a resource of households.

Table 4.8-1. Recording of adjustment for the change in pension entitlements in the use of income accounts.

S.1 **Total economy**	S.12 **Financial corporations**	Code	Transactions and balancing items	S.14 **Households**	S.1 **Total economy**
Uses					Resources
11	11	D8	Adjustment for the change in pension entitlements	11	11

[(excerpt from Table 3.2-4)]

As can be seen in Table 4.8-2, it occupies a single cell of the corresponding from-whom-to-whom matrix and therefore no extension of the corresponding accounts is required to fill it in.

Table 4.8-2. Filling in of the from-whom-to-whom matrix relating to adjustment for the change in pension entitlements, from the use of income accounts.

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13								
S14		*11*				*11*		11
S15								
S1		*11*				*11*		11
S2								
S1+S2		11				11		11

This adjustment is part of the fourth, and last, round of the chain of redistribution (Table 3.3-8), contributing to the transformation of the final income into the use of income.

In turn, it occupies the cell (i.3, i.3) of the national accounting matrix (Table 3.4.-1), and integrates the current transactions in the economy, cell (dic, dic), of the social accounting matrix (Table 3.4.-2).

4.9. Capital transfers

With three components - capital taxes, investment grants, and other capital transfers, capital transfers (code D9) are recorded in the capital account – Table 4.9-1. As we saw in the previous chapter, this is the only category of distributive transactions recorded in an accumulation account; the other eight categories are recorded in current accounts.

Also returning to the previous chapter, we will treat “capital transfers, receivable” as resources and “capital transfers, payable” as uses and without a negative sign. Thus, when constructing from-whom-to-whom matrices based on the information in Table 4.9-1, it was possible, once again, to fill in the rows and columns of the totals (S1+S2) and deduce the amounts corresponding to some cells, as can be seen in Table 4.9-2.

Table 4.9-1. Recording of capital transfers in the capital account.

Code	Transaction and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy	S.2 Rest of the world	Total
									Changes in liabilities and net worth
D9r	Capital transfers, receivable	33	0	6	23	0	62	4	66
D91r	Capital taxes, receivable			2			2		2
D92r	Investment grants, receivable	23	0	0	0	0	23	4	27
D99r	Other capital transfers, receivable	10	0	4	23	0	37		37
D9p	Capital transfers, payable	- 16	- 7	- 34	- 5	- 3	- 65	- 1	- 66
D91p	Capital taxes, payable	0	0	0	- 2	0	- 2	0	- 2
D92p	Investment grants, payable			- 27			- 27		- 27
D99p	Other capital transfers, payable	- 16	- 7	- 7	- 3	- 3	- 36	- 1	- 37

[excerpt from Table 3.2-5b]

4.9-2. Possible filling in of the from-whom-to-whom matrices relating to capital transfers, from the capital account.

D91 Capital taxes

	S11	S12	S13	S14	S15	S1	S2	S1+S2
S11								
S12								
S13				*2*		*2*		2
S14								
S15								
S1				*2*		*2*	*0*	*2*
S2								
S1+S2	0	0	0	2	0	2	0	2

D99 Other capital transfers

	S11	S12	S13	S14	S15	S1	S2	S1+S2
S11						*0*		10
S12						*0*		0
S13						*0*		4
S14						*0*		23
S15						*0*		0
S1	*16*	*7*	*7*	*3*	*3*	*36*	*1*	37
S2								
S1+S2	16	7	7	3	3	36	1	37

D92 Investment grants

	S11	S12	S13	S14	S15	S1	S2	S1+S2
S11			*23*			*23*		23
S12						*0*		0
S13						*0*		0
S14						*0*		0
S15						*0*		0
S1			*23*			*23*		23
S2			*4*			*4*		4
S1+S2			27			27		27

D9 Capital transfers (D91+D92+D99)

	S11	S12	S13	S14	S15	S1	S2	S1+S2
S11						*0*		*33*
S12						*0*		*0*
S13						*0*		*6*
S14						*0*		*23*
S15						*0*		*0*
S1	*16*	*7*	*30*	*5*	*3*	*61*	*1*	*62*
S2			*4*			*4*		*4*
S1+S2	*16*	*7*	*34*	*5*	*3*	*65*	*1*	*66*

Therefore, it is possible to deduce the content of the from-whom-matrices of capital taxes (D91) and investment grants (D92). The former, with only one cell to fill in in the amount of 2, representing uses of households (S14) and resources of the general government (S13). The latter, with two cells to fill in, both representing uses of the general government (S13), one in the amount of 23 corresponding to resources of the non-financial corporations (S11), and other in the amount of 4 corresponding to resources of the resto of the world (S2).

In the case of other capital transfers (D99) we verify the existence of resources and uses by all institutional sectors, what prevents its filling using only the totals.

In terms of category totals (D9), reading in a column, we know that resident institutional units (S1) recorded a total of uses in the economy and in the rest of the world (S1+S2) in the amount of 65. Because the resources of the rest of the world (S2), which totalled 4, are uses of the economy (S1),

we can deduce the amount of capital transfers in the economy (S1), that is, among the resident institutional units: 61 = 65 - 4.

In the same way, reading in row, we have a total of resources of the resident institutional units (S1), from the economy and the rest of the world (S1+S2) in the amount of 62. In turn, we have uses of the rest of the world (S2), which total 1 that are resources of the economy (S1), which allows us to deduce the amount of transactions in the economy (S1), that is, among the resident institutional units: 61 = 62 - 1.

We are therefore unaware of all the shaded parts in Table 3.9-2, that is, the network of institutional interrelations of total capital transfers (D9) and its components.

As we did for some of the other distributive transactions, to overcome this gap we used an extension of the second part of Table 4.9-1, that is, the information on the institutional sectors of destination of the capital transfers payable (without a negative sign), represented in Table 4.9-3. With that information all the from-whom-to-whom matrices for the category of transactions under analysis as can be filled in, as shown in Table 4.9-4.

Table 4.9-3. Recording of capital transfers payable in the capital account, extended to destination institutional sectors.

Code	Transaction and balancing items	S.11 **Non-financial corporations**	S.12 **Financial corporations**	S.13 **General government**	S.14 **Households**	S.15 **NPISHs**	S.1 **Total economy**	S.2 **Rest of the world**	**Total**
									Changes in liabilities and net worth
D9p	Capital transfers, payable	- 16	- 7	- 34	- 5	- 3	- 65	- 1	- 66
	S11 - Non-Financial Corporations	0	- 2	- 30	0	0	- 32	- 1	- 33
	S12 - Financial Corporations						0		0
	S13 - General Government	- 1	- 1	0	- 3	- 1	- 6	0	- 6
	S14 - Households	- 15	- 4	0	- 2	- 2	- 23	0	- 23
	S15 - NPISHs						0		0
	S2 - Rest of the World			- 4			- 4		- 4
D91p	Capital taxes, payable	0	0	0	- 2	0	- 2	0	- 2
	S11 - Non-Financial Corporations						0		0
	S12 - Financial Corporations						0		0
	S13 - General Government				- 2		- 2		- 2
	S14 - Households						0		0
	S15 - NPISHs						0		0
	S2 - Rest of the World						0		0
D92p	Investment grants, payable			- 27			- 27		- 27
	S11 - Non-Financial Corporations			- 23			- 23		- 23
	S12 - Financial Corporations						0		0
	S13 - General Government						0		0
	S14 - Households						0		0
	S15 - NPISHs						0		0
	S2 - Rest of the World			- 4			- 4		- 4
D99p	Other capital transfers, payable	- 16	- 7	- 7	- 3	- 3	- 36	- 1	- 37
	S11 - Non-Financial Corporations		- 2	- 7			- 9	- 1	- 10
	S12 - Financial Corporations						0		0
	S13 - General Government	- 1	- 1		- 1	- 1	- 4		- 4
	S14 - Households	- 15	- 4		- 2	- 2	- 23		- 23
	S15 - NPISHs						0		0
	S2 - Rest of the World						0		0

Table 4.9-4. Filling in of the from-whom-to-whom matrices relating to capital transfers, from the transfers payable of capital account, extended to destination institutional sectors.

D91 Capital taxes

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13				2		*2*		*2*
S14								
S15								
S1				*2*		*2*	*0*	*2*
S2								
S1+S2	*0*	*0*	*0*	*2*	*0*	*2*	*0*	*2*

D99 Other capital transfers

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11		2	7			*9*	1	*10*
S12						*0*		*0*
S13	1	1		1	1	*4*		*4*
S14	15	4		2	2	*23*		*23*
S15						*0*		*0*
S1	*16*	*7*	*7*	*3*	*3*	*36*	*1*	*37*
S2								
S1+S2	*16*	*7*	*7*	*3*	*3*	*36*	*1*	*37*

D92 Investment grants

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11			23			*23*		*23*
S12						*0*		*0*
S13						*0*		*0*
S14						*0*		*0*
S15						*0*		*0*
S1			*23*			*23*		*23*
S2			4			*4*		*4*
S1+S2			*27*			*27*		*27*

D9 Capital transfers (D91+D92+D99)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11	*0*	*2*	*30*	*0*	*0*	*32*	*1*	*33*
S12						*0*		*0*
S13	*1*	*1*	*0*	*3*	*1*	*6*	*0*	*6*
S14	*15*	*4*	*0*	*2*	*2*	*23*	*0*	*23*
S15						*0*		*0*
S1	*16*	*7*	*30*	*5*	*3*	*61*	*1*	*62*
S2			*4*			*4*		*4*
S1+S2	*16*	*7*	*34*	*5*	*3*	*65*	*1*	*66*

Once again, we leave it to the interested parties to fill in the same from-whom-to-whom matrices based on the extension of the first part of Table 4.9-1, that is, the information on the origin institutional sectors of the capital transfers receivable, available in Table A.2-7 of the Annex.

This category of transactions intervenes in the fourth, and last, round of the chain of redistribution (Table 3.3-8), contributing to the transformation of the final income into the use of income.

On the other hand, capital transfers in the economy and with the rest of the world are treated identically, respectively: in the national accounting matrix (Table 3.4.-1) - cells (ii, ii), (rw, ii) and (ii, rw); and in the social accounting matrix (Table 3.4.-2) - cells (dik, dik), (rw, dik) and (dik, rw).

5. A possible use of from-whom-to-whom matrices for distributive transactions to extend input-output analysis to income distribution

Throughout Chapter 4, we have identified the position of each of the nine categories of distributive transactions in the cells of the aggregated social accounting matrix of transactions, presented in Table 3.4-2. From that version, a disaggregated one was constructed by adopting a top-down method. Annex 5 presents that version, as well as the supporting information and data. The association between the constructed from-whom-to-whom matrices, the other supporting tables and the various parts of these versions will be made below through text boxes with excerpts from tables with the corresponding parts, exemplifying some calculations and adding shapes (almost always rectangles).

Table 5.1-1. Association of the from-whom-to-whom matrices relating to compensation of employees and property income to the accounts of the aggregated and disaggregated social accounting matrices of transactions.

Uses/Changes in assets / Resources/ Changes in liabilities and net worth			Economy: Production accounts (f) Factors of production [Tables 3.2-1 and 2]	Economy: Production accounts (a) Activities (industries)	(rw) Rest of the world account [Tables 3.2-1,2,3,4 and 5]
Economy	Production	(f) Factors of production [Tables 3.2-1e2]		Value added, gross [excluding taxes on production and imports, net of subsidies] = 1 663	Compensation of employees (D1) + Property income (D4) = 50
Economy	Institutions	(dic) Current [Tables 3.2-3 and 4]	National income, gross [excluding taxes on production and imports, net of subsidies] = 1 673		
(rw) Rest of the world account [Tables 3.2-1,2,3,4 and 5]			Compensation of employees (D1)+ Property income (D4) = 40		

[excerpt from Table 3.4-2]

D1 Compensation of employees (D11+D12)

	S11	S12	S13	S14	S15	S1	S2	S1+S2
S11								
S12								
S13								
S14	*984*	*44*	*98*	*11*	*11*	*1 148*	*6*	*1 154*
S15								
S1	*984*	*44*	*98*	*11*	*11*	*1 148*	*6*	*1 154*
S2	*2*	*0*	*0*	*0*	*0*	*2*		*2*
S1+S2	*986*	*44*	*98*	*11*	*11*	*1 150*	*6*	*1 156*

[excerpt from Table 4.1-6]

		f: l *1*	f: o *2*	f: *total*
dic	nfc *25*	0	254	*254*
dic	fc *26*	0	27	*27*
dic	g *27*	0	7	*7*
dic	h *28*	1 154	227	*1 381*
dic	npi *29*	0	4	*4*
dic	*total*	*1 154*	*519*	*1 673*
rw *40*		2	38	*40*
Total		*1 156*	*557*	*1 713*

[excerpt from Table A.5-4a]

D4 Property income (D41+D42+D43+D44+D45)

	S11	S12	S13	S14	S15	S1	S2	S1+S2
S11	*39*	*18*	*5*	*19*	*6*	*88*	*7*	*96*
S12	*34*	*77*	*2*	*13*	*0*	*126*	*23*	*149*
S13	*4*	*15*	*0*	*0*	*0*	*20*	*2*	*22*
S14	*39*	*44*	*21*	*9*	*0*	*112*	*11*	*123*
S15	*0*	*6*	*0*	*0*	*0*	*7*	*0*	*7*
S1	*117*	*161*	*28*	*41*	*6*	*353*	*44*	*397*
S2	*17*	*7*	*14*	*0*	*0*	*38*		*38*
S1+S2	*134*	*168*	*42*	*41*	*6*	*391*	*44*	*435*

[excerpt from Table 4.4-4]

			a: a01 *3*	a02 *4*	a03 *5*	a04 *6*	a05 *7*	a06 *8*	a07 *9*	a08 *10*	a09 *11*	a10 *12*	a11 *13*	*total*	rw *40*
f	l	*1*	19	547	79	102	32	44	49	79	113	47	39	*1 150*	6
f	o	*2*	25	138	46	42	30	46	91	40	27	18	10	*513*	44
f	*total*		*44*	*685*	*125*	*144*	*62*	*90*	*140*	*119*	*140*	*65*	*49*	*1 663*	*50*

[excerpts from Tables A.5-4a and A.5-4b]

:	a01	a02	a03	a04	a05	a06	a07	a08	a09	a10	a11	
Compensation of Employees (D1)	19	547	79	102	32	44	49	79	113	47	39	1 150
Operating Surplus, gross (B2g)	18	108	31	33	30	46	91	40	27	18	10	452
Mixed Income, gross (B3g)	7	30	15	9	0	0	0	0	0	0		61

[excerpt from Table A.5-3]

le Transactions and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy
						Resources
B2g *Operating surplus, gross*	*292*	*46*	*27*	*84*	*3*	*452*
B3g *Mixed income, gross*				*61*		*61*

[excerpt from Table 3.2-2b]

[illustrated by the national accounts of a fictious country, in a specific year, at current prices, in currency units]

Table 5.1-2. Association of the from-whom-to-whom matrices relating to taxes and subsidies on products to the accounts of the aggregated and disaggregated social accounting matrices of transactions.

Uses/Changes in assets / Resources/ Changes in liabilities and net worth			**Economy**
			Production accounts
			(p) Products (goods and services)
Economy	Institutions	(dic) Current [Tables 3.2-3 and 4]	Taxes on products, net of subsidies (D21-D31) = 133

[excerpt from Table 3.4-2]

			p											
			p01	p02	p03	p04	p05	p06	p07	p08	p09	p10	p11	*total*
			14	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	
dic	nfc	*25*	0	0	0	0	0	0	0	0	0	0	0	*0*
	fc	*26*	0	0	0	0	0	0	0	0	0	0	0	*0*
	g	*27*	2	5	89	17	5	0	0	11	0	4	0	*133*
	h	*28*	0	0	0	0	0	0	0	0	0	0	0	*0*
	npi	*29*	0	0	0	0	0	0	0	0	0	0	0	*0*
	total		*2*	*5*	*89*	*17*	*5*	*0*	*0*	*11*	*0*	*4*	*0*	*133*

[excerpts from Tables A.5-4b and A.5-4c]

	Taxes on Products (D21)	(-) Subsidies on Products (D31)
p01	5	- 3
p02	5	0
p03	94	- 5
p04	17	0
p05	5	0
p06	0	0
p07	0	0
p08	11	0
p09	0	0
p10	4	0
p11	0	0
	141	- 8

[excerpt from Table A.5-2]

D21 Taxes on products

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	*29*	*1*	*4*	*106*	*1*	*141*		141
S14								
S15								
S1	*29*	*1*	*4*	*106*	*1*	*141*		141
S2	*0*	*0*	*0*	*0*	*0*	*0*		0
S1+S2	*29*	*1*	*4*	*106*	*1*	141		141

[excerpt from Table 4.2-5]

D31 Subsidies on products

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	*- 1*	*0*	*- 1*	*- 6*	*0*	*- 8*		- 8
S14								
S15								
S1	*- 1*	*0*	*- 1*	*- 6*	*0*	*- 8*		- 8
S2	*0*	*0*	*0*	*0*	*0*	*0*		0
S1+S2	*- 1*	*0*	*- 1*	*- 6*	*0*	- 8		- 8

[excerpt from Table 4.3-5]

Table 5.1-3. Association of the from-whom-to-whom matrices relating to (other) taxes and subsidies on production to the accounts of the aggregated and disaggregated social accounting matrices of transactions.

Uses/Changes in assets / Resources/ Changes in liabilities and net worth			**Economy**
			Production accounts
			(a) Activities (industries)
Economy	Institutions	(dic) Current [Tables 3.2-3 and 4]	Other taxes on production, net of subsidies (D29-D39) = 58

[excerpt from Table 3.4-2]

			a										
			a01	a02	a03	a04	a05	a06	a07	a08	a09	a10	a11	*total*
			3	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	
dic	nfc	*25*	0	0	0	0	0	0	0	0	0	0	0	*0*
	fc	*26*	0	0	0	0	0	0	0	0	0	0	0	*0*
	g	*27*	- 2	43	5	- 5	- 1	4	6	4	2	1	1	*58*
	h	*28*	0	0	0	0	0	0	0	0	0	0	0	*0*
	npi	*29*	0	0	0	0	0	0	0	0	0	0	0	*0*
	total		*- 2*	*43*	*5*	*- 5*	*- 1*	*4*	*6*	*4*	*2*	*1*	*1*	*58*

[excerpts from Tables A.5-4a and A.5-4b]

	a01	a02	a03	a04	a05	a06	a07	a08	a09	a10	a11	
Taxes less subsidies on production (D29-D39)	- 2	43	5	- 5	- 1	4	6	4	2	1	1	58

[excerpt from Table A.5-3]

D29 Other taxes on production

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	88	4	1	0	1	*94*		94
S14								
S15								
S1	*88*	*4*	*1*	*0*	*1*	*94*		94
S2	*0*	*0*	*0*	*0*	*0*	*0*		0
S1+S2	88	4	1	0	1	94		94

[excerpt from Table 4.2-5]

D39 Other subsidies on production

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	*- 35*	*0*	*0*	*- 1*	*0*	*- 36*		- 36
S14								
S15								
S1	*- 35*	*0*	*0*	*- 1*	*0*	*- 36*		- 36
S2	*0*	*0*	*0*	*0*	*0*	*0*		0
S1+S2	- 35	0	0	- 1	0	- 36		- 36

[excerpt from Table 4.3-5]

Table 5.1-4. Association of the from-whom-to-whom matrices to the current transactions of the aggregated and disaggregated social accounting matrices of transactions.

Uses/Changes in assets / Resources/ Changes in liabilities and net worth			**Economy** Institutions accounts (dic) Current [Tables 3.2-3 and 4]	(rw) **Rest of the world** account [Tables 3.2-1,2,3,4 and 5]
Economy	Institutions	(dic) Current [Tables 3.2-3 and 4]	Current transactions (D5,D61, D62,D7, D8) = 1 168	Current transactions (D5,D61,D62,D7) = 17
(rw) **Rest of the world** account [Tables 3.2-1,2,3,4 and 5]			Current transactions (D5,D61,D62,D7) = 55	

[excerpt from Table 3.4-2]

			dic						rw
			nfc	fc	g	h	npi	*total*	
			25	*26*	*27*	*28*	*29*		*40*
dic	nfc	*25*	0	3	0	66	0	*69*	3
	fc	*26*	5	10	4	244	0	*264*	11
	g	*27*	25	11	96	232	1	*365*	2
	h	*28*	62	251	112	1	5	*431*	0
	npi	*29*	2	0	4	32	1	*39*	1
	total		*94*	*276*	*216*	*575*	*7*	*1 168*	*17*
rw		*40*	4	12	32	7	0	*55*	

[excerpts from Tables A.5-4d and A.5-4e]

Cells:

(dic, dic): 1 168 = 212 + 333 + 384 + 228 + 11

(dic, rw): 17 = 16 + 1

D5 Impostos correntes sobre o rendimento, património, etc. (D51+D59)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	*24*	*10*	*0*	*178*	*0*	*212*	*1*	*213*
S14								
S15								
S1	*24*	*10*	*0*	*178*	*0*	*212*	*1*	*213*
S2						*0*		*0*
S1+S2	*24*	*10*	*0*	*178*	*0*	*212*	*1*	*213*

[excerpt from Table 4.5-2]

Cells:

(h(S14), fc(S12)): 251 = 205 + 35 + 11

(fc(S12), h(S14)): 244 = 213 + 31

(g(S13), nfc(S11)): 25 = 24 + 1

…

D61 Net social contributions

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11				*66*		*66*		66
S12				*213*		*213*		213
S13				*50*		*50*		50
S14				*0*		*0*		0
S15				*4*		*4*		4
S1				*333*		*333*	*0*	333
S2				*0*		*0*		0
S1+S2				333		333	0	333

D62 Social benefits other than social transfers in kind

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13								
S14	*62*	*205*	*112*	*0*	*5*	*384*	*0*	384
S15								
S1	*62*	*205*	*112*	*0*	*5*	*384*	*0*	384
S2						*0*		0
S1+S2	62	205	112	0	5	384	0	384

[excerpt from Table 4.6-2]

D7 Other current transfers (D71+D72+D73+D74+D75)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11		*3*				*3*	*3*	*6*
S12	*5*	*10*	*4*	*31*	*0*	*51*	*11*	*62*
S13	*1*	*1*	*96*	*4*	*1*	*103*	*1*	*104*
S14	*0*	*35*	*0*	*1*	*0*	*36*	*0*	*36*
S15	*2*	*0*	*4*	*28*	*1*	*35*	*1*	*36*
S1	*8*	*50*	*104*	*64*	*2*	*228*	*16*	*244*
S2	*4*	*12*	*32*	*7*	*0*	*55*		*55*
S1+S2	*12*	*62*	*136*	*71*	*2*	*283*	*16*	*299*

[excerpt from Table 4.7-4]

D8 Adjustment for the change in pension entitlements

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13								
S14		*11*				*11*		11
S15								
S1		*11*				*11*		11
S2								
S1+S2		11				11		11

[excerpt from Table 4.8-2]

Table 5.1-5. Association of the from-whom-to-whom matrices to the capital transactions of the aggregated and disaggregated social accounting matrices of transactions.

Uses/Changes in assets / Resources/ Changes in liabilities and net worth	**Economy** Institutions accounts (dik) Capital [Table 3.2-5]	(rw) **Rest of the world** account [Tables 3.2-1,2,3,4 and 5]
Econ Institu (dik) Capital [Table 3.2-5]	Capital transfers (D9) = 61	Capital transfers (D9) = 1
(rw) **Rest of the world** account [Tables 3.2-1,2,3,4 and 5]	Capital transfers (D9) = 4	

[excerpt from Table 3.4-2]

dik			nfc	fc	g	h	npi	*total*	rw
			30	*31*	*32*	*33*	*34*		*40*
dik	nfc	*30*	- 7	2	30	0	0	*25*	8
	fc	*31*	0	0	0	0	0	*0*	0
	g	*32*	1	1	2	3	1	*8*	- 2
	h	*33*	15	4	0	6	2	*27*	- 4
	npi	*34*	0	0	0	0	1	*1*	- 1
	total		*9*	*7*	*32*	*9*	*4*	*61*	*1*
rw		*40*	0	0	4	0	0	*4*	

[excerpts from Tables A.5-4d and A.5-4e]

D9 Capital transfers (D91+D92+D99)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11	*0*	*2*	*30*	*0*	*0*	*32*	*1*	*33*
S12						*0*		*0*
S13	*1*	*1*	*0*	*3*	*1*	*6*	*0*	*6*
S14	*15*	*4*	*0*	*2*	*2*	*23*	*0*	*23*
S15						*0*		*0*
S1	*16*	*7*	*30*	*5*	*3*	*61*	*1*	*62*
S2			*4*			*4*		*4*
S1+S2	*16*	*7*	*34*	*5*	*3*	*65*	*1*	*66*

[excerpt from Table 4.9-4]

Cells:

g(S13), g(S13)): 2 = 0 + 2

(h(S14), h(S14)): 6 = 2 + 4

(nfc(S11), rw(S2)): 8 = 1 - (-7)

…

Gray font means transactions associated with acquisitions minus disposals of non-produced assets - see Table 3.2-5a.

Therefore, the above presented numerical version gives us an empirical description of the reality under study, from which, within the scope of the input-output analysis, an accounting multiplier model is a possible theoretical description of that same reality, as seen in Section 2.2. Concrete applications can be found in the mentioned studies, with details on data and calculations usually in the underlying working papers, mentioned in the same[16].

[16] MPRA (Munich Personal RePEc Archive) Papers:

- No. 109488, August 2021*, Matrix representations of the national accounts' transaction values*, for Santos (2022a).
- No. 88611, August 2018, (with Utz Peter Reich) *Unconditional Basic Income: Who gets it? Who pays for it? A social Accounting Approach to Distribution*, for Santos (2018), with the approach applied to Portugal.
- No. 79742, June 2017, *An approach to the structural features of the socio-economic activity of a country based on a Social Accounting Matrix. Evidences and multiplier effects on distribution of income*, for Santos (2018a).
- No. 68364, December 2015, *The informal aspects of the activity of countries studied through Social Accounting and Socio-Demographic Matrices*, for Santos (2016).
- No. 53858, February 2014, *Studying the Socio-Economics of Ageing using Social Accounting and Socio-Demographic Matrices*, for Santos (2014).

6. Concluding remarks

About six decades ago, Richard Stone wrote:

> "An economic system could be described as a vast machine which operates through decisions. Millions of people sit at the controls. Every time one of them takes a decision, a switch is turned and something happens in the machine… The machine is a very complicated one, a maze of interdependence and feedback… if it is to work well an economic system needs a great deal of information on which to base the innumerable decisions that have to be taken the whole time" (Stone, 1965, p.136).

To deal with the direct and indirect consequences of these decisions, he proposed the setting up of

> "a computable model of the economy, that is to say a system of numerical relationships connecting the facts of economic life, and to use this model to examine a whole range of possible futures … two things are essential for such an undertaking: to combine a synoptic view of the system as a whole with specific knowledge about its parts; and to construct a working model which is so readily computable that it can be used to examine the consequences of a wide variety of assumptions and thus provide a sound framework for government and business decisions" (Stone, 1965, p.137).

Remaining valid and current, from my point of view, these two passages reinforce the importance and role of national accounts, system and data, in the study of the economic system "as a whole", "with specific knowledge about its parts". This paper was developed thinking in the part related to the distribution and redistribution of income and its positioning in the economic system.

The conceptual framework, as well as the sources and methods underlying the national accounts, system and data, are not questioned here, although be present the notion of the existence of failures in the recognition of important issues in certain realities. This is the case of the defined boundaries, namely for production, that leave out the measurement of a part of the economic system, which significance can depend, for instance, on the geographical space to which they concern.

Even so, within the part measured by national accounts, considering the two basic kinds of information which are recorded – the flows and the stocks (or positions), this paper concerns transactions which are the main kind of flows in which, by definition, institutional units interact by mutual agreement. Transactions are organized, according with what is transacted, in the following four groups: goods and services, or products, including (non-financial) produced assets; (non-financial) non-produced assets; distribution and redistribution of income and wealth; and financial instruments.

All transactions are covered by the SAM-based approach, presented in this paper as representative of the whole economic system in terms of transactions and a way of working with the national accounts within the scope of input-output analysis. Thus, our focus was centred in the part relating to the third group of transactions, that is, in distributive transactions of institutional sectors, involving the

distribution among labour, capital and taxes on production and imports, of the income generated in the production process and the redistribution of the income and wealth.

Certain that we are working with a "vast and complicated machine", which is "a maze of interdependence and feedback", in that focus, all institutional interrelations should not be ignored, as they have been. To overcome such a persistent lack of knowledge, within the scope of the current SNA, the extension of the national accounts data on the distributive transactions of the institutional sectors to the institutional sectors of destination of their uses (to-whom) and/or of origin of their resources (from-whom) is proposed. This would provide a kind of *magnifying glass* applied to the distribution process, the quantification of which would make it possible to use input-output analysis in its study.

As shown, the implementation of that proposal would allow the construction of from-whom-to-whom matrices, from which the mentioned interdependence could be empirically approached, with data produced by national accounting statisticians, avoiding estimates made by the users to overcome their needs, with less appropriate methods.

With such information, accompanied by appropriate metadata, it would become possible, within a consistent macroeconomic framework, to identify institutional interrelations, whose level of disaggregation could go as far as statistical secrecy, as well as sources and methods, would allow. This would be the starting point for deeper studies, using other sources of information, namely, monetary and financial statistics, public or government finance statistics, households' surveys, international accounts statistics. Although these other sources of information are gradually adapting to the SNA, there are still differences, the adjustment of national accounts totals would become easier and more accurate, especially if information on sources and methods were available.

Considering its relative simplicity, despite its many limitations, a theoretical approach within the scope of the input-output analysis, based in an accounting multiplier model, was used as illustrative of the usefulness of such matrices. However, they can also be used in other approaches, also involving networks of linkages, represented by matrix representations.

Thinking in terms of modelling the economy on the basis of (more or less detailed) national accounts, we could speak of better models and sub-models for the distributive system, just as R. Stone did for the productive system, within the scope of the *Cambridge Growth Project* (Stone, 1981, pp.84-85).

In fact, in the productive system, the production process involves economic activities that, under the control and responsibility of institutional sectors, use *inputs* of labour, capital, and goods and services to produce *outputs* of goods and services. In that process there is generation of income, which is represented by the so-called added value, corresponding to the difference between the value of the produced *outputs* of goods and services, or output of goods and services, and the value of the used *inputs* of goods and services, or intermediate consumption. This generated income goes, in turn, remunerate the used *inputs* of labour and capital, or factors of production. Following a description adapted to the R. Stone's approach, the distribution process is thus started, with the so-called factor

income originating in which the institutional sectors use that income in compensation of employment and other income (compensation of self-employed workers and employers and of capital), recorded in the form of distributive transactions. The factor income originating is converted in factor income retained after that use of income had been deducted to the resources of the same kind, being thus measured the institutional sectors' contribution to the production of goods and services, which total will remain the same until the end of the chain of redistribution that develops from it. In four rounds of redistributions, each of them successively involving distributive transactions, as the name suggests, that income of institutional sectors, domestic and the rest of the world is being changed until the point in which is obtained the use of income in transactions related to products and non-financial assets (produced and not produced), namely, in the form of final consumption, capital formation, and net acquisitions of (non-financial) non-produced assets.

In this way of describing the distribution process, the importance of having information of each category of distributive transactions for each institutional sector (domestic and the rest of the world) is evidenced. Taxes on production and imports and subsidies should also be worked separately, since its inclusion in macroeconomic aggregates and exclusion of the third round in the chain of redistribution can introduce distortions in the perception of the process.

On the other hand, with information on the origin of the resources (from-whom), or the destination of the uses (to-whom) of distributive transactions of institutional sectors, the use of input-output analysis, through a SAM-based approach or other, would allow better studies of the distribution and redistribution of income, in any possible aspect, namely, inequality, poverty, wealth, corruption, etc. For these, the identification, even at a high level of aggregation, of all institutional sectors (domestic and the rest of the world) and categories of transactions, without *residual differences*, cannot be neglected.

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Annex 1 – Summary of the sequence of national accounts that record transactions.

Table A.1-1a. Current Accounts: production and distribution of income - uses.

	Total	Goods and services (Resources)	S.2 Rest of the world	S.1 Total economy	S.15 NPISHs	S.14 Households	S.13 General government	S.12 Financial corporations	S.11 Non-financial corporations	Code	Transactions and balancing items
	Uses										
Production account	499	499								P7	Imports of goods and services
	540		540							P6	Exports of goods and services
	3 604	3 604								P1	Output of goods and services
	3 077	3 077								P11	Market output
	147	147								P12	Output for own final use
	380	380								P13	Non-market output
	1 883			1 883	17	115	222	52	1 477	P2	Intermediate consumption
	141	141								D21	Taxes on products
	- 8	- 8								D31	Subsidies on products (-)
	1 854			*1 854*	*15*	*155*	*126*	*94*	*1 331*	*B1g*	*Value added, gross / Gross domestic product*
	222			222	3	23	27	12	157	P51c	Consumption of fixed capital
	1 632			*1 632*	*12*	*132*	*99*	*82*	*1 174*	*B1n*	*Value added, net / Net domestic product*
	- 41		*- 41*							*B11*	*External balance of goods and services*
Distribution of income accounts / **Generation of income account**										*B1g*	*Value added, gross / Gross domestic product*
										B1n	*Value added, net / Net domestic product*
	1 150			1 150	11	11	98	44	986	D1	Compensation of employees
	950			950	6	11	63	29	841	D11	Wages and salaries
	200			200	5	0	35	15	145	D12	Employers' social contributions
	235			235						D2	Taxes on production and imports
	141			141						D21	Taxes on products
	94			94	1	0	1	4	88	D29	Other taxes on production
	- 44			- 44						D3	Subsidies
	- 8			- 8						D31	Subsidies on products
	- 36			- 36	0	- 1	0	0	- 35	D39	Other subsidies on production
	452			*452*	*3*	*84*	*27*	*46*	*292*	*B2g*	*Operating surplus, gross*
	61			*61*		*61*				*B3g*	*Mixed income, gross*
	214			214	3	15	27	12	157	P51c1	Consumption of fixed capital on gross operating surplus
	8			8		8				P51c2	Consumption of fixed capital on gross mixed income
	238			*238*	*0*	*69*	*0*	*34*	*135*	*B2n*	*Operating surplus, net*
	53			*53*		*53*				*B3n*	*Mixed income, net*
Allocation of primary income account										*B2g*	*Operating surplus, gross*
										B3g	*Mixed income, gross*
										B2n	*Operating surplus, net*
										B3n	*Mixed income, net*
	6		6							D1	Compensation of employees
	6		6							D11	Wages and salaries
	0		0							D12	Employers' social contributions
										D2	Taxes on production and imports
										D21	Taxes on products
										D29	Other taxes on production
										D3	Subsidies
										D31	Subsidies on products
										D39	Other subsidies on production
	435		44	391	6	41	42	168	134	D4	Property income
	230		13	217	6	14	35	106	56	D41	Interest
	79		17	62				15	47	D42	Distributed income of corporations
	14		14	0				0	0	D43	Reinvested earnings on foreign direct investment
	47		0	47				47		D44	Investment income disbursements
	65			65	0	27	7	0	31	D45	Rent
	1 864			*1 864*	*4*	*1 381*	*198*	*27*	*254*	*B5g*	*Balance of primary incomes, gross / National income, gross*
	1 642			*1 642*	*1*	*1 358*	*171*	*15*	*97*	*B.5n*	*Balance of primary incomes, net / National income, net*

Table A.1-1b. Current Accounts: production and distribution of income - resources.

Code	Transactions and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy	S.2 Rest of the world	Goods and services (Uses)	Total	
										Resources	
P7	Imports of goods and services							499		499	Production account
P6	Exports of goods and services								540	540	
P1	Output of goods and services	2 808	146	348	270	32	3 604			3 604	
P11	Market output	2 808	146	0	123	0	3 077			3 077	
P12	Output for own final use	0	0	0	147	0	147			147	
P13	Non-market output			348		32	380			380	
P2	Intermediate consumption								1 883	1 883	
D21	Taxes on products						141			141	
D31	Subsidies on products (-)						- 8			- 8	
B1g	*Value added, gross / Gross domestic product*										
P51c	Consumption of fixed capital										
B1n	*Value added, net / Net domestic product*										
B11	*External balance of goods and services*										
B1g	*Value added, gross / Gross domestic product*	*1 331*	*94*	*126*	*155*	*15*	*1 854*			*1 854*	Generation of income account / Distribution of income accounts
B1n	*Value added, net / Net domestic product*	*1 174*	*82*	*99*	*132*	*12*	*1 632*			*1 632*	
D1	Compensation of employees										
D11	Wages and salaries										
D12	Employers' social contributions										
D2	Taxes on production and imports										
D21	Taxes on products										
D29	Other taxes on production										
D3	Subsidies										
D31	Subsidies on products										
D39	Other subsidies on production										
B2g	*Operating surplus, gross*										
B3g	*Mixed income, gross*										
P51c1	Consumption of fixed capital on gross operating surplus										
P51c2	Consumption of fixed capital on gross mixed income										
B2n	*Operating surplus, net*										
B3n	*Mixed income, net*										
B2g	*Operating surplus, gross*	*292*	*46*	*27*	*84*	*3*	*452*			*452*	Allocation of primary income account
B3g	*Mixed income, gross*				*61*		*61*			*61*	
B2n	*Operating surplus, net*	*135*	*34*	*0*	*69*	*0*	*238*			*238*	
B3n	*Mixed income, net*				*53*		*53*			*53*	
D1	Compensation of employees				1 154		1 154	2		1 156	
D11	Wages and salaries				954		954	2		956	
D12	Employers' social contributions				200		200	0		200	
D2	Taxes on production and imports			235			235	0		235	
D21	Taxes on products			141			141	0		141	
D29	Other taxes on production			94			94	0		94	
D3	Subsidies			- 44			- 44	0		- 44	
D31	Subsidies on products			- 8			- 8	0		- 8	
D39	Other subsidies on production			- 36			- 36	0		- 36	
D4	Property income	96	149	22	123	7	397	38		435	
D41	Interest	33	106	14	49	7	209	21		230	
D42	Distributed income of corporations	10	25	7	20	0	62	17		79	
D43	Reinvested earnings on foreign direct investment	4	7	0	3	0	14	0		14	
D44	Investment income disbursements	8	8	1	30	0	47	0		47	
D45	Rent	41	3	0	21	0	65	0		65	
B5g	*Balance of primary incomes, gross / National income, gross*										
B.5n	*Balance of primary incomes, net / National income, net*										

Table A.1-2a. Current Accounts: redistribution and use of income - uses.

		Total	Goods and services (Resources)	S.2 Rest of the world	S.1 Total economy	S.15 NPISHs	S.14 Households	S.13 General government	S.12 Financial corporations	S.11 Non-financial corporations	Code	Transactions and balancing items
		Uses										
Redistribution of income accounts	Secondary distribution of income account										*B5g*	*Balance of primary incomes, gross / National income, gross*
											B.5n	*Balance of primary incomes, net / National income, net*
		213		1	212	0	178	0	10	24	D5	Current taxes on income, wealth, etc.
		204		1	203	0	176	0	7	20	D51	Taxes on income
		9			9	0	2	0	3	4	D59	Other current taxes
		333		0	333		333				D61	Net social contributions
		181		0	181		181				D611	Employers' actual social contributions
		19		0	19		19				D612	Employers' imputed social contributions
		129		0	129		129				D613	Households' actual social contributions
		10		0	10		10				D614	Households' social contributions supplements
		6		0	6		6					Social insurance scheme service charges
		384		0	384	5	0	112	205	62	D62	Social benefits other than social transfers in kind
		299		16	283	2	71	136	62	12	D7	Other current transfers
		58		2	56	0	31	4	13	8	D.71	Net non-life insurance premiums
		60		12	48				48		D.72	Non-life insurance claims
		96		0	96			96			D.73	Current transfers within general government
		32		1	31			31			D.74	Current international cooperation
		53		1	52	2	40	5	1	4	D.75	Miscellaneous current transfers
		1 826			*1 826*	*37*	*1 219*	*317*	*25*	*228*	*B6g*	*Disposable income, gross*
		1 604			*1 604*	*34*	*1 196*	*290*	*13*	*71*	*B6n*	*Disposable income, net*
	Redistribution of income in kind account										*B6g*	*Disposable income, gross*
											B6n	*Disposable income, net*
		215			215	31		184			D63	Social transfers in kind
		211			211	31		180			D631	Social transfers in kind - non-market production
		4			4	0		4			D632	Social transfers in kind - purchased market production
		1 826			*1 826*	*6*	*1 434*	*133*	*25*	*228*	*B7g*	*Adjusted disposable income, gross*
		1 604			*1 604*	*3*	*1 411*	*106*	*13*	*71*	*B7n*	*Adjusted disposable income, net*
Use of income accounts	Use of disposable income account										*B6g*	*Disposable income, gross*
											B6n	*Disposable income, net*
		1 399			1 399	32	1 015	352			P3	Final consumption expenditure
		1 230			1 230	31	1 015	184			P31	Individual consumption expenditure
		169			169	1		168			P32	Collective consumption expenditure
		11		0	11	0		0	11	0	D8	Adjustment for the change in pension entitlements
		427			*427*	*5*	*215*	*- 35*	*14*	*228*	*B8g*	*Saving, gross*
		205			*205*	*2*	*192*	*- 62*	*2*	*71*	*B8n*	*Saving, net*
		- 13		*- 13*							*B12*	*Current external balance*
	Use of adjusted disposable income account										*B7g*	*Adjusted disposable income, gross*
											B7n	*Adjusted disposable income, net*
		1 399			1 399	1	1 230	168			P4	Actual final consumption
		1 230			1 230		1 230				P41	Actual individual consumption
		169			169	1		168			P42	Actual collective consumption
		11		0	11	0	0	0	11	0	D8	Adjustment for the change in pension entitlements
		427			*427*	*5*	*215*	*- 35*	*14*	*228*	*B8g*	*Saving, gross*
		205			*205*	*2*	*192*	*- 62*	*2*	*71*	*B8n*	*Saving, net*
		- 13		*- 13*							*B12*	*Current external balance*

Table A.1-2b. Current Accounts: redistribution and use of income - resources.

Code	Transactions and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy	S.2 Rest of the world	Goods and services (Uses)	Total		
										Resources		
B5g	*Balance of primary incomes, gross / National income, gross*	*254*	*27*	*198*	*1 381*	*4*	*1 864*			*1 864*	Secondary distribution of income account	Redistribution of income accounts
B.5n	*Balance of primary incomes, net / National income, net*	*97*	*15*	*171*	*1 358*	*1*	*1 642*			*1 642*		
D5	Current taxes on income, wealth, etc.			213			213	0		213		
D51	Taxes on income			204			204	0		204		
D59	Other current taxes			9			9			9		
D61	Net social contributions	66	213	50	0	4	333	0		333		
D611	Employers' actual social contributions	31	110	38	0	2	181	0		181		
D612	Employers' imputed social contributions	12	2	4	0	1	19	0		19		
D613	Households' actual social contributions	25	94	9	0	1	129	0		129		
D614	Households' social contributions supplements		10				10	0		10		
	Social insurance scheme service charges	2	3	1			6	0		6		
D62	Social benefits other than social transfers in kind				384		384	0		384		
D7	Other current transfers	6	62	104	36	36	244	55		299		
D.71	Net non-life insurance premiums		47				47	11		58		
D.72	Non-life insurance claims	6	15	1	35	0	57	3		60		
D.73	Current transfers within general government			96			96	0		96		
D.74	Current international cooperation			1			1	31		32		
D.75	Miscellaneous current transfers	0	0	6	1	36	43	10		53		
B6g	*Disposable income, gross*											
B6n	*Disposable income, net*											
B6g	*Disposable income, gross*	*228*	*25*	*317*	*1 219*	*37*	*1 826*			*1 826*	Redistribution of income in kind account	
B6n	*Disposable income, net*	*71*	*13*	*290*	*1 196*	*34*	*1 604*			*1 604*		
D63	Social transfers in kind				215		215			215		
D631	Social transfers in kind - non-market production				211		211			211		
D632	Social transfers in kind - purchased market production				4		4			4		
B7g	*Adjusted disposable income, gross*											
B7n	*Adjusted disposable income, net*											

B6g	*Disposable income, gross*	*228*	*25*	*317*	*1 219*	*37*	*1 826*			*1 826*	Use of disposable income account	Use of income accounts
B6n	*Disposable income, net*	*71*	*13*	*290*	*1 196*	*34*	*1 604*			*1 604*		
P3	Final consumption expenditure								1 399	1 399		
P31	Individual consumption expenditure								1 230	1 230		
P32	Collective consumption expenditure								169	169		
D8	Adjustment for the change in pension entitlements				11		11	0		11		
B8g	*Saving, gross*											
B8n	*Saving, net*											
B12	*Current external balance*											
B7g	*Adjusted disposable income, gross*	*228*	*25*	*133*	*1 434*	*6*	*1 826*			*1 826*	Use of adjusted disposable income account	
B7n	*Adjusted disposable income, net*	*71*	*13*	*106*	*1 411*	*3*	*1 604*			*1 604*		
P4	Actual final consumption								1 399	1 399		
P41	Actual individual consumption								1 230	1 230		
P42	Actual collective consumption								169	169		
D8	Adjustment for the change in pension entitlements				11		11	0		11		
B8g	*Saving, gross*											
B8n	*Saving, net*											
B12	*Current external balance*											

Table A.1-3a. Accumulation accounts: capital and financial – changes in assets.

	Total	Goods and services (Resources)	S.2 Rest of the world	S.1 Total economy	S.15 NPISHs	S.14 Households	S.13 General government	S.12 Financial corporations	S.11 Non-financial corporations	Code	Transactions and balancing items
	Changes in assets										
Capital account										*B8n*	*Saving, net*
										B12	*Current external balance*
	414			414	5	55	38	8	308	P5g	Gross capital formation
	192			192	2	32	11	- 4	151	P5n	Net capital formation
	376			376	5	48	35	8	280	P51g	Gross fixed capital formation
	- 222			- 222	- 3	- 23	- 27	- 12	- 157	P51c	Consumption of fixed capital
	28			28	0	2	0	0	26	P52	Changes in inventories
	10			10	0	5	3	0	2	P53	Acquisitions less disposals of valuables
	0		0	0	1	4	2	0	- 7	NP	Acquisitions less disposals of non-produced assets
										D9r	Capital transfers, receivable
										D91r	Capital taxes, receivable
										D92r	Investment grants, receivable
										D99r	Other capital transfers, receivable
										D9p	Capital transfers, payable
										D91p	Capital taxes, payable
										D92p	Investment grants, payable
										D99p	Other capital transfers, payable
	0		*- 10*	*10*	*- 4*	*174*	*- 103*	*- 1*	*- 56*	*B9*	*Net lending (+) / net borrowing (–)*
Financial account										*B9*	*Net lending (+) / net borrowing (–)*
											Net incurrence of liabilities
	483		*47*	*436*	*2*	*189*	*- 10*	*172*	*83*		*Net acquisition of financial assets*
	0		1	- 1				- 1		F1	Monetary gold and SDRs
	0		0	0				0		F11	Monetary gold
	0		1	- 1				- 1		F12	SDRs
	100		11	89	2	64	- 26	10	39	F2	Currency and deposits
	36		3	33	1	10	2	15	5	F21	Currency
	28		2	26	1	27	- 27	- 5	30	F22	Transferable deposits
	36		6	30	0	27	- 1	0	4	F29	Other deposits
	95		9	86	- 1	10	4	66	7	F3	Debt securities
	29		2	27	0	3	1	13	10	F31	Short-term
	66		7	59	- 1	7	3	53	- 3	F32	Long-term
	82		4	78	0	3	3	53	19	F4	Loans
	25		3	22	0	3	1	4	14	F41	Short-term
	57		1	56	0	0	2	49	5	F42	Long-term
	119		12	107	0	66	3	28	10	F5	Equity and investment fund shares
	103		12	91	0	53	3	25	10	F51	Equity
	16		0	16	0	13	0	3	0	F52	Investment fund shares/units
	48		0	48	0	39	1	7	1	F6	Insurance, pension and standardized guarantee schemes
	7		0	7	0	4	0	2	1	F61	Non-life insurance technical reserves
	22		0	22	0	22	0	0	0	F62	Life insurance and annuity entitlements
	11		0	11		11				F63	Pension entitlements
	3		0	3				3		F64	Claim of pension fund on pension managers
	2		0	2		2				F65	Entitlements to non-pension benefits
	3		0	3	0	0	1	2	0	F66	Provisions for calls under standardized guarantees
	14		0	14	0	3	0	8	3	F7	Financial derivatives and employee stock options
	12		0	12	0	1	0	8	3	F71	Financial derivatives
	2			2		2			0	F72	Employee stock options
	25		10	15	1	4	5	1	4	F8	Other accounts receivable/payable
	15		8	7		3	1		3	F81	Trade credits and advances
	10		2	8	1	1	4	1	1	F89	Other accounts receivable/payable

Table A.1-3b. Accumulation accounts: capital and financial – changes in liabilities and net worth.

Code	Transactions and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy	S.2 Rest of the world	Goods and services (Uses)	Total	
										Changes in liabilities and net worth	
B8n	*Saving, net*	*71*	*2*	*- 62*	*192*	*2*	*205*			*205*	Capital account
B12	*Current external balance*							*- 13*		*- 13*	
P5g	Gross capital formation								414	414	
P5n	Net capital formation								192	192	
P51g	Gross fixed capital formation								376	376	
P51c	Consumption of fixed capital								- 222	- 222	
P52	Changes in inventories								28	28	
P53	Acquisitions less disposals of valuables								10	10	
NP	Acquisitions less disposals of non-produced assets								0	0	
D9r	Capital transfers, receivable	33	0	6	23	0	62	4		66	
D91r	Capital taxes, receivable			2			2			2	
D92r	Investment grants, receivable	23	0	0	0	0	23	4		27	
D99r	Other capital transfers, receivable	10	0	4	23	0	37			37	
D9p	Capital transfers, payable	- 16	- 7	- 34	- 5	- 3	- 65	- 1		- 66	
D91p	Capital taxes, payable	0	0	0	- 2	0	- 2	0		- 2	
D92p	Investment grants, payable			- 27			- 27			- 27	
D99p	Other capital transfers, payable	- 16	- 7	- 7	- 3	- 3	- 36	- 1		- 37	
B9	*Net lending (+) / net borrowing (–)*										
B9	*Net lending (+) / net borrowing (–)*	*- 56*	*- 1*	*- 103*	*174*	*- 4*	*10*	*- 10*		0	Financial account
	Net incurrence of liabilities	*139*	*173*	*93*	*15*	*6*	*426*	*57*		*483*	
	Net acquisition of financial assets										
F1	Monetary gold and SDRs										
F11	Monetary gold										
F12	SDRs										
F2	Currency and deposits		65	37			102	- 2		100	
F21	Currency			35			35	1		36	
F22	Transferable deposits		26	2			28	0		28	
F29	Other deposits		39				39	- 3		36	
F3	Debt securities	6	30	38	0	0	74	21		95	
F31	Short-term	2	18	4	0	0	24	5		29	
F32	Long-term	4	12	34	0	0	50	16		66	
F4	Loans	21	0	9	11	6	47	35		82	
F41	Short-term	4	0	3	2	2	11	14		25	
F42	Long-term	17	0	6	9	4	36	21		57	
F5	Equity and investment fund shares	83	22				105	14		119	
F51	Equity	83	11				94	9		103	
F52	Investment fund shares/units	0	11				11	5		16	
F6	Insurance, pension and standardized guarantee schemes		48	0			48	0		48	
F61	Non-life insurance technical reserves		7				7	0		7	
F62	Life insurance and annuity entitlements		22				22	0		22	
F63	Pension entitlements		11				11	0		11	
F64	Claim of pension fund on pension managers		3				3	0		3	
F65	Entitlements to non-pension benefits		2				2	0		2	
F66	Provisions for calls under standardized guarantees		3	0			3	0		3	
F7	Financial derivatives and employee stock options	3	8	0	0	0	11	3		14	
F71	Financial derivatives	2	7	0	0	0	9	3		12	
F72	Employee stock options	1	1				2			2	
F8	Other accounts receivable/payable	26	0	9	4	0	39	- 14		25	
F81	Trade credits and advances	6	0	6	4	0	16	- 1		15	
F89	Other accounts receivable/payable	20	0	3	0	0	23	- 13		10	

Annex 2 – Recording of the resources of distributive transactions extended to origin institutional sectors.

Table A.2-1. Taxes on production and imports.

Code	Transactions and balancing items	S.13 General government	S.2 Rest of the world	Total
				Resources
D2	Taxes on production and imports	235	0	235
	S11 - Non-Financial Corporations	117	0	117
	S12 - Financial Corporations	5	0	5
	S13 - General Government	5	0	5
	S14 - Households	106	0	106
	S15 - NPISHs	2	0	2
	S2 - Rest of the World	0	0	0
D21	Taxes on products	141	0	141
	S11 - Non-Financial Corporations	29	0	29
	S12 - Financial Corporations	1	0	1
	S13 - General Government	4	0	4
	S14 - Households	106	0	106
	S15 - NPISHs	1	0	1
	S2 - Rest of the World		0	0
D29	Other taxes on production	94	0	94
	S11 - Non-Financial Corporations	88	0	88
	S12 - Financial Corporations	4	0	4
	S13 - General Government	1	0	1
	S14 - Households	0	0	0
	S15 - NPISHs	1	0	1
	S2 - Rest of the World		0	0

Table A.2-2. Subsidies.

Code	Transactions and balancing items	S.13 General government	S.2 Rest of the world	Total
				Resources
D3	Subsidies	- 44	0	- 44
	S11 - Non-Financial Corporations	- 36	0	- 36
	S12 - Financial Corporations	0	0	0
	S13 - General Government	- 1	0	- 1
	S14 - Households	- 7	0	- 7
	S15 - NPISHs	0	0	0
	S2 - Rest of the World			
D31	Subsidies on products	- 8	0	- 8
	S11 - Non-Financial Corporations	- 1	0	- 1
	S12 - Financial Corporations	0	0	0
	S13 - General Government	- 1	0	- 1
	S14 - Households	- 6	0	- 6
	S15 - NPISHs	0	0	0
	S2 - Rest of the World			
D39	Other subsidies on production	- 36	0	- 36
	S11 - Non-Financial Corporations	- 35	0	- 35
	S12 - Financial Corporations	0	0	0
	S13 - General Government	0	0	0
	S14 - Households	- 1	0	- 1
	S15 - NPISHs	0	0	0
	S2 - Rest of the World			0

Table A.2-3. Property income.

Code	Transactions and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy	S.2 Rest of the world	Total
									Resources
D4	Property income	96	149	22	123	7	397	38	435
	S11 - Non-Financial Corporations	39	34	4	39	0	117	17	134
	S12 - Financial Corporations	18	77	15	44	6	161	7	168
	S13 - General Government	5	2	0	21	0	28	14	42
	S14 - Households	19	13	0	9	0	41	0	41
	S15 - NPISHs	6	0	0	0	0	6	0	6
	S2 - Rest of the World	7	23	2	11	0	44	0	44
D41	Interest	33	106	14	49	7	209	21	230
	S11 - Non-Financial Corporations	15	21	3	14	0	53	3	56
	S12 - Financial Corporations	8	62	10	14	6	101	5	106
	S13 - General Government	1	2	0	18	0	21	14	35
	S14 - Households	2	12	0	0	0	14	0	14
	S15 - NPISHs	6					6	0	6
	S2 - Rest of the World	1	9	1	2	0	13		13
D42	Distributed income of corporations	10	25	7	20	0	62	17	79
	S11 - Non-Financial Corporations	5	12	1	14	0	32	15	47
	S12 - Financial Corporations	2	6	4	0	0	13	2	15
	S13 - General Government						0		0
	S14 - Households						0		0
	S15 - NPISHs						0		0
	S2 - Rest of the World	3	7	2	5	0	17		17
D43	Reinvested earnings on foreign direct investment	4	7	0	3	0	14	0	14
	S11 - Non-Financial Corporations						0		0
	S12 - Financial Corporations						0		0
	S13 - General Government						0		0
	S14 - Households						0		0
	S15 - NPISHs						0		0
	S2 - Rest of the World	4	7	0	3	0	14		14
D44	Investment income disbursements	8	8	1	30	0	47	0	47
	S11 - Non-Financial Corporations						0		0
	S12 - Financial Corporations	8	8	1	30		47		47
	S13 - General Government						0		0
	S14 - Households						0		0
	S15 - NPISHs						0		0
	S2 - Rest of the World						0		0
D45	Rent	41	3	0	21	0	65	0	65
	S11 - Non-Financial Corporations	20	1		10		31		31
	S12 - Financial Corporations	0	0		0		0		0
	S13 - General Government	4	0		2		7		7
	S14 - Households	17	1		9		27		27
	S15 - NPISHs	0	0		0		0		0
	S2 - Rest of the World						0		0

Table A.2-4. Current taxes on income, wealth, etc.

Transactions and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy	S.2 Rest of the world	Total
								Resources
D5 Current taxes on income, wealth, etc.			213			213	0	213
S11 - Non-Financial Corporations			24			24		24
S12 - Financial Corporations			10			10		10
S13 - General Government			0			0		0
S14 - Households			178			178		178
S15 - NPISHs			0			0		0
S2 - Rest of the World			1			1		1
D51 Taxes on income			204			204	0	204
S11 - Non-Financial Corporations			20			20		20
S12 - Financial Corporations			7			7		7
S13 - General Government			0			0		0
S14 - Households			176			176		176
S15 - NPISHs			0			0		0
S2 - Rest of the World			1			1		1
D59 Other current taxes			9			9		9
S11 - Non-Financial Corporations			4			4		4
S12 - Financial Corporations			3			3		3
S13 - General Government			0			0		0
S14 - Households			2			2		2
S15 - NPISHs			0			0		0
S2 - Rest of the World						0		0

Table A.2-5. Social contributions and benefits.

Code Transactions and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy	S.2 Rest of the world	Total
								Resources
D61 Net social contributions	66	213	50	0	4	333	0	333
S11 - Non-Financial Corporations								
S12 - Financial Corporations								
S13 - General Government								
S14 - Households	66	213	50	0	4	333		333
S15 - NPISHs								
S2 - Rest of the World								
D62 Social benefits other than social transfers in kind				384		384	0	384
S11 - Non-Financial Corporations				62		62		62
S12 - Financial Corporations				205		205		205
S13 - General Government				112		112		112
S14 - Households				0		0		0
S15 - NPISHs				5		5		5
S2 - Rest of the World				0		0		0
D63 Social transfers in kind				215		215		215
S11 - Non-Financial Corporations								
S12 - Financial Corporations								
S13 - General Government				184		184		184
S14 - Households								
S15 - NPISHs				31		31		31
S2 - Rest of the World								

Table A.2-6. Other current transfers.

Code	Transactions and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy	S.2 Rest of the world	Total
									Resources
D7	Other current transfers	6	62	104	36	36	244	55	299
	S11 - Non-Financial Corporations		5	1	0	2	8	4	12
	S12 - Financial Corporations	3	10	1	35	0	50	12	62
	S13 - General Government		4	96	0	4	104	32	136
	S14 - Households		31	4	1	28	64	7	71
	S15 - NPISHs		0	1	0	1	2	0	2
	S2 - Rest of the World	3	11	1	0	1	16	0	16
D.71	Net non-life insurance premiums		47				47	11	58
	S11 - Non-Financial Corporations		5				5	3	8
	S12 - Financial Corporations		5				5	8	13
	S13 - General Government		4				4	0	4
	S14 - Households		31				31	0	31
	S15 - NPISHs		0				0		0
	S2 - Rest of the World		2				2		2
D.72	Non-life insurance claims	6	15	1	35	0	57	3	60
	S11 - Non-Financial Corporations						0		0
	S12 - Financial Corporations	3	6	1	35	0	45	3	48
	S13 - General Government						0		0
	S14 - Households						0		0
	S15 - NPISHs						0		0
	S2 - Rest of the World	3	9				12		12
D.73	Current transfers within general government			96			96	0	96
	S11 - Non-Financial Corporations						0		0
	S12 - Financial Corporations						0		0
	S13 - General Government			96			96		96
	S14 - Households						0		0
	S15 - NPISHs						0		0
	S2 - Rest of the World						0		0
D.74	Current international cooperation			1			1	31	32
	S11 - Non-Financial Corporations						0		0
	S12 - Financial Corporations						0		0
	S13 - General Government						0	31	31
	S14 - Households						0		0
	S15 - NPISHs						0		0
	S2 - Rest of the World			1			1		1
D.75	Miscellaneous current transfers	0	0	6	1	36	43	10	53
	S11 - Non-Financial Corporations			1	0	2	3	1	4
	S12 - Financial Corporations			0	0	0	0	1	1
	S13 - General Government			0	0	4	4	1	5
	S14 - Households			4	1	28	33	7	40
	S15 - NPISHs			1	0	1	2	0	2
	S2 - Rest of the World			0	0	1	1		1

Table A.2-7. Capital transfers, receivable.

Code	Transaction and balancing items	S.11 Non-financial corporations	S.12 Financial corporations	S.13 General government	S.14 Households	S.15 NPISHs	S.1 Total economy	S.2 Rest of the world	Total
									Changes in liabilities and net worth
D9r	Capital transfers, receivable	33	0	6	23	0	62	4	66
	S11 - Non-Financial Corporations	0		1	15		16		16
	S12 - Financial Corporations	2		1	4		7		7
	S13 - General Government	30		0	0		30	4	34
	S14 - Households	0		3	2		5		5
	S15 - NPISHs	0		1	2		3		3
	S2 - Rest of the World	1		0	0		1		1
D91r	Capital taxes, receivable			2			2		2
	S11 - Non-Financial Corporations								
	S12 - Financial Corporations								
	S13 - General Government								
	S14 - Households			2			2		2
	S15 - NPISHs								
	S2 - Rest of the World								
D92r	Investment grants, receivable	23	0	0	0	0	23	4	27
	S11 - Non-Financial Corporations						0		0
	S12 - Financial Corporations						0		0
	S13 - General Government	23					23	4	27
	S14 - Households						0		0
	S15 - NPISHs						0		0
	S2 - Rest of the World						0		0
D99r	Other capital transfers, receivable	10	0	4	23	0	37		37
	S11 - Non-Financial Corporations			1	15		16		16
	S12 - Financial Corporations	2		1	4		7		7
	S13 - General Government	7					7		7
	S14 - Households			1	2		3		3
	S15 - NPISHs			1	2		3		3
	S2 - Rest of the World	1					1		1

Annex 3 – The distribution process without *residual difference*.

To allow an identical development of that made in Section 3.3, this annex provides estimates of all the made calculations, by considering the taxes and subsidies on products by institutional sectors from the corresponding from-whom-to-whom matrices filled in Section 4.2 – Table 4.2-5 and Section 4.3 – Table 4.3-5.

Table A.3-1. Net taxes on production and imports

		net taxes on production and products (D2-D3)		
		Resources	*less* uses	Net gain or loss (-)
		a	b	c
S11	Non-financial corporations		-81	-81
S12	Financial corporations		-5	-5
S13	General government	191	-4	187
S14	Households		-99	-99
S15	NPISHs		-2	-2
S1	All domestic sectors (total Economy)	191	-191	0
S2	Rest of the world	0	0	0
	Total	191	-191	0

Table A.3-2. Factor income originating

		Factor income originating			Factor income originating, with net taxes on production and imports (B1g, GDP; B12 part)
		Income from employment (D1)	Other income (B2&3g)	Total	
		1	2	3	3-b
S11	Non-financial corporations	986	292	1278	1197
S12	Financial corporations	44	46	90	85
S13	General government	98	27	125	121
S14	Households	11	145	156	57
S15	NPISHs	11	3	14	12
S1	All domestic sectors (total Economy)	1150	513	1663	1 854
S2	Rest of the world	6	44	50	50
	Total	1156	557	1713	1 904

Table A.3-3. From factor income originating to factor income retained

		Factor income originating	Redistribution: receipts and payments of factor income						Factor income retained			Factor income retained, with net taxes on production and imports (B5g; B12 part)
			Income from employment (D1)			Other income (D4)			Income from employment (D1)	Other income (B2&3g,D4)	Total	
			Resources	*less* uses	Net gain or loss (-)	Resources	*less* uses	Net gain or loss (-)				
		3	4	5	6	7	8	9	10	11	12	12+a
S11	Non-financial corporations	1278	0	-986	-986	96	-134	-38	0	254	254	254
S12	Financial corporations	90	0	-44	-44	149	-168	-19	0	27	27	27
S13	General government	125	0	-98	-98	22	-42	-20	0	7	7	198
S14	Households	156	1154	-11	1143	123	-41	82	1154	227	1381	1381
S15	NPISHs	14	0	-11	-11	7	-6	1	0	4	4	4
S1	All domestic sectors (total Economy)	1663	1154	-1150	4	397	-391	6	1154	519	1673	1864
S2	Rest of the world	50	2	-6	-4	38	-44	-6	2	38	40	40
	Total	1713	1156	-1156	0	435	-435	0	1156	557	1713	1 904

Table A.3-4. Chain of redistribution – first round

		Factor income retained	Redistribution: social benefits.., other current transfers (D62,D7)			Income before taxes
			Resources	*less* uses	Net gain or loss (-)	
		12	13	14	15	16
S11	Non-financial corporations	254	6	- 74	- 68	186
S12	Financial corporations	27	62	- 267	-205	-178
S13	General government	7	104	- 248	-144	-137
S14	Households	1381	420	- 71	349	1730
S15	NPISHs	4	36	- 7	29	33
S1	All domestic sectors (total Economy)	1673	628	- 667	- 39	1 634
S2	Rest of the world	40	55	- 16	39	79
	Total	1 713	683	- 683	0	1 713

Table A.3-5. Chain of redistribution – second round

		Income before taxes	Redistribution: taxes on income, ..social contributions (D5, D61)			Disposable income	Disposable income, with net taxes on production and imports (B6g; B12 part)
			Resources	*less* uses	Net gain or loss (-)		
		16	17	18	19	20	20+a
S11	Non-financial corporations	186	66	- 24	42	228	228
S12	Financial corporations	-178	213	- 10	203	25	25
S13	General government	-137	263	0	263	126	317
S14	Households	1730	0	- 511	-511	1219	1219
S15	NPISHs	33	4	0	4	37	37
S1	All domestic sectors (total Economy)	1 634	546	- 545	1	1 635	1 826
S2	Rest of the world	79	0	- 1	- 1	78	78
	Total	1 713	546	- 546	0	1 713	1 904

Table A.3-6. Chain of redistribution – second sub-round

		Disposable income	Disposable income, with net taxes on production and imports (B6g; B12 part)	Redistribution: social transfers in kind (D63)			Adjusted disposable income	Adjusted Disposable income, with net taxes on production and imports (B7g)
				Resources	*less* uses	Net gain or loss (-)		
		20	20+a	i	ii	iii	20'	20'+a
S11	Non-financial corporations	228	228				228	228
S12	Financial corporations	25	25				25	25
S13	General government	126	317		-184	-184	- 58	133
S14	Households	1219	1219	215		215	1 434	1 434
S15	NPISHs	37	37		-31	-31	6	6
S1	All domestic sectors (total Economy)	1 635	1 826	215	-215	0	1 635	1 826

Table A.3-7. Chain of redistribution – third round

		Disposable income	net taxes on production and imports (D2-D3)			Final Income
			Resources	*less* uses	Net gain or loss (-)	
		20	a	b	c	21
S11	Non-financial corporations	228		-81	-81	147
S12	Financial corporations	25		-5	-5	20
S13	General government	126	191	-4	187	313
S14	Households	1219		-99	-99	1 120
S15	NPISHs	37		-2	-2	35
S1	All domestic sectors (total Economy)	1 635	191	-191	0	1 635
S2	Rest of the world	78	0	0	0	78
	Total	1 713	191	-191	0	1 713

Table A.3-8. Chain of redistribution – fourth round

		Final Income	Redistribution: adjustment..in pension entitlements, capital transfers (D8, D9)			Net lending (+) / net borrowing (–) (B9)	Use of Income
			Resources	*less* uses	Net gain or loss (-)		
		21	22	23	24	25	26
S11	Non-financial corporations	147	33	- 16	17	-56	108
S12	Financial corporations	20	0	- 18	-18	-1	1
S13	General government	313	6	- 34	-28	-103	182
S14	Households	1 120	34	- 5	29	174	1323
S15	NPISHs	35	0	- 3	-3	-4	28
S1	All domestic sectors (total Economy)	1 635	73	- 76	- 3	10	1 642
S2	Rest of the world	78	4	- 1	3	-10	71
	Total	1 713	77	- 77	0	0	1 713

Annex 4 – Association of the from-whom-to-whom matrices to the accounts of the aggregated national accounting matrix of transactions with gross balancing items.

Throughout Chapter 4, we have identified the position of each of the nine categories of distributive transactions in the cells of the aggregated national accounting matrix of transactions, presented in Table 3.4-1. This annex resumes that positioning by associating the amounts of the worked from-whom-to-whom matrices. That association is made through text boxes with excerpts from tables with the corresponding parts, exemplifying some calculations and adding shapes (almost always rectangles) with different outlines to establish connections.

Except for the financial account, we identified distributive transactions, implicitly and explicitly, in all accounts in that matrix. Tables A.4-1 to A.4-3 show the association of the from-whom-to-whom matrices constructed for the explicitly identified transactions with the cells of the various accounts and, at the same time, the possible measurement of the underlying institutional interrelations.

Table A.4-1. Association of the from-whom-to-whom matrices to the distribution of income and the rest of the world accounts of the aggregated national accounting matrix of transactions.

Uses/Changes in Assets / Resources/Changes in liabilities and net worth	**Economy** – Current accounts – (i.1) Distribution of income [Tables 3.2-1 and 2]	(rw) **Rest of the world** account [Table 3.2-1,2,3,4 and 5]
Economy – Current accounts – (i.1) Distribution of income [Tables 3.2-1 and 2]	Property income (D4) = 353	Compensation of employees (D1)+ Property income (D4) = 50
(rw) **Rest of the world** account [Table 3.2-1,2,3,4 and 5]	Compensation of employees (D1)+ Property income (D4) = 40	

[excerpt from Table 3.4-1]

Cell (rw, i.1): 40 = 2 + 38

Cell (i.1, rw): 50 = 6 + 44

D1 Compensation of employees (D11+D12)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13								
S14	*984*	*44*	*98*	*11*	*11*	*1 148*	*6*	*1 154*
S15								
S1	*984*	*44*	*98*	*11*	*11*	*1 148*	*6*	*1 154*
S2	*2*	*0*	*0*	*0*	*0*	*2*		*2*
S1+S2	*986*	*44*	*98*	*11*	*11*	*1 150*	*6*	*1 156*

[excerpt from Table 4.1-6]

D4 Property income (D41+D42+D43+D44+D45)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11	*39*	*18*	*5*	*19*	*6*	*88*	*7*	*96*
S12	*34*	*77*	*2*	*13*	*0*	*126*	*23*	*149*
S13	*4*	*15*	*0*	*0*	*0*	*20*	*2*	*22*
S14	*39*	*44*	*21*	*9*	*0*	*112*	*11*	*123*
S15	*0*	*6*	*0*	*0*	*0*	*7*	*0*	*7*
S1	*117*	*161*	*28*	*41*	*6*	*353*	*44*	*397*
S2	*17*	*7*	*14*	*0*	*0*	*38*		*38*
S1+S2	*134*	*168*	*42*	*41*	*6*	*391*	*44*	*435*

[excerpt from Table 4.4-4]

Table A.4-2. Association of the from-whom-to-whom matrices to the redistribution of income and the rest of the world accounts of the aggregated national accounting matrix of transactions.

Uses/Changes in Assets / Resources/Changes in liabilities and net worth	**Economy** Current accounts (i.2) Redistribution of income [Table 3.2-3]	(rw) **Rest of the world** account [Table 3.2-1,2,3,4 and 5]
Economy Current accounts (i.2) Redistribution of income [Table 3.2-3]	Current transactions (D5,D61,D62,D7) = 1 157	Current transactions (D5,D61,D62,D7) = 17
(rw) **Rest of the world** account [Table 3.2-1,2,3,4 and 5]	Current transactions (D5,D61,D62,D7) = 55	

[excerpt from Table 3.4-1]

Cell (i.2, i.2): 1 157 = 212 + 333 + 384 + 228

Cell (i.2, rw): 17 = 1 + 16

D5 Impostos correntes sobre o rendimento, património, etc. (D51+D59)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13	*24*	*10*	*0*	*178*	*0*	*212*	*1*	*213*
S14								
S15								
S1	*24*	*10*	*0*	*178*	*0*	*212*	*1*	*213*
S2						*0*		*0*
S1+S2	*24*	*10*	*0*	*178*	*0*	*212*	*1*	*213*

[excerpt from Table 4.5-2]

D61 Net social contributions

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11				*66*		*66*		66
S12				*213*		*213*		213
S13				*50*		*50*		50
S14				*0*		*0*		0
S15				*4*		*4*		4
S1				*333*		*333*	*0*	333
S2				*0*		*0*		0
S1+S2				333		333	0	333

D62 Social benefits other than social transfers in kind

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13								
S14	*62*	*205*	*112*	*0*	*5*	*384*	*0*	384
S15								
S1	*62*	*205*	*112*	*0*	*5*	*384*	*0*	384
S2						*0*		0
S1+S2	62	205	112	0	5	384	0	384

[excerpt from Table 4.6-2]

D7 Other current transfers (D71+D72+D73+D74+D75)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11		*3*				*3*	*3*	*6*
S12	*5*	*10*	*4*	*31*	*0*	*51*	*11*	*62*
S13	*1*	*1*	*96*	*4*	*1*	*103*	*1*	*104*
S14	*0*	*35*	*0*	*1*	*0*	*36*	*0*	*36*
S15	*2*	*0*	*4*	*28*	*1*	*35*	*1*	*36*
S1	*8*	*50*	*104*	*64*	*2*	*228*	*16*	*244*
S2	*4*	*12*	*32*	*7*	*0*	*55*	*0*	*55*
S1+S2	*12*	*62*	*136*	*71*	*2*	*283*	*16*	*299*

[excerpt from Table 4.7-4]

Table A.4-3. Association of the from-whom-to-whom matrices to the use of income, capital, and the rest of the world accounts of the aggregated national accounting matrix of transactions.

Uses/Changes in Assets / Resources/Changes in liabilities and net worth		**Economy**		
		Current accounts	Accumulation accounts	(rw) **Rest of the world** account [Table 3.2-1,2,3,4 and 5]
		(i.3) Use of income [Table 3.2-4]	(ii) Capital [Table 3.2-5]	
Economy Current acco	(i.3) Use of income [Table 3.2-4]	Adjustment for the change in pension funds reserve (D8) = 11		
Economy Accumulatio	(ii) Capital [Table 3.2-5]	*Gross Saving* = *427*	Capital transfers (D9) = 61	Capital transfers (D9) = 1
(rw) **Rest of the world** account [Table 3.2-1,2,3,4 and 5]			Capital transfers (D9) = 4	

[excerpt from Table 3.4-1]

D8 Adjustment for the change in pension entitlements

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11								
S12								
S13								
S14		*11*				*11*		11
S15								
S1		*11*				*11*		11
S2								
S1+S2		11				11		11

[excerpt from Table 4.8-2]

D9 Capital transfers (D91+D92+D99)

	S11	**S12**	**S13**	**S14**	**S15**	S1	**S2**	S1+S2
S11	*0*	*2*	*30*	*0*	*0*	*32*	*1*	*33*
S12						*0*		*0*
S13	*1*	*1*	*0*	*3*	*1*	*6*	*0*	*6*
S14	*15*	*4*	*0*	*2*	*2*	*23*	*0*	*23*
S15						*0*		*0*
S1	*16*	*7*	*30*	*5*	*3*	*61*	*1*	*62*
S2			*4*			*4*		*4*
S1+S2	*16*	*7*	*34*	*5*	*3*	*65*	*1*	*66*

[excerpt from Table 4.9-4]

From the above three tables, we can easily identify the lack of taxes on production and imports and subsidies, implicit in cells that record other transactions or balancing items, as mentioned in Sections 4.2 and 4.3.

Annex 5 – A disaggregated version of the social accounting matrix of transactions with gross balancing items. Supporting information and data.

From the aggregated version of the social accounting matrix presented in Table 3.4-2, Table A.5-1 presents the description of the accounts and the corresponding symbols (shaded parts) represented in each row/column of the disaggregated version presented in Table A.5-4(a-e).

Tables A.5-2 and 3, whose description of the products and industries can also be found in Table A.5-1, supported the construction of Table A.5-4, together with the tables in Annex 1 and the from-whom-to-whom matrices constructed in Chapter 4, with the due relationships to the tables in Annex 2.

Details regarding the construction of that Table A.5-4 can be found in Chapter 5 and by analogy with the application made in Santos (2022), Section 4.2.d).

Table A.5-1. Accounts description.

Economy	Production accounts	f	Factors of production	l	Labour (employees)
				o	Others (employers and own-account workers, capital)
		a	Activities (industries) (by ISIC Categories)	a01	Agriculture, forestry and fishing (A)
				a02	Manufacturing (B-E)
				a03	Construction (F)
				a04	Trade, transport, accommodation, food (G-I)
				a05	Information and communication (J)
				a06	Finance and Insurance (K)
				a07	Real estate activities (L)
				a08	Business services (M-N)
				a09	Education, human health and social work (P-Q)
				a10	Other services (R-T,U)
				a11	Public administration (O)
		p	Products (goods and services) (by CPC sections)	p01	Agriculture, forestry and fishery products (0)
				p02	Ores and minerals; electricity, gas and water (1)
				p03	Manufacturing (2-4)
				p04	Construction (5)
				p05	Trade, accommodation, food & beverages; transport services (6)
				p06	Finance and Insurance (7 less 72-73)
				p07	Real estate services; and rental and leasing services (72-73)
				p08	Business and production services (8)
				p09	Community and social services (92-93)
				p10	Other services (94-99)
				p11	Public administration (91)
	Institutions accounts	dic	Current (institutional sectors by SNA codes)	nfc	Non-financial corporations (S11)
				fc	Financial corporations (S12)
				g	General government (S13)
				h	Households (S14)
				npi	Non-profit institutions serving households (S15)
		dik	Capital (institutional sectors by SNA codes)	nfc	Non-financial corporations (S11)
				fc	Financial corporations (S12)
				g	General government (S13)
				h	Households (S14)
				npi	Non-profit institutions serving households (S15)
		dif	Financial (institutional sectors by SNA codes)	nfc	Non-financial corporations (S11)
				fc	Financial corporations (S12)
				g	General government (S13)
				h	Households (S14)
				npi	Non-profit institutions serving households (S15)
Rest of the world account (SNA code for institutional sector)				rw	Rest of the world (S2)

Table A.5-2. Supply Table at purchasers' prices.

Supply of goods and services (or products)	Output of goods and services (P1)												Imports of goods and services (P7)	Trade and transport margins	Taxes on Products (D21)	(-) Subsidies on Products (D31)	Total Supply at purchasers' prices
	a01	a02	a03	a04	a05	a06	a07	a08	a09	a10	a11	total by product					
p01	87	0	0	0	0	0	0	0	0	0	0	87	37	2	5	- 3	128
p02	0	195	0	0	0	0	0	0	0	0	0	195	61	2	5	0	263
p03	2	1 650	11	24	18	0	0	9	0	0		1 714	284	74	94	- 5	2 161
p04	0	7	232	3	2	0	0	0	0	0	0	244		0	17	0	261
p05	0	6	1	226	0	0	0	0	0	0	0	233	56	- 78	5	0	216
p06	0	0	0	0	0	146	0	0	0	0	0	146	13	0	0	0	159
p07	0	2	0	4	0	0	174	0	0	15	0	195		0	0	0	195
p08	0	1	0	3	80	0	0	172	0	0	0	256	5	0	11	0	272
p09	0	0	0	0	0	0	0	0	275	0	0	275	0	0	0	0	275
p10	0	0	0	2	0	0	0	2	0	87	0	91	0	0	4	0	95
p11	0	0	0	0	0	0	0	0	0	0	168	168	0	0	0	0	168
total by industry	89	1 861	244	262	100	146	174	183	275	102	168	3 604	456	0	141	- 8	4 193
Direct purchases abroad by residents	---	---	---	---	---	---	---	---	---	---	---	---	43	---	---	---	43
Cif/fob adjustments on imports	---	---	---	---	---	---	---	---	---	---	---	---	0	---	---	---	0
Total	89	1 861	244	262	100	146	174	183	275	102	168	3 604	499	0	141	- 8	4 236

Notes:

1. This table is based in the numerical example in Chapter 14 of the 2008 SNA (ISWGNA, 2009), in articulation with the compilation made for Annex 1 and all related parts of this paper.
2. See the description of products and industries in Table A.5-1.
3. Purchasers' prices include net taxes on production and imports, excluding the deductible part of value-added type taxes, and any transport charges, if bought from wholesaler or retailer.

Table A.5-3. Use Table at purchasers' prices.

Use of goods and services (or products)	Intermediate Consumption (P2)												Final Consumption expenditure (P3)				Gross Capital Formation (P5)				Exports (P6)	Total Use at purchasers' price
	a01	a02	a03	a04	a05	a06	a07	a08	a09	a10	a11	total by product	Households (S14)	NPISH (S15)	Government (S13)	total	GFCF (P51g)	Changes in inventories (P52)	ADV (P53)	total		
p01	3	71	0	3	1	2	1	2	3	0	2	88	28	0	2	30	2	1		3	7	128
p02	3	190	1	6	3	2	1	2	5	0	4	217	40	0	0	40	0	- 1		- 1	7	263
p03	32	675	80	44	16	16	9	19	46	15	38	990	570	0	3	573	161	5	10	176	422	2 161
p04	1	9	5	3	1	1	1	1	11	0	7	40	2	0	0	2	190	23		213	6	261
p05	3	65	3	25	4	4	2	4	4	0	5	119	42	0	0	42				0	55	216
p06	1	36	7	18	1	3	3	7	7	4	17	104	53	0	0	53				0	2	159
p07	1	15	1	8	2	5	2	4	8	1	10	57	115	0	0	115	22	0		22	1	195
p08	2	70	17	15	10	18	9	19	22	16	24	222	40	0	0	40	1	0		1	9	272
p09	0	1	0	0	0		0	1	24	0	8	34	21	30	188	239				0	2	275
p10	1	1	0	1	1	1	0	1	2	0	2	10	85	0	0	85				0	0	95
p11	0	0	0	0	0	0	0	0	1	0	1	2	5	2	159	166				0	0	168
total by industry	47	1 133	114	123	39	52	28	60	133	36	118	1 883	1 001	32	352	1 385	376	28	10	414	511	4 193
Direct purchases abroad by residents	---	---	---	---	---	---	---	---	---		---	---	43	---	---	43	---	---	---	---	---	43
Purchases on the domestic territory by non-residents (-)	---	---	---	---	---	---	---	---	---		---	---	- 29	---	---	- 29	---	---	---	---	29	0
Total	47	1 133	114	123	39	52	28	60	133		118	1 883	1 015	32	352	1 399	376	28	10	414	540	4 236
Gross Added Value (GDP) [B1g-(D21-D31)]	42	728	130	139	61	94	146	123	142	66	50	1 721										
Compensation of Employees (D1)	19	547	79	102	32	44	49	79	113	47	39	1 150										
Taxes less subsidies on production (D29-D39)	- 2	43	5	- 5	- 1	4	6	4	2	1	1	58										
Operating Surplus, gross (B2g)	18	108	31	33	30	46	91	40	27	18	10	452										
Mixed Income, gross (B3g)	7	30	15	9	0	0	0	0	0	0		61										
Total Output (P1)	89	1 861	244	262	100	146	174	183	275	102	168	3 604										

The notes to Table A.5-2 are also valid for this one.

Table A.5-4a. Disaggregated social accounting matrix.

			f			a					
			l	o	*total*	a01	a02	a03	a04	a05	a06
			1	*2*		*3*	*4*	*5*	*6*	*7*	*8*
f	l	*1*	0	0	*0*	19	547	79	102	32	44
	o	*2*	0	0	*0*	25	138	46	42	30	46
	total		*0*	*0*	*0*	*44*	*685*	*125*	*144*	*62*	*90*
a	a01	*3*	0	0	*0*	0	0	0	0	0	0
	a02	*4*	0	0	*0*	0	0	0	0	0	0
	a03	*5*	0	0	*0*	0	0	0	0	0	0
	a04	*6*	0	0	*0*	0	0	0	0	0	0
	a05	*7*	0	0	*0*	0	0	0	0	0	0
	a06	*8*	0	0	*0*	0	0	0	0	0	0
	a07	*9*	0	0	*0*	0	0	0	0	0	0
	a08	*10*	0	0	*0*	0	0	0	0	0	0
	a09	*11*	0	0	*0*	0	0	0	0	0	0
	a10	*12*	0	0	*0*	0	0	0	0	0	0
	a11	*13*	0	0	*0*	0	0	0	0	0	0
	total		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
p	p01	*14*	0	0	*0*	3	71	0	3	1	2
	p02	*15*	0	0	*0*	3	190	1	6	3	2
	p03	*16*	0	0	*0*	32	675	80	44	16	16
	p04	*17*	0	0	*0*	1	9	5	3	1	1
	p05	*18*	0	0	*0*	3	65	3	25	4	4
	p06	*19*	0	0	*0*	1	36	7	18	1	3
	p07	*20*	0	0	*0*	1	15	1	8	2	5
	p08	*21*	0	0	*0*	2	70	17	15	10	18
	p09	*22*	0	0	*0*	0	1	0	0	0	0
	p10	*23*	0	0	*0*	1	1	0	1	1	1
	p11	*24*	0	0	*0*	0	0	0	0	0	0
	total		*0*	*0*	*0*	*47*	*1 133*	*114*	*123*	*39*	*52*
dic	nfc	*25*	0	254	*254*	0	0	0	0	0	0
	fc	*26*	0	27	*27*	0	0	0	0	0	0
	g	*27*	0	7	*7*	- 2	43	5	- 5	- 1	4
	h	*28*	1 154	227	*1 381*	0	0	0	0	0	0
	npi	*29*	0	4	*4*	0	0	0	0	0	0
	total		*1 154*	*519*	*1 673*	*- 2*	*43*	*5*	*- 5*	*- 1*	*4*
dik	nfc	*30*	0	0	*0*	0	0	0	0	0	0
	fc	*31*	0	0	*0*	0	0	0	0	0	0
	g	*32*	0	0	*0*	0	0	0	0	0	0
	h	*33*	0	0	*0*	0	0	0	0	0	0
	npi	*34*	0	0	*0*	0	0	0	0	0	0
	total		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
dif	nfc	*35*	0	0	*0*	0	0	0	0	0	0
	fc	*36*	0	0	*0*	0	0	0	0	0	0
	g	*37*	0	0	*0*	0	0	0	0	0	0
	h	*38*	0	0	*0*	0	0	0	0	0	0
	npi	*39*	0	0	*0*	0	0	0	0	0	0
	total		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
rw		*40*	2	38	*40*	*0*	*0*	*0*	*0*	*0*	*0*
Total			*1 156*	*557*	*1 713*	*89*	*1 861*	*244*	*262*	*100*	*146*

Table A.5-4b. Disaggregated social accounting matrix.

			a						p		
			a07	a08	a09	a10	a11	*total*	p01	p02	p03
			9	*10*	*11*	*12*	*13*		*14*	*15*	*16*
f	l	*1*	49	79	113	47	39	*1 150*	0	0	0
	o	*2*	91	40	27	18	10	*513*	0	0	0
	total		*140*	*119*	*140*	*65*	*49*	*1 663*	*0*	*0*	*0*
a	a01	*3*	0	0	0	0		*0*	87	0	2
	a02	*4*	0	0	0	0		*0*	0	195	1 650
	a03	*5*	0	0	0	0		*0*	0	0	11
	a04	*6*	0	0	0	0		*0*	0	0	24
	a05	*7*	0	0	0	0		*0*	0	0	18
	a06	*8*	0	0	0	0		*0*	0	0	0
	a07	*9*	0	0	0	0		*0*	0	0	0
	a08	*10*	0	0	0	0		*0*	0	0	9
	a09	*11*	0	0	0	0		*0*	0	0	0
	a10	*12*	0	0	0	0		*0*	0	0	0
	a11	*13*	0	0	0	0		*0*	0	0	0
	total		*0*	*0*	*0*	*0*		*0*	*87*	*195*	*1 714*
p	p01	*14*	1	2	3	0	2	*88*	2	0	0
	p02	*15*	1	2	5	0	4	*217*	0	2	0
	p03	*16*	9	19	46	15	38	*990*	0	0	74
	p04	*17*	1	1	11	0	7	*40*	0	0	0
	p05	*18*	2	4	4	0	5	*119*	0	0	0
	p06	*19*	3	7	7	4	17	*104*	0	0	0
	p07	*20*	2	4	8	1	10	*57*	0	0	0
	p08	*21*	9	19	22	16	24	*222*	0	0	0
	p09	*22*	0	1	24	0	8	*34*	0	0	0
	p10	*23*	0	1	2	0	2	*10*	0	0	0
	p11	*24*	0	0	1	0	1	*2*	0	0	0
	total		*28*	*60*	*133*	*36*	*118*	*1 883*	*2*	*2*	*74*
dic	nfc	*25*	0	0	0	0	0	*0*	0	0	0
	fc	*26*	0	0	0	0	0	*0*	0	0	0
	g	*27*	6	4	2	1	1	*58*	2	5	89
	h	*28*	0	0	0	0	0	*0*	0	0	0
	npi	*29*	0	0	0	0	0	*0*	0	0	0
	total		*6*	*4*	*2*	*1*	*1*	*58*	*2*	*5*	*89*
dik	nfc	*30*	0	0	0	0	0	*0*	0	0	0
	fc	*31*	0	0	0	0	0	*0*	0	0	0
	g	*32*	0	0	0	0	0	*0*	0	0	0
	h	*33*	0	0	0	0	0	*0*	0	0	0
	npi	*34*	0	0	0	0	0	*0*	0	0	0
	total		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
dif	nfc	*35*	0	0	0	0	0	*0*	0	0	0
	fc	*36*	0	0	0	0	0	*0*	0	0	0
	g	*37*	0	0	0	0	0	*0*	0	0	0
	h	*38*	0	0	0	0	0	*0*	0	0	0
	npi	*39*	0	0	0	0	0	*0*	0	0	0
	total		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
rw		*40*	*0*	*0*	*0*	*0*	*0*	*0*	37	61	284
Total			*174*	*183*	*275*	*102*	*168*	*3 604*	*128*	*263*	*2 161*

Table A.5-4c. Disaggregated social accounting matrix.

			p								
			p04	p05	p06	p07	p08	p09	p10	p11	*total*
			17	*18*	*19*	*20*	*21*	*22*	*23*	*24*	
f	l	*1*	0	0	0	0	0	0	0	0	*0*
	o	*2*	0	0	0	0	0	0	0	0	*0*
	total		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
a	a01	*3*	0	0	0	0	0	0	0	0	*89*
	a02	*4*	7	6	0	2	1	0	0	0	*1 861*
	a03	*5*	232	1	0	0	0	0	0	0	*244*
	a04	*6*	3	226	0	4	3	0	2	0	*262*
	a05	*7*	2	0	0	0	80	0	0	0	*100*
	a06	*8*	0	0	146	0	0	0	0	0	*146*
	a07	*9*	0	0	0	174	0	0	0	0	*174*
	a08	*10*	0	0	0	0	172	0	2	0	*183*
	a09	*11*	0	0	0	0	0	275	0	0	*275*
	a10	*12*	0	0	0	15	0	0	87	0	*102*
	a11	*13*	0	0	0	0	0	0	0	168	*168*
	total		*244*	*233*	*146*	*195*	*256*	*275*	*91*	*168*	*3 604*
p	p01	*14*	0	- 2	0	0	0	0	0	0	*0*
	p02	*15*	0	- 2	0	0	0	0	0	0	*0*
	p03	*16*	0	- 74	0	0	0	0	0	0	*0*
	p04	*17*	0	0	0	0	0	0	0	0	*0*
	p05	*18*	0	- 78	0	0	0	0	0	0	*- 78*
	p06	*19*	0	0	0	0	0	0	0	0	*0*
	p07	*20*	0	0	0	0	0	0	0	0	*0*
	p08	*21*	0	0	0	0	0	0	0	0	*0*
	p09	*22*	0	0	0	0	0	0	0	0	*0*
	p10	*23*	0	0	0	0	0	0	0	0	*0*
	p11	*24*	0	0	0	0	0	0	0	0	*0*
	total		*0*	*- 156*	*0*	*0*	*0*	*0*	*0*	*0*	*- 78*
dic	nfc	*25*	0	0	0	0	0	0	0	0	*0*
	fc	*26*	0	0	0	0	0	0	0	0	*0*
	g	*27*	17	5	0	0	11	0	4	0	*133*
	h	*28*	0	0	0	0	0	0	0	0	*0*
	npi	*29*	0	0	0	0	0	0	0	0	*0*
	total		*17*	*5*	*0*	*0*	*11*	*0*	*4*	*0*	*133*
dik	nfc	*30*	0	0	0	0	0	0	0	0	*0*
	fc	*31*	0	0	0	0	0	0	0	0	*0*
	g	*32*	0	0	0	0	0	0	0	0	*0*
	h	*33*	0	0	0	0	0	0	0	0	*0*
	npi	*34*	0	0	0	0	0	0	0	0	*0*
	total		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
dif	nfc	*35*	0	0	0	0	0	0	0	0	*0*
	fc	*36*	0	0	0	0	0	0	0	0	*0*
	g	*37*	0	0	0	0	0	0	0	0	*0*
	h	*38*	0	0	0	0	0	0	0	0	*0*
	npi	*39*	0	0	0	0	0	0	0	0	*0*
	total		*0*	*0*	*0*	*0*	*0*	*0*	*0*		*0*
rw		*40*		99	13		5	0	0	0	499
Total			*261*	*181*	*159*	*195*	*272*	*275*	*95*	*168*	*4 158*

Table A.5-4d. Disaggregated social accounting matrix.

			dic						dik			
			nfc	fc	g	h	npi	*total*	nfc	fc	g	h
			25	*26*	*27*	*28*	*29*		*30*	*31*	*32*	*33*
f	l	*1*	0	0	0	0	0	*0*	0	0	0	0
	o	*2*	0	0	0	0	0	*0*	0	0	0	0
	total		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
a	a01	*3*	0	0	0	0	0	*0*	0	0	0	0
	a02	*4*	0	0	0	0	0	*0*	0	0	0	0
	a03	*5*	0	0	0	0	0	*0*	0	0	0	0
	a04	*6*	0	0	0	0	0	*0*	0	0	0	0
	a05	*7*	0	0	0	0	0	*0*	0	0	0	0
	a06	*8*	0	0	0	0	0	*0*	0	0	0	0
	a07	*9*	0	0	0	0	0	*0*	0	0	0	0
	a08	*10*	0	0	0	0	0	*0*	0	0	0	0
	a09	*11*	0	0	0	0	0	*0*	0	0	0	0
	a10	*12*	0	0	0	0	0	*0*	0	0	0	0
	a11	*13*	0	0	0	0	0	*0*	0	0	0	0
	total		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
p	p01	*14*	0	0	2	28	0	*30*	2	0	0	0
	p02	*15*	0	0	0	40	0	*40*	- 1	0	0	0
	p03	*16*	0	0	3	570	0	*573*	127	3	18	26
	p04	*17*	0	0	0	2	0	*2*	163	4	18	26
	p05	*18*	0	0	0	56	0	*56*	0	0	0	0
	p06	*19*	0	0	0	53	0	*53*	0	0	0	0
	p07	*20*	0	0	0	115	0	*115*	16	0	2	3
	p08	*21*	0	0	0	40	0	*40*	1	0	0	0
	p09	*22*	0	0	188	21	30	*239*	0	0	0	0
	p10	*23*	0	0	0	85	0	*85*	0	0	0	0
	p11	*24*	0	0	159	5	2	*166*	0	0	0	0
	total		*0*	*0*	*352*	*1 015*	*32*	*1 399*	*308*	*8*	*38*	*55*
dic	nfc	*25*	0	3	0	66	0	*69*	0	0	0	0
	fc	*26*	5	10	4	244	0	*264*	0	0	0	0
	g	*27*	25	11	96	232	1	*365*	0	0	0	0
	h	*28*	62	251	112	1	5	*431*	0	0	0	0
	npi	*29*	2	0	4	32	1	*39*	0	0	0	0
	total		*94*	*276*	*216*	*575*	*7*	*1 168*	*0*	*0*	*0*	*0*
dik	nfc	*30*	228	0	0	0	0	*228*	- 7	2	30	0
	fc	*31*	0	14	0	0	0	*14*	0	0	0	0
	g	*32*	0	0	- 35	0	0	*- 35*	1	1	2	3
	h	*33*	0	0	0	215	0	*215*	15	4	0	6
	npi	*34*	0	0	0	0	5	*5*	0	0	0	0
	total		*228*	*14*	*- 35*	*215*	*5*	*427*	*9*	*7*	*32*	*9*
dif	nfc	*35*	0	0	0	0	0	*0*	- 56	0	0	0
	fc	*36*	0	0	0	0	0	*0*	0	- 1	0	0
	g	*37*	0	0	0	0	0	*0*	0	0	- 103	0
	h	*38*	0	0	0	0	0	*0*	0	0	0	174
	npi	*39*	0	0	0	0	0	*0*	0	0	0	0
	total		*0*	*0*	*0*	*0*	*0*	*0*	*- 56*	*- 1*	*- 103*	*174*
rw		*40*	4	12	32	7	0	*55*	0	0	4	0
Total			*326*	*302*	*565*	*1 812*	*44*	*3 049*	*261*	*14*	*- 29*	*238*

Table A.5-4e. Disaggregated social accounting matrix.

			dik		dif						rw	*Total*
			npi	*total*	nfc	fc	g	h	npi	*total*		
			34		*35*	*36*	*37*	*38*	*39*		*40*	
f	l	*1*	0	*0*	0	0	0	0	0	*0*	6	*1 156*
	o	*2*	0	*0*	0	0	0	0	0	*0*	44	*557*
	total		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*50*	*1 713*
a	a01	*3*	0	*0*	0	0	0	0	0	*0*	0	*89*
	a02	*4*	0	*0*	0	0	0	0	0	*0*	0	*1 861*
	a03	*5*	0	*0*	0	0	0	0	0	*0*	0	*244*
	a04	*6*	0	*0*	0	0	0	0	0	*0*	0	*262*
	a05	*7*	0	*0*	0	0	0	0	0	*0*	0	*100*
	a06	*8*	0	*0*	0	0	0	0	0	*0*	0	*146*
	a07	*9*	0	*0*	0	0	0	0	0	*0*	0	*174*
	a08	*10*	0	*0*	0	0	0	0	0	*0*	0	*183*
	a09	*11*	0	*0*	0	0	0	0	0	*0*	0	*275*
	a10	*12*	0	*0*	0	0	0	0	0	*0*	0	*102*
	a11	*13*	0	*0*	0	0	0	0	0	*0*	0	*168*
	total		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*3 604*
p	p01	*14*	0	*3*	0	0	0	0	0	*0*	7	*128*
	p02	*15*	0	*- 1*	0	0	0	0	0	*0*	7	*263*
	p03	*16*	2	*176*	0	0	0	0	0	*0*	422	*2 161*
	p04	*17*	3	*213*	0	0	0	0	0	*0*	6	*261*
	p05	*18*	0	*0*	0	0	0	0	0	*0*	84	*181*
	p06	*19*	0	*0*	0	0	0	0	0	*0*	2	*159*
	p07	*20*	0	*22*	0	0	0	0	0	*0*	1	*195*
	p08	*21*	0	*1*	0	0	0	0	0	*0*	9	*272*
	p09	*22*	0	*0*	0	0	0	0	0	*0*	2	*275*
	p10	*23*	0	*0*	0	0	0	0	0	*0*	0	*95*
	p11	*24*	0	*0*	0	0	0	0	0	*0*	0	*168*
	total		*5*	*414*	*0*	*0*	*0*	*0*	*0*	*0*	*540*	*4 158*
dic	nfc	*25*	0	*0*	0	0	0	0	0	*0*	3	*326*
	fc	*26*	0	*0*	0	0	0	0	0	*0*	11	*302*
	g	*27*	0	*0*	0	0	0	0	0	*0*	2	*565*
	h	*28*	0	*0*	0	0	0	0	0	*0*	0	*1 812*
	npi	*29*	0	*0*	0	0	0	0	0	*0*	1	*44*
	total		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*17*	*3 049*
dik	nfc	*30*	0	*25*	0	0	0	0	0	*0*	8	*261*
	fc	*31*	0	*0*	0	0	0	0	0	*0*	0	*14*
	g	*32*	1	*8*	0	0	0	0	0	*0*	- 2	*- 29*
	h	*33*	2	*27*	0	0	0	0	0	*0*	- 4	*238*
	npi	*34*	1	*1*	0	0	0	0	0	*0*	- 1	*5*
	total		*4*	*61*	*0*	*0*	*0*	*0*	*0*	*0*	*1*	*489*
dif	nfc	*35*	0	*- 56*	17	42	16	47	2	*124*	15	*83*
	fc	*36*	0	*- 1*	42	26	- 25	116	1	*160*	13	*172*
	g	*37*	0	*- 103*	10	49	4	15	1	*79*	15	*- 9*
	h	*38*	0	*174*	2	8	0	3	0	*13*	2	*189*
	npi	*39*	- 4	*- 4*	1	3	0	0	0	*4*	2	*2*
	total		*- 4*	*10*	*72*	*128*	*- 5*	*181*	*4*	*380*	*47*	*437*
rw		*40*	0	*4*	11	44	- 4	8	- 2	*57*	*0*	*655*
Total			*5*	*489*	*83*	*172*	*- 9*	*189*	*2*	*437*	*655*	*0*