

Santos, Susana

Working Paper

A quantitative approach to the effects of social policy measures. An application to Portugal, using Social Accounting Matrices

EERI Research Paper Series, No. 33/2010

Provided in Cooperation with:

Economics and Econometrics Research Institute (EERI), Brussels

Suggested Citation: Santos, Susana (2010) : A quantitative approach to the effects of social policy measures. An application to Portugal, using Social Accounting Matrices, EERI Research Paper Series, No. 33/2010, Economics and Econometrics Research Institute (EERI), Brussels

This Version is available at:

<https://hdl.handle.net/10419/142595>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

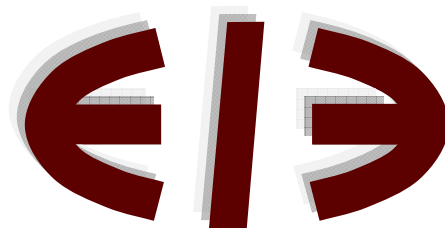
If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

**A quantitative approach to the effects of social policy
measures. An application to Portugal, using Social
Accounting Matrices**

Susana Santos

EERI Research Paper Series No 33/2010

ISSN: 2031-4892



EERI
Economics and Econometrics Research Institute
Avenue de Beaulieu
1160 Brussels
Belgium

Tel: +322 299 3523
Fax: +322 299 3523
www.eeri.eu

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices.^(*)

Susana Santos

*ISEG (School of Economics and Management)/TULisboa – Technical University of Lisbon;
UECE – Research Unit on Complexity and Economics^(**) and DE – Department of Economics;
ssantos@iseg.utl.pt; <https://aquila1.iseg.utl.pt/aquila/homepage/f645>*

(July 2010)

Abstract

The impacts of policy measures on transfers between government and households will be quantified using Social Accounting Matrices (SAMs).

The System of National Accounts (SNA) will be the main source used for the construction of the numerical version of these matrices, which will then form the basis for two algebraic versions. One version will consist of accounting multipliers, and *structural path analysis* will also be used for its decomposition. The other version will be a so-called SAM-based linear model, in which each cell will be defined with a linear equation or system of equations, whose components will be all the known and quantified transactions of the SNA, using the parameters deduced from the numerical SAM that served as the basis for this model.

Macroeconomic aggregates and balances, as well as structural indicators of the distribution and use of income, will be calculated from numerical and algebraic versions of the SAM. These will make it possible to quantify and compare the effects of social policy measures and to evaluate their differences, in order to define the path for future research work on the SAM-based linear model.

Keywords: Social Accounting Matrix; SAM-based Modelling; Macroeconomic Modelling; Policy Analysis; Structural Path Analysis

JEL Codes: E61; E10; D57.

(*) Presented to the 18th *International Input-Output Conference*, held in Sydney, Australia, on 20-25/6/2010.

(**) *UECE (Research Unit on Complexity and Economics) is financially supported by FCT (Fundação para a Ciência e a Tecnologia), Portugal. This paper is part of the Multi-annual Funding Project (POCI/U0436/2006).*

Abbreviations¹

CPA	– Classification of Products by Activity
ESA 95	– European System of National and Regional Accounts in the European Community of 1995 (Eurostat, 1996)
GDP	– Gross Domestic Product
INE	– <i>Instituto Nacional de Estatística</i> (Statistics Portugal)
ISCED	– International Standard Classification of Education
ISWGNA	– Inter-Secretariat Working Group, published by the United Nations Statistical Office
NACE (Rev.1)	– New Statistical Nomenclature of the Economic Activities in the European Community
NPISHs	– Non-Profit Institutions Serving Households
SAM	– Social Accounting Matrix
SNA	– System of National Accounts
SNA 93	– System of National Accounts of 1993 (ISWG, 1993)

¹ Besides those listed in Appendix A.2.3.

CONTENTS

1. Introduction	1
2. The SAM numerical version	2
2.1. Structural indicators of the distribution and use of income; identifying social policy measures and the corresponding scenarios to be studied	12
3. The SAM algebraic versions	18
3.1. Accounting multipliers, their components and the first results for the scenarios identified.....	19
3.2. The SAM-based linear model	31
3.3. Accounting multipliers and the SAM-based linear model	36
4. Quantifying effects of social policy measures using macroeconomic aggregates and balances	36
5. Concluding Remarks	42
References	46
Appendices	
A.1. Accounting multipliers for Portugal in 1995 and 2005	48
A.2. SAM-based linear model	58
A.2.1. Structural indicators	58
A.2.2. Macroeconomic aggregates	58
A.2.3. Conventions and declarations.....	58
A.3. Portuguese Integrated Economic Accounts for 1995 and 2005	65

List of Tables

1. Portuguese basic SAM (Social Accounting Matrix) for 1995 (in millions of euros)	4
2. Portuguese basic SAM (Social Accounting Matrix) for 2005 (in millions of euros)	5
3. Identifying the National Accounts transactions in the cells of the basic SAM.....	6
4. Portuguese SAM (Social Accounting Matrix) for 1995 (in millions of euros)	8
5. Portuguese SAM (Social Accounting Matrix) for 2005 (in millions of euros)	10
6. Distribution of the generated income, among factors of production and institutions, in the Portuguese SAM for 1995 and 2005 (in percentage terms)	12
7. Distribution and use of disposable income, among institutions, in the Portuguese SAM for 1995 and 2005 (in percentage terms)	13
8. Per capita household disposable income and final consumption (euros per person), in Portugal in 1995 and 2005	15
9. Current taxes on income, wealth, etc., paid by households to the government, and social benefits other than social transfers in kind paid, by the government to households, in Portugal in 1995 and 2005	15
10. The Government and Households Budgets in the Portuguese SAM for 1995 and 2005 (in millions of euros)	17
11. The SAM in endogenous and exogenous accounts	19
12. Direct influences of unitary changes in the exogenous current receipts of the government .	23
13. Global influences of unitary changes in the exogenous current receipts of the government	24
14. Additional group influences of unitary changes in the exogenous current receipts of the government	24
15. Structural path analysis of the global influences on aggregate demand of unitary changes in the exogenous current receipts of the government	27
16. Direct influences of unitary changes in the exogenous current receipts of households	28
17. Global influences of unitary changes in the exogenous current receipts of households	28
18. Additional group influences of unitary changes in the exogenous current receipts of households	29
19. Structural path analysis of the global influences on aggregate demand of unitary changes in the exogenous current receipts of households	31
20. The formalized transactions (cells) in the basic SAM	32
21. Impacts of a reduction (of 1%) in the rate of direct taxes paid by households to the government on macroeconomic aggregates in 1995 and 2005	37

22. Impacts of a reduction (of 1%) in the rate of direct taxes paid by households to the government on macroeconomic balances in 1995 and 2005	39
23. Impacts of an increase (of 1%) in the social benefits other than social transfers in kind received by households from the government on macroeconomic aggregates in 1995 and 2005	41
24. Impacts of an increase (of 1%) in the social benefits other than social transfers in kind received by households from the government the macroeconomic balances in 1995 and 2005	41

Appendix A.1. Accounting multipliers for Portugal in 1995 and 2005

A.1.1. Average expenditure propensities matrices – 1995 (Scenario A)	48
A.1.2. Average expenditure propensities matrices – 2005 (Scenario A)	48
A.1.3. Accounting multipliers matrix – 1995 (Scenario A)	49
A.1.4. Accounting multipliers matrix – 2005 (Scenario A)	49
A.1.5. Additional intragroup or direct effects matrix ($M_1 - I$) – 1995 (Scenario A)	50
A.1.6. Additional intragroup or direct effects matrix ($M_1 - I$) – 2005 (Scenario A)	50
A.1.7. Additional intergroup or indirect effects matrix ($M_2 - I$) * M_1 – 1995 (Scenario A)	51
A.1.8. Additional intergroup or indirect effects matrix ($M_2 - I$) * M_1 – 2005 (Scenario A)	51
A.1.9. Additional extragroup or cross effects matrix ($M_3 - I$) * M_2 * M_1 - 1995 (Scenario A)	52
A.1.10. Additional extragroup or cross effects matrix ($M_3 - I$) * M_2 * M_1 - 2005 (Scenario A)	52
A.1.11. Average expenditure propensities matrices – 1995 (Scenario B)	53
A.1.12. Average expenditure propensities matrices – 2005 (Scenario B)	53
A.1.13. Accounting multipliers matrix – 1995 (Scenario B)	54
A.1.14. Accounting multipliers matrix – 2005 (Scenario B)	54
A.1.15. Additional intragroup or direct effects matrix ($M_1 - I$) – 1995 (Scenario B)	55
A.1.16. Additional intragroup or direct effects matrix ($M_1 - I$) – 2005 (Scenario B)	55
A.1.17. Additional intergroup or indirect effects matrix ($M_2 - I$) * M_1 – 1995 (Scenario B)	56
A.1.18. Additional intergroup or indirect effects matrix ($M_2 - I$) * M_1 – 2005 (Scenario B)	56
A.1.19. Additional extragroup or cross effects matrix ($M_3 - I$) * M_2 * M_1 - 1995 (Scenario B)	57
A.1.20. Additional extragroup or cross effects matrix ($M_3 - I$) * M_2 * M_1 - 2005 (Scenario B)	57

Appendix A.3. Portuguese Integrated Economic Accounts

A.3.1. 1995 (in millions of euros)	65
A.3.2. 2005 ((in millions of euros)	67

1. Introduction

This paper is intended to be yet one more (small) step forward in the research that its author has been undertaking, for several years, into the SAM in general and now, in particular, into SAM-based modelling. Thus, on the one hand, it uses the work published in Santos (2008, 2009, 2009a) and the papers prepared for presentation by the author at two conferences in 2009² and, on the other hand, it updates almost all of that work to 2005.

From the author's point of view, the SAM is a powerful working instrument for socio-(macro)economic planning, since with its underlying methodology it is possible to arrive at perfectly harmonized models and databases that contemplate important aspects of the economic and social sides of the real world. Further research is planned to improve this part of the work and to study other aspects of these (economic and social) sides, as well as to consider yet further issues (such as the environment, for instance).

In the Preface to the study by F. Lequiller and D. Blades, entitled *Understanding National Accounts*, E. Giovannini says: "today's national accounts are the core of a modern system of economic statistics, and provide the conceptual and actual tool to bring to coherence hundreds of statistical sources available in developed countries"³. This is, in fact, a particular advantage enjoyed by developed countries and something which the developing countries are gradually working towards.

Thus, working with SAMs constructed from the national accounts can be a way of working with quantified reality in a more precise fashion. It is in this particular area that the author has been researching, constructing numerical (macro)SAMs from the national accounts (Section 2) and developing a SAM-based linear model. In the latter case, each cell is defined through a linear equation or system of equations, whose components are all the known and quantified transactions of the national accounts, using the parameters deduced from the numerical SAM that served as the basis for this model (Section 3.2). Such a model still has very restrictive assumptions, but its purpose is to better understand the results obtained and to progressively improve them. In order to achieve this aim, another SAM-based model will also be used – the

² "Constructing and Modelling SAMs from the SNA for the study of impacts of policy measures" (57th Session of the International Statistical Institute). Durban (South Africa): 16-22/8/2009.

"SAM-based modelling for policy and scenario analysis" (17th International Input-Output Conference, promoted by IIOA (International Input-Output Association) and the Department of Economics of the School of Economics, Business and Accountancy of the University of São Paulo). São Paulo (Brazil): 13-17/7/2009.

³ Lequiller F., Blades D. (2006), *Understanding National Accounts*, Organisation for Economic Co-operation and Development (OECD), Paris (France) (p. 3).

one based on accounting multipliers⁴ – whose additive decomposition will be analysed before the use of structural path analysis (Section 3.1) in order to provide a better understanding and interpretation of the differences between the results (Sections 3.3 and 4).

Therefore, in order to study the distributional effects of social policy measures, after analysing some of the structural indicators of the distribution and use of income and identifying the transfers between government and households that are to be worked upon as social policy measures (Section 2.1), identical experiments to those of the work referred to in the first paragraph will be performed using the two above-mentioned SAM-based models or SAM algebraic versions – multipliers and linear model. The analysis of the results and their comparison will be conducted using macroeconomic aggregates and balances (Section 4).

The concluding remarks (Section 5) will highlight not only the main methodological aspects of the work, but also the main results and their differences, in accordance with the alternative applications of the models to Portugal in two years separated by a gap of eleven years – 1995 and 2005. Finally, some guidelines will be provided suggesting a possible path for future research work on the SAM-based linear model.

2. The SAM numerical version

As mentioned above, the national accounts will be the source of information adopted in this work.

The System of National Accounts (SNA) that provided the information worked on for Portugal in 1995 and 2005 was the European System of National and Regional Accounts in the European Community of 1995 – ESA 95 (Eurostat, 1996), which is based on the 1993 version of the International United Nations System of National Accounts – SNA 93, prepared by the Inter-Secretariat Working Group and published by the United Nations Statistical Office (ISWGNA, 1993). Consequently, all the conventions and nomenclatures of that system have been adopted.

Considering the purpose of this paper and the information available for the years to be studied, the classification adopted for the accounts of both the numerical and, consequently, the algebraic versions of the SAM does not involve too high a level of disaggregation. Thus, in the case of the domestic economy, “Production and Trade” was divided into six groups of products and

⁴ Fixed-price multipliers could also be used. However, on the one hand, tests performed by the author have shown that the results from accounting multipliers have a greater degree of veracity (Santos, 2007), and on the other hand, we would also need numerical SAMs for successive years, which is not the case.

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (*SSantos, July 2010*)

activities⁵ and two factors of production – labour (employees) and own assets (employers and/or own account workers and capital). In turn, “Institutions” were divided into current, capital and financial accounts, with the last of these being a totally aggregate figure (due to the lack of information on the “from whom to whom” transactions) while the others were divided into: households, enterprises (or non-financial corporations), financial corporations, general government and non-profit institutions serving households (NPISH). Besides these accounts, we also have an aggregate account for the “rest of the world”.

The criterion used by the author for ordering the accounts was the one underlying the SAMs represented in Tables 1, 2, 4 and 5 – the first two presented in a basic and completely aggregate form and the others presented with the adopted disaggregation. Table 3 identifies the SNA transactions in the cells of the basic SAM, which will maintain their characteristics after the adopted disaggregation.

⁵ Respectively: group P6 of the “Classification of Products by Activity (CPA)” – principal products of activities according to NACE Rev.1., and group A6 of the “New Statistical Nomenclature of the Economic Activities in the European Community (NACE)” Rev. 1. See the description of each group in Appendix A.2.3. (sets).

**A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)**

Table 1. Portuguese basic SAM (Social Accounting Matrix) for 1995 (in millions of euros)

Incomes (receipts)	Outlays (expenditures)	Production and Trade			(domestic) Institutions accounts			rest of the world (rw)	TOTAL
		products (p)	activities (a)	factors of prod. (f)	current (dic)	capital (dik)	financial (dif)		
Production and Trade	products (p)	Trade and Transport Margins (0)	Intermediate Consumption (84 102)	0	Final Consumption (64 898)	Gross Capital Formation (19 623)	0	Exports (24 433)	Aggregate Demand (193 056)
	activities (a)	Production (154 394)	0	0	0	0	0	0	Production Value (154 394)
	factors of production (f)	0	Gross Added Value, at factor cost (70 725)	0	0	0	0	Compensation of Factors from the RW (3 243)	Aggregate Factors Income (73 968)
(domestic) Institutions accounts	current (dic)	Net taxes on products (10 283)	Net taxes on production (-346)	Gross National Income, at factor cost (70 542)	Current Transfers (42 145)	0	0	Current Transfers from the RW (3 960)	Aggregate Income (126 583)
	capital (dik)	0	0	0	Gross Saving (17 291)	Capital Transfers (4930)	Net borrowing (40)	Capital Transfers from the RW (2 320)	Investment Funds (24 582)
	financial (dif)	0	0	0	0	0	Financial Transactions (35 030)	Financial Transactions from the RW (9 257)	Total financial transactions (44 287)
rest of the world (rw)	Imports + net taxes on products (28 127 + 252)	Net taxes on production (-87)	Compensation of Factors to the RW (3 426)	Current Transfers to the RW (2 249)	Capital Transfers to the RW (29)	Financial Transactions to the RW (9 217)			Transactions Value to the RW (43 213)
	TOTAL	Aggregate Supply (193 056)	Total Costs (154 394)	Aggregate Factors Income (73 968)	Aggregate Income (126 583)	Aggregate Investment (24 582)	Total financial transactions (44 287)	Transactions Value from the RW (43 213)	

Source: Statistics Portugal (INE) – Portuguese National Accounts for 1995.

**A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)**

Table 2. Portuguese basic SAM (Social Accounting Matrix) for 2005 (in millions of euros)

Incomes (receipts)	Outlays (expenditures)	Production and Trade			(domestic) Institutions accounts			rest of the world (rw)	TOTAL
		products (p)	activities (a)	factors of prod. (f)	current (dic)	capital (dik)	financial (dif)		
Production and Trade	products (p)	Trade and Transport Margins (0)	Intermediate Consumption (148 312)	0	Final Consumption (126 644)	Gross Capital Formation (33 649)	0	Exports (42 567)	Aggregate Demand (351 173)
	activities (a)	Production (276 675)	0	0	0	0	0	0	Production Value (276 675)
	factors of production (f)	0	Gross Added Value, at factor cost (129 626)	0	0	0	0	Compensation of Factors from the RW (7 822)	Aggregate Factors Income (137 447)
(domestic) Institutions accounts	current (dic)	Net taxes on products (20 899)	Net taxes on production (-854)	Gross National Income, at factor cost (126 179)	Current Transfers (78 861)	0	0	Current Transfers from the RW (4 603)	Aggregate Income (229 688)
	capital (dik)	0	0	0	Gross Saving (19 025)	Capital Transfers (8 174)	Net borrowing (12 335)	Capital Transfers from the RW (2 404)	Investment Funds (41 937)
	financial (dif)	0	0	0	0	0	Financial Transactions (37 825)	Financial Transactions from the RW (31 113)	Total financial transactions (68 938)
rest of the world (rw)		Imports + net taxes on products (53 737 - 139)	Net taxes on production (-409)	Compensation of Factors to the RW (11 269)	Current Transfers to the RW (5 158)	Capital Transfers to the RW (114)	Financial Transactions to the RW (18 779)		Transactions Value to the RW (88 509)
	TOTAL	Aggregate Supply (351 173)	Total Costs (276 675)	Aggregate Factors Income (137 447)	Aggregate Income (1229 688)	Aggregate Investment (41 937)	Total financial transactions (68 938)	Transactions Value from the RW (88 509)	

Source: Statistics Portugal (INE) – Portuguese National Accounts for 2005.

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table 3. Identifying the National Accounts transactions in the cells of the basic SAM

SAM			National Accounts transactions	
row	column	Description(valuation ⁶)	(SNA) code	Description (valuation ⁶)
p	p	trade and transport margins	---	trade and transport margins
a	p	production (basic prices)	P1	output (basic prices)
dic	p	net taxes on products (paid to domestic institutions – general government)	D21- -D31	taxes on products <i>minus</i> subsidies on products
rw	p	net taxes on products (paid to the RW)		
		imports (cif prices)	P7	imports of goods and services (cif prices)
p	rw	exports (fob prices)	P6	exports of goods and services (fob prices)
p	a	intermediate consumption (purchasers' prices)	P2	intermediate consumption (purchasers' prices)
p	dic	final consumption (purchasers' prices)	P3	final consumption expenditure (purchasers' prices)
p	dik	gross capital formation (purchasers' prices)	P5	gross capital formation (purchasers' prices)
f	a	gross added value (factor cost)	D1 D4 B2g B3g	compensation of employees net property income gross operating surplus gross mixed income
dic	a	net taxes on production (paid to domestic institutions - general government)	D29- -D39	other taxes on production <i>minus</i> other subsidies on production
rw	a	net taxes on production (paid to the RW)		
dic	f	gross national income	B5g	gross national income

⁶ In the transactions involving products and/or activities, three levels of valuation can be distinguished: factor cost; basic/cif/fob prices and purchasers' or market prices.

The first of these levels is that of the compensation of the factors used in the production process of the domestic economy during the accounting period. In analysing those factors, one can distinguish between labour (employees and own-account workers and/or employers) and capital. In this case, compensation is respectively the compensation of employees (wages and salaries and employers' social contributions – transactions D11 and D12 of the National Accounts), mixed income (balance B3 of the National Accounts) and the gross operating surplus (balance B2 of the National Accounts).

At the second level, one can distinguish between the production of the domestic economy and imports. In the first case, this is measured by the factor cost from the previous level, plus (other) taxes on production (transaction D29 of the National Account), net of subsidies on production (transaction D39 of the National Accounts), as well as by intermediate consumption. This represents the basic price level of the (domestic) production that will be transacted in the domestic market and the fob (free on board) price level of the production that will be exported. Imports, valued at cif (cost-insurance-freight included) prices, are added, at this level, to the above-mentioned unexported part of domestic production that will be transacted in the domestic market.

The third level relates to products, either domestically produced or imported, that are transacted in the domestic market. Here, the basic/cif prices (referred to in the previous level) will be increased by adding to them the trade and transport margins and the taxes on products (transaction D21 of the National Accounts), net of subsidies (transaction D31 of the National Accounts).

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

SAM			National Accounts transactions	
row	column	Description(valuation ⁶)	(SNA) code	Description (valuation ⁶)
rw	f	compensation of factors to the RW	D1 D4	primary income paid to/received from the rest of the world compensation of employees net property income
f	rw	compensation of factors from the RW		
dic	dic	current transfers within domestic institutions	D5 D6 D7 D8	current taxes on income, wealth, etc. social contributions and benefits other current transfers adjustment for the change in the net equity of households in pension funds reserves
rw	dic	current transfers to the RW		
dic	rw	current transfers from the RW		
dik	dic	gross saving	B8g	gross saving
dik	dik	capital transfers within domestic institutions	D9	capital transfers
dik	rw	capital transfers from the RW		
rw	dik	capital transfers to the RW		
dik	dif	- net borrowing ⁷	B9	net borrowing
dif	dif	financial transactions within domestic institutions	F1 F2 F3 F4 F5 F6 F7	monetary gold and special drawing rights (SDRs) currency and deposits securities other than shares loans shares and other equity insurance technical reserves other accounts receivable/payable
rw	dif	financial transactions to the RW		
dif	rw	financial transactions from the RW		

Source: Santos (2007a).

Note: See the correspondence identified between this Table and the values (in brackets) of the basic SAMs (Tables 1 and 2) in the “Portuguese Integrated Economic Accounts for Portugal in 1995 and 2005” – Tables A.3.1 and A.3.2. (Appendix A.3.)

Details on the sources of information and methodologies used in the construction of the SAM for 1995 (with a higher level of disaggregation) can be found in Santos, 2009: 179-184 – identical to those adopted in the SAM for 2005.

⁷ In the National Accounts, the net lending (+) or borrowing (-) of the total economy is the sum of the net lending or borrowing of the institutional sectors. It represents the net resources that the total economy makes available to the rest of the world (if it is positive) or receives from the rest of the world (if it is negative). The net lending (+) or borrowing (-) of the total economy is equal (but with an opposite mathematical sign) to the net borrowing (-) or lending (+) of the rest of the world (SEC 95, Prg. 8.98).

In the SAM's capital account, it is considered as a component of investment funds, required/not required to cover aggregate investment. In other words, it is the financing requirement/capacity of the economy that will be covered/absorbed by financial transactions (from/to the rest of the world, since the national funds are not enough/in excess). Therefore, in the case of Portugal in 1995 and 2005, in which there is net borrowing, we have a financing requirement that is covered by financial transactions, i.e. a resource of the capital account (row) and a use of the financial account (column). If there were net lending, we would have financing capacity that would be absorbed by financial transactions, i.e. a resource of the financial account (row) and a use of the capital account (column).

**A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)**

Table 4. Portuguese SAM (Social Accounting Matrix) for 1995 (in millions of euros)

	PRODUCTION														FACTORS			
	PRODUCTS						ACTIVITIES						Total		Labour - employees	Own assets	Total	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14				
Incomes (receipts)	Products of agriculture, hunting, forestry ...	Products from mining and quarrying	Construction work	Wholesale and retail trade services...	Financial intermediation services, real estate...	Other services	Total	Agriculture, hunting and forestry ...	Industry, including energy	Construction	Wholesale and retail trade ...	Financial, real-estate, renting ...	Other service activities	Total	Labour - employees	Own assets	Total	
PRODUCTS	1	0	0	0	0	0	0	0	606	4 640	0	369	0	78	5 693	0	0	0
	2	0	0	0	0	0	0	1736	29 138	5 096	6 608	1 539	3 346	47 524	0	0	0	
	3	0	0	0	0	0	0	30	230	3 394	280	525	128	4 606	0	0	0	
	4	1 236	13 886	0	-15 122	0	0	121	1 197	247	4 193	897	896	7 552	0	0	0	
	5	0	0	0	0	0	0	112	3 019	563	3 092	7 514	2 365	16 666	0	0	0	
	6	0	0	0	0	0	0	26	315	38	347	713	623	2 061	0	0	0	
Total	1 236	13 886	0	-15 122	0	0	0	2 651	38 579	9 337	14 889	11 209	7 437	84 102	0	0	0	
ACTIVITIES	7	6 060	379	2	0	19	0	6 460	0	0	0	0	0	0	0	0	0	
	8	0	55 321	69	2	413	48	55 852	0	0	0	0	0	0	0	0	0	
	9	0	12	14 191	0	0	0	14 204	0	0	0	0	0	0	0	0	0	
	10	0	23	13	31 749	683	0	32 469	0	0	0	0	0	0	0	0	0	
	11	0	5	14	0	20 967	0	20 987	0	0	0	0	0	0	0	0	0	
	12	3	81	28	78	832	23 379	24 421	0	0	0	0	0	0	0	0	0	
Total	6 064	55 823	14 317	31 829	22 934	23 427	154 394	0	0	0	0	0	0	0	0	0	0	
FACTORS	13	0	0	0	0	0	0	652	9 238	2 389	8 222	4 212	13 630	38 563	0	0	0	
	14	0	0	0	0	0	0	3 327	8 054	2 303	9 478	5 583	3 417	32 161	0	0	0	
Total	0	0	0	0	0	0	0	3 979	17 313	4 892	17 700	9 794	17 047	70 725	0	0	0	
INSTITUTIONS	15	0	0	0	0	0	0	0	0	0	0	0	0	0	38 620	20 994	59 614	
	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11 561	11 561	
	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1 787	1 787	
	18	-1	7 108	405	1 046	1 347	378	10 283	-135	-31	-20	-96	-13	-50	-346	0	-2 558	
	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	137	
Total	-1	7 108	405	1 046	1 347	378	10 283	-135	-31	-20	-96	-13	-50	-346	38 620	31 922	70 542	
CAPITAL ACCOUNT	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
FINANCIAL ACCOUNT	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
REST OF THE WORLD	26	1 481	24 689	32	840	1 181	156	28 379	-34	-8	-5	-24	-3	-13	-87	64	3 426	
TOTAL	8 781	101 506	14 754	18 592	25 462	23 961	193 056	6 460	55 852	14 204	32 469	20 987	24 421	154 394	38 683	35 285	73 968	

Source: Statistics Portugal (INE) – Portuguese National Accounts for 1995.

**A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)**

Table 4. Portuguese SAM (Social Accounting Matrix) for 1995 (in millions of euros) (continued)

	INSTITUTIONS												REST OF THE WORLD	TOTAL
	CURRENT ACCOUNT						CAPITAL ACCOUNT							
	Households	Enterprises (nonfinancial corporations)	Financial corporations	Government	Non Profit Institutions Serving Households (NPISH)	Total	Households	Enterprises (nonfinancial corporations)	Financial corporations	Government	Non Profit Institutions Serving Households (NPISH)	Total		
Incomes (receipts)	15	16	17	18	19	20	21	22	23	24	25	26		
PRODUCTS														
1	2 546	0	0	18	0	2 564	185	130	0	0	318	0	8 781	
2	27 967	0	0	628	0	28 595	768	5 282	347	246	7 095	0	18 292	
3	74	0	0	0	0	74	4 148	2 816	437	120	10 072	0	14 754	
4	5 467	0	0	37	0	5 504	194	19	19	1	305	0	5 231	
5	6 388	0	0	77	43	6 508	505	1 049	110	8	1 671	0	25 462	
6	6 136	0	0	14 272	1 245	21 653	58	91	10	1	160	0	87	
Total	48 578	0	0	15 032	1 288	64 898	5 755	9 562	922	366	19 623	0	24 423	
PRODUCTION														
7	0	0	0	0	0	0	0	0	0	0	0	0	6 460	
8	0	0	0	0	0	0	0	0	0	0	0	0	53 852	
9	0	0	0	0	0	0	0	0	0	0	0	0	14 204	
10	0	0	0	0	0	0	0	0	0	0	0	0	32 469	
11	0	0	0	0	0	0	0	0	0	0	0	0	20 987	
12	0	0	0	0	0	0	0	0	0	0	0	0	24 421	
Total	0	0	0	0	0	0	0	0	0	0	0	0	154 394	
FACTORS														
13	0	0	0	0	0	0	0	0	0	0	0	0	120	
14	0	0	0	0	0	0	0	0	0	0	0	0	3 123	
Total	0	0	0	0	0	0	0	0	0	0	0	0	3 243	
INSTITUTIONS														
15	470	1 349	2 051	9 623	13	13 506	0	0	0	0	0	0	3 293	
16	1 339	58	363	0	0	1 759	0	0	0	0	0	0	23	
17	2 125	329	29	4	14	2 501	0	0	0	0	0	0	35	
18	13 883	2 108	229	6 866	7	23 092	0	0	0	0	0	0	609	
19	323	50	34	878	0	1 286	0	0	0	0	0	0	1 423	
Total	18 141	3 894	2 705	17 371	35	42 145	0	0	0	0	0	0	3 960	
20	7 952	0	0	0	0	7 952	0	0	812	206	1 018	-4 023	147	
21	0	9 342	0	0	0	9 342	0	0	0	707	0	-49	896	
22	0	0	1 538	0	0	1 538	0	484	328	2	814	-287	0	
23	0	0	0	-1 661	0	-1 661	63	161	3	1 870	4	4 423	1 275	
24	0	0	0	0	100	100	0	0	0	291	0	-23	1	
Total	7 952	9 342	1 538	-1 661	100	17 291	63	645	1 143	3 075	4	4 930	2 320	
FINANCIAL ACCOUNT														
25	0	0	0	0	0	0	0	0	0	0	0	0	35 030	
26	1 743	108	60	339	0	2 249	-723	689	20	43	29	0	43 212	
TOTAL	76 413	13 544	4 323	31 081	1 423	126 383	5 095	10 896	2 085	6 136	370	24 582	44 287	

Source: Statistics Portugal (INE) – Portuguese National Accounts for 1995.

**A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)**

Table 5. Portuguese SAM (Social Accounting Matrix) for 2005 (in millions of euros)

	PRODUCTION													FACTORS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
	PRODUCTS						ACTIVITIES						FACTORS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	Products of agriculture, hunting, forestry ...		Products from mining and quarrying ...		Construction work		Wholesale and retail trade services...		Financial services, real estate...		Other services		Total		Agriculture, hunting and forestry ...		Industry, including energy		Construction		Wholesale and retail trade ...		Financial, real-estate, renting ...		Other service activities		Labour - employees		Own assets		Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234	1235	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1247	1248	1249	1250	1251	1252	1253	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446

**A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)**

Table 5. Portuguese SAM (Social Accounting Matrix) for 2005 (in millions of euros) (continued)

Outlays (expenditures)	INSTITUTIONS													REST OF THE WORLD	TOTAL	
	CURRENT ACCOUNT						CAPITAL ACCOUNT						FINANCIAL ACCOUNT			
	Households			Non Profit Institutions Serving Households (NPISH)			Households			Non Profit Institutions Serving Households (NPISH)						Total
	15	16	17	18	19	Total	20	21	22	23	24	25				
PRODUCTION	Incomes (receipts)	15	16	17	18	19	Total	Households	Enterprises (nonfinancial corporations)	Financial corporations	Government	Non Profit Institutions Serving Households (NPISH)	Total	25	26	
	Products of agriculture ...	3 670	0	0	0	0	3 670	215	44	0	0	0	239	0	579	11 174
	Products from mining and ...	47 418	0	0	1 550	48	49 016	786	8 511	273	861	305	10 735	0	30 445	167 468
	Construction work	116	0	0	0	0	116	5 827	7 313	663	3 448	241	17 491	0	0	29 271
	Wholesale and retail trade...	13 213	0	0	143	0	13 356	109	239	6	5	5	363	0	9 820	38 383
	Financial intermediation...	15 675	0	0	151	150	15 976	1 307	2 888	73	59	56	4 383	0	1 542	55 615
	Other services	11 565	0	0	30 130	2 814	44 509	123	227	21	7	39	417	0	181	49 062
	Total	91 638	0	0	31 974	3 012	126 644	8 366	19 221	1 037	4 380	645	33 649	0	42 567	351 173
	Agriculture, hunting and forestry...	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7 432
	Industry, including energy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83 268
	Construction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27 940
	Wholesale and retail trade...	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62 357
Financial, real-estate, renting...	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45 057	
Other service activities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50 622	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	276 675	
Labour - employees	0	0	0	0	0	0	0	0	0	0	0	0	0	0	75 547	
Own assets	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7 633	
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83 180	
INSTITUTIONS	Households	856	1 753	3 466	22 781	20	28 875	0	0	0	0	0	0	0	3 413	138 544
	Enterprises (nonfinancial corporations)	1 745	119	1 013	5	0	2 883	0	0	0	0	0	0	0	84	17 975
	Financial corporations	3 383	1 045	102	20	26	4 577	0	0	0	0	0	0	0	62	9 277
	Government	27 258	4 416	429	7 944	37	40 084	0	0	0	0	0	0	0	1 044	60 466
	Non Profit Institutions Serving Households (NPISH)	946	550	44	873	31	2 443	0	0	0	0	0	0	0	0	3 426
	Total	34 188	7 882	5 054	31 622	114	78 861	0	0	1 929	246	0	2 174	-4 725	4 603	229 688
	Households	9 544	0	0	0	0	9 544	0	0	0	0	0	0	0	0	7 145
	Enterprises (nonfinancial corporations)	0	9 884	0	0	0	9 884	0	0	0	1 361	0	1 361	8 758	630	20 633
	Financial corporations	0	0	4 072	0	0	4 072	0	75	2 195	5	0	2 275	- 681	4	5 670
	Government	0	0	0	-4 775	0	-4 775	122	34	94	1 866	7	2 124	9 023	1 466	7 838
	Non Profit Institutions Serving Households (NPISH)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	652
	Total	9 544	9 884	4 072	-4 775	300	19 025	122	109	4 275	3 661	7	8 174	12 335	2 404	41 937
FINANCIAL ACCOUNT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37 825	
REST OF THE WORLD	3 154	209	151	1 644	0	5 158	-1 344	1 303	358	-203	0	114	18 779	0	88 509	
TOTAL	138 544	17 975	9 277	60 466	3 426	229 688	7 145	20 633	5 670	7 838	652	41 937	68 938	88 509		

Source: Statistics Portugal (INE) – Portuguese National Accounts for 2005.

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

2.1. Structural indicators of the distribution and use of income; identifying social policy measures and the corresponding scenarios to be studied

Some indicators were calculated in order to be able to better identify the distributional effects of social policy measures. Thus, structural indicators of the functional and institutional distribution of generated income, as well as of the use of disposable income were calculated from the numerical version of the SAM for the two years under study – without any additional data⁸.

Since additional data were worked on in a previous study for 1995 (Santos, 2009), some details will be used from this work in order to complement the following analysis.

Table 6. Distribution of the generated income, among factors of production and institutions, in the Portuguese SAM for 1995 and 2005 (in percentage terms).

	1995	2005
Factors of Production (generated income = gross added value, at factor cost)		
Labour (employees)	54.5	58.1
Own assets (employers and/or own-account workers; capital)	45.5	41.9
Total	100.0	100.0
Institutions (generated income = gross national income)		
Households	84.5	84.2
Non-financial corporations	16.4	11.9
Financial corporations	2.5	3.7
General government	-3.6	-0.6
Non-profit institutions serving households	0.2	0.8
Total	100.0	100.0

Sources: Tables 4 and 5.

In the functional distribution of the generated income, or the distribution of the gross added value among factors of production (see the first part of Table 6), a little more than half is compensation of employees, which in 2005 was 3.6 percentage points higher than in 1995.

In 1995, the level of education of employees was as follows⁹: 48.3%, lower; 33%, medium; 18.7%, higher. In turn, employers and/or own-account workers, whose compensation represented

⁸ In the case of the SAM-based linear models, these indicators can also be calculated from the algebraic version, with the equations described in Appendix A.2.1.

⁹ Description of the educational levels, in accordance with the ISCED (International Standard Classification of Education): lower - primary and lower secondary school; medium - upper and post-secondary school; higher - tertiary education. (Santos, 2009: 172).

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

7.5% of the 45.5% generated by own assets, were distributed according to the following levels of education: 55.7%, lower; 33.3%, medium; 11%, higher (Santos, 2009: 92-93).

In terms of institutional distribution (see the second part of Table 6), households have the most significant share of the generated income, which was slightly less in 2005. At a significant distance from households, non-financial corporations were in second position, although their importance declined from 1995 to 2005, in favour of all the others. Attention should be drawn to the position of the general government and the decrease in its negative value in 2005, meaning that its contribution to generated income increased significantly.

In 1995, considering their main source of income, within the 84.5% of the generated income of households, 62.1% came from employees (with wages and salaries as the main source of income) and 18.6% from employers and/or own-account workers (with mixed income including property income as the main source of income) (Santos, 2009: 96).

Each institution obtains its disposable income by excluding from gross national income the current transfers paid to other institutions and to the rest of the world, and by including the current transfers received from the other institutions and the rest of the world and, in the case of the government, net indirect taxes. This disposable income is then used in final consumption and saved, except in the case of non-financial and financial corporations, which do not have any final consumption.

Table 7. Distribution and use of disposable income, among institutions, in the Portuguese SAM for 1995 and 2005 (in percentage terms).

	Distribution of Disposable Income	Use of Disposable Income	
		Final Consumption	Saving
1995			
Households	69.3	86.3	13.7
Non-financial corporations	11.2	0.0	100.0
Financial corporations	1.9	0.0	100.0
General government	16.0	112.4	-12.4
Non-profit institutions serving households	1.7	92.8	7.2
Total	100.0	79.3	20.7
2005			
Households	69.9	90.8	9.2
Non-financial corporations	6.7	0.0	100.0
Financial corporations	2.8	0.0	100.0

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

	Distribution of Disposable Income	Use of Disposable Income	
		Final Consumption	Saving
General government	18.4	117.6	-17.6
Non-profit institutions serving households	2.2	90.9	9.1
Total	100.0	87.1	12.9

Sources: Tables 4 and 5.

As it would be of expecting, households have more than a half of the disposable income, followed by general government, with less than a quarter, having been both positions slightly reinforced in 2005 – the same happened with the other institutions, except the non-financial corporations.

As is to be expected, households have more than half of disposable income, followed by general government, with less than a quarter, with both positions having been slightly reinforced in 2005 – the same thing happened with other institutions, except non-financial corporations.

In 1995, within the 69.3% of the disposable income of households, the group whose main source of income was wages and salaries (employees) accounted for 41.9% (Santos, 2009: 98).

It should be noted that the final consumption considered here is the expenditure (transaction P3 of the national accounts) and not the “actual” final consumption (transaction P4 of the national accounts), i.e. the amount really spent by each institution, although a part of the final consumption of the general government and (all) that of the NPISH will take the form of social transfers in kind (transaction D63 of the national accounts) and will include the “actual” final consumption of households.

Final consumption expenditure absorbed the largest and an increasing (except for the NPISH) part of disposable income, in detriment to saving, whose share fell by 7.8 percentage points, from 1995 to 2005.

On the other hand, since, in this case, households represent everybody in Portugal, *per capita* disposable income and final consumption can be calculated by dividing the corresponding amounts for households by the resident population in each year.

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table 8. Per capita household disposable income and final consumption (euros per person), in Portugal in 1995 and 2005.

	Disposable income	Final Consumption	
		Expenditure	Actual
1995	5 761	4 837	5 850
2005	9 768	8 672	10 766

Source: Statistics Portugal (*INE*) – Portuguese National Accounts for 1995 and 2005; Statistical Yearbook for Portugal - 2008.

Thus, on average, Portuguese people saw their *per capita* disposable income and final consumption significantly increase over eleven years (disposable income: 69.6%; final consumption expenditure: 79.3%; actual final consumption: 84%). This also means a real improvement, since in 2005 the implicit price index in final consumption was 137.15 and in GDP 137.34 (1995 = 100)¹⁰. Information by groups of households would improve our knowledge about this evolution, although unfortunately this is not available.

Since the aim is to test methodologies designed to illustrate the distributional effects of social policy measures, which could have been the ones described above that were adopted for improving the financial situation of people – and therefore of households – we should consider flows in which both government and households intervene directly, for instance: direct taxes on income, paid by households to the government; and social benefits, paid by the government to households. Table 9 shows the absolute and relative positions of those flows in the years studied.

Table 9. Current taxes on income, wealth, etc., paid by households to the government, and social benefits other than social transfers in kind, paid by the government to households, in Portugal in 1995 and 2005.

	Current taxes on income, wealth, etc. ^(a)		Social benefits other than social transfers in kind ^(c)	
	millions of euros	rate of direct taxes ^(b) (%)	millions of euros	% of DI ^(d)
1995	4 932	6.5	9 485	16.4
2005	8 275	6.0	22 121	21.4

Source: Statistics Portugal (*INE*) – Portuguese National Accounts for 1995 and 2005.

Notes:

^(a) Transaction D5 of the National Accounts.

¹⁰ Values calculated by the author from the Portuguese National Accounts time series of final consumption and GDP at current and previous years' prices.

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (*SSantos, July 2010*)

- (b) Current taxes on income, wealth, etc. paid by households to the government, per unit of received aggregate income¹¹.
- (c) Transaction D62 of the National Accounts¹².
- (d) Social benefits other than social transfers in kind paid by the government to households, per unit of disposable income of households.

These figures reveal a tendency, on the one hand, towards a decrease in the rate of direct taxes and, on the other hand, towards an increase in the social benefits, which, in a first approach, goes some way towards achieving the above-mentioned aim of improving the financial situation of people.

On the other hand, Table 10 helps us to see the position of these flows in the budgets of these two institutional sectors.

¹¹ *ti* in the linear model – see Section 3.2.

¹² *D62P* in the linear model– see Section 3.2.

A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table 10. The Government and Households Budgets in the Portuguese SAM for 1995 and 2005 (in millions of euros)

	Resources or Receipts (row)						Uses or Expenditure (column)						Balance					
	Government		Households			Government		Households			Government		Households		1995	2005	1995	2005
	1995	2005	1995	2005		1995	2005	1995	2005		1995	2005	1995	2005				
1. Current Account (a)	31 081	60 466	76 413	138 544		32 742	65 241	68 461	129 000		- 1 661	- 4 775	7 952	9 544				
Gross National Income at factor cost	- 2558	- 707	59 614	106 255	Final Consumption	15 032	31 974	48 578	91 658									
Net taxes on production	- 346	- 854	-	-	Current transfers to domestic institutions	17 371	31 622	18 141	34 188									
					- households	9 623	22 781	470	856									
					- government	6 866	7 944	13 883	27 258									
Net taxes on products	10 283	20 899	-	-	Current transfers to the RW	339	1 644	1 743	3 154									
Current transfers from domestic institutions	23 092	40 084	13 506	28 875														
- households	13 883	27 258	470	856														
- government	6 866	7 944	9 623	22 781														
Current transfers from the RW	609	1 044	3 293	3 413														
2. Capital Account	3 375	3 590	1 166	2 326		6 136	7 838	5 095	7 145		- 2 761	- 4 248	- 3 929	- 4 818				
Capital transfers from domestic institutions	2 100	2 124	1 018	2 174	Gross Capital Formation	3 018	4 380	5 755	8 366									
Capital transfers from the RW	1 275	1 466	147	152	Capital transfers to domestic institutions	3 075	3 661	63	122									
					Capital transfers to the RW	43	- 203	- 723	- 1344									
3 = 1 + 2 (b)	34 456	64 055	77 579	140 870		38 878	73 079	73 556	136 145		- 4 423	- 9 032	4 023	4 725				

Source: Tables 4 and 5 (rows/columns 15, 18, 20 and 23)

(a) Balance = Gross saving

(b) Balance = - Net lending (+)/borrowing (-)

Thus, in terms of the position of the current transfers in the flows of domestic institutions into the government and households' budget in the years studied, the main sources of the government's receipts are current transfers from domestic institutions (67% in 1995 and 62.6% in 2005) and net taxes on products, while the main sources of its expenditure are current transfers to domestic institutions (44.7% in 1995 and 43.3% in 2005) and final consumption, with expenditures being increasingly larger than receipts and leading to the corresponding increase of the deficit in all of its balances. In the case of households, which maintain positive current and total budget balances, the main sources of receipts and expenditures are, respectively, the (gross national) income generated by them and final consumption – with current transfers playing a less important role (17.4% in 1995 and 20.5% in 2005, in total receipts; 24.7% in 1995 and 25.1% in 2005, in total expenditures). Therefore it is to be expected that changes in the current transfers between the government and households will certainly have a greater impact on government budget than on the households' budget.

For a better study of these effects, two scenarios will be studied: one (A) in which there will be a 1% reduction in the rate of the direct taxes associated with the current taxes on income, wealth, etc., paid by households to the government; and another (B) in which there will be a 1% increase in the social benefits (other than social transfers in kind) received by households from the government.

3. The SAM algebraic versions

Since our concern here is to quantify the effects of the social policy measures identified above, while also paying close attention to income distribution, the accounts of the institutions and their associated transactions will assume a central role. However, the production and rest of the world accounts should not be neglected, but their associated transactions must be afforded a level of specification that is different from the one found in models that attribute them a central role.

Static and comparative static analysis will be carried out with both the versions described below, in a framework in which prices are not separated from quantities, with changes being identified only at the level of values. On the other hand, it will be assumed that there is excess capacity in the economy and that the production technology and resource endowment are given.

3.1. Accounting multipliers, their components and the first results for the scenarios identified

The base methodology that is to be followed is centred upon the use of multipliers and their decomposition. A systematic outline of this methodology is provided below, following Santos 2004 and 2007, in keeping with the work of Pyatt and Roe (1977), Pyatt and Round (1985) and Defourny and Thorbecke (1984).

a) Deduction of the accounting multipliers

As shown in Table 11, we will have both exogenous and endogenous accounts, so that consequently the transactions in each cell of the SAM will be considered exogenous or endogenous according to the corresponding row and column accounts.

Table 11. The SAM in endogenous and exogenous accounts

		EXPENDITURES				TOTAL
		Endogenous	Σ	Exogenous	Σ	
RECEIPTS	Endogenous	N	n	X	x	y_n
	Exogenous	L	l	R	r	y_x
	TOTAL	y_n'		y_x'		

Source: Pyatt and Round (1985).

where:

N = matrix of transactions between endogenous accounts; n = vector of the (corresponding) row sums.

X = matrix of transactions between exogenous and endogenous accounts (injections from first into second); x = vector of the (corresponding) row sums.

L = matrix of transactions between endogenous and exogenous accounts (leakages from first into second); l = vector of the (corresponding) row sums.

R = matrix of transactions between exogenous accounts; r = vector of the (corresponding) row sums.

y_n = vector (column) of the receipts of the endogenous accounts (\hat{y}_n : diagonal; \hat{y}_n^{-1} : inverse); y_n' = vector (row) of the expenditures of the same accounts.

y_x = vector (column) of the receipts of the exogenous accounts; y_x' = vector (row) of the expenditures of the same accounts.

From Table 11, it can be written that

$$y_n = n + x \quad (1)$$

$$y_x = l + r \quad (2)$$

The amount that the endogenous accounts receive is equal to the amount that they spend (row totals equal column totals). In other words, in aggregate terms, total injections from the exogenous into the endogenous accounts (i.e. the column sum of “x”) are equal to total leakages from the endogenous into the exogenous accounts, i.e. considering i' to be the unitary vector (row), the column sum of “1” is:

$$x * i' = l * i' \quad (3)$$

In the structure of Table 11, if the entries in the N matrix are divided by the corresponding total expenditures, a corresponding matrix (squared) can be defined of the average expenditure propensities of the endogenous accounts within the endogenous accounts or of the use of resources within those accounts. Calling this matrix A_n , it can be written that

$$A_n = N * \hat{y}_n^{-1} \quad (4)$$

$$N = A_n * \hat{y}_n \quad (5)$$

Considering equation (1), $y_n = A_n * y_n + x$ (6)

Therefore, $y_n = (I - A_n)^{-1} * x = M_a * x$. (7)

We thus have the equation that gives the total receipts of the endogenous accounts (y_n), by multiplying the injections “x” by the matrix of the accounting multipliers:

$$M_a = (I - A_n)^{-1} \quad (8)$$

On the other hand, if the entries in the L matrix are divided by the corresponding total expenditures, a corresponding matrix (non squared) can be defined of the average expenditure propensities of the endogenous accounts into the exogenous accounts or of the use of resources from the endogenous accounts into the exogenous accounts. Calling this matrix A_l , it can be written that

$$A_l = L * \hat{y}_n^{-1} \quad (9)$$

$$L = A_l * \hat{y}_n \quad (10)$$

Considering equation (2), $y_x = A_l * y_n + r$ (11)

Thus, $l = A_l * y_n = A_l * (I - A_n)^{-1} * x = A_l * M_a * x$. (12)

So, with the accounting multipliers, the impact of changes in receipts is analysed at the moment when they occur, assuming that the structure of expenditure in the economy does not change.

b) Decomposition of the accounting multipliers

Accounting multipliers can be decomposed if we consider the A_n matrix and two other ones with the same size (B_n - with the diagonal of A_n , whilst all the other elements are null - and C_n - with a null diagonal, but with all the other elements of A_n). In this way, it can be written that

$$A_n = B_n + C_n. \quad (13)$$

Thus, from equation (6):

$$y_n = B_n * y_n + C_n * y_n + x = [I - (I - B_n)^{-1} * C_n]^{-1} * (I - B_n)^{-1} * x \quad (14)$$

$$\text{Therefore: } M_a = [I - (I - B_n)^{-1} * C_n]^{-1} * (I - B_n)^{-1} = M_3 * M_2 * M_1. \quad (15)$$

The accounting multiplier matrix is thus decomposed into multiplicative components, each of which relates to a particular kind of connection in the system as a whole (Stone, 1985)¹⁴.

- The intragroup or direct effects matrix, which represents the effects of the initial exogenous injection within the groups of accounts into which it had originally entered i.e.:

$$M_1 = (I - B_n)^{-1}. \quad (16)$$

- The intergroup or indirect effects matrix, which represents the effects of the exogenous injection into the groups of accounts, after its repercussions have completed a tour through all the groups and returned to the one which they had originally entered. In other words, if we consider “t” to be the number of groups of accounts (six in the present study):

$$M_2 = \{I - [(I - B_n)^{-1} * C_n]^t\}^{-1}. \quad (17)$$

- The extragroup or cross effects matrix, which represents the effects of the exogenous injection when it has completed a tour outside its original group without returning to it, or, in other words, when it has moved around the whole system and ended up in one of the other groups.

Thus, for the “t” groups of accounts:

$$M_3 = \{I + [(I - B_n)^{-1} * C_n] + [(I - B_n)^{-1} * C_n]^2 + \dots + [(I - B_n)^{-1} * C_n]^{t-1}\} \quad (18)$$

The decomposition of the accounting multipliers matrix can also be undertaken in an additive fashion, as follows:

$$M_a = I + (M_1 - I) + (M_2 - I) * M_1 + (M_3 - I) * M_2 * M_1 \quad (19)$$

where I represents the initial injection and the remaining components are the additional effects associated, respectively, with the three components described above (M_1 , M_2 and M_3).

¹³ $y_n = A_n * y_n + x = B_n * y_n + C_n * y_n + x \Leftrightarrow y_n - B_n * y_n = C_n * y_n + x \Leftrightarrow y_n = (I - B_n)^{-1} * C_n * y_n + (I - B_n)^{-1} * x \Leftrightarrow y_n - (I - B_n)^{-1} * C_n * y_n = (I - B_n)^{-1} * x \Leftrightarrow y_n * [I - (I - B_n)^{-1} * C_n] = (I - B_n)^{-1} * x \Leftrightarrow y_n = [I - (I - B_n)^{-1} * C_n]^{-1} * (I - B_n)^{-1} * x.$

¹⁴ For a detailed breakdown and explanation of these components, see, for example, Stone (1985, pp. 156-162); Pyatt and Round (1985, pp. 192-197); Santos (1999, pp. 67-69).

Defourny and Thorbecke (1984) introduced an alternative to the above decomposition, namely *structural path analysis*, which makes it possible to identify and quantify the links between the pole (account) of origin and the pole (account) of destination of the impulses resulting from injections. According to this technique, the accounting multiplier is considered as a “global influence”, which is decomposed into a series of “total influences”. These, in turn, are decomposed into “direct influences” multiplied by the “path multiplier”:

$$ma_{ji} = I_{(i \rightarrow j)}^G = \sum_{p=1}^n I_{(i \rightarrow j)_p}^T = \sum_{p=1}^n I_{(i \rightarrow j)_p}^D \cdot Mp \quad (20)$$

where:

ma_{ji} is the $(j,i)^{th}$ element of the M_a (accounting multipliers) matrix, which quantifies the full effect of a unitary injection x_j on the endogenous variable y_j

$I_{(i \rightarrow j)}^G$ is the *Global Influence* of the pole i on the pole j

p is the n^{th} elementary *path* – the arc linking two different poles, oriented in the direction of expenditure, located between i and j , with i being the pole of origin of the elementary *path 1* (the first) and j the pole of destination of the elementary *path n* (the last)

$I_{(i \rightarrow j)_p}^T$ is the *Total Influence* transmitted from i to j along the elementary *path p*

$I_{(i \rightarrow j)_p}^D$ is the *Direct Influence* of i on j transmitted along the elementary *path p*, which measures the magnitude of the influence transmitted between its two poles through the average expenditure propensity,

Mp is the *Multiplier* of the *path p*, or the *path Multiplier*, which expresses the extent to which the influence along the elementary *path p* is amplified through the effects of adjacent feedback circuits¹⁵:

$$Mp = \frac{\Delta p}{\Delta} \quad (21)$$

where: Δ = the determinant of matrix $|I-A_n|$ of the structure represented by the SAM

Δp = the determinant of the submatrix of $|I-A_n|$ obtained by removing the row and the column associated with the poles of the elementary *path p*

¹⁵ A circuit is a path for which the first pole (pole of origin) coincides with the last pole (pole of destination) (Defourny and Thorbecke, 1984, p. 119).

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

c) Scenario A (reduction in the rate of direct taxes paid by households to the government) – first results

Considering the methodology described above and the scenario to be studied, involving a flow from the households to the government, the (current and capital) accounts of the households were set as exogenous, as were also the financial and the rest of the world accounts, and the accounting multipliers were calculated and decomposed. From these results, the effects or influences of unitary changes (a reduction, in this case) in government current income were identified, as follows.

Table 12. Direct influences of unitary changes in the exogenous current receipts of the government

	1995	2005
Final consumption expenditure	0.48	0.53
Current transfers		
– within government, to the other institutions and to the rest of the world	0.26	0.17
– to the households	0.31	0.38
Savings	-0.05	- 0.08
Total	1.00	1.00

Source: Tables A.1.1 and A.1.2

(columns dicg, corresponding to column 18, in both Table 4 and Table 5).

Note: Social transfers in kind represent a final consumption expenditure of the government and are not considered in the current transfers. In both years, social transfers in kind were about 60% of the government's final consumption expenditure.

The average expenditure propensities, represented in Table 12, measure the direct influences of unitary changes in the exogenous current receipts of the government – for instance in the direct taxes paid by households. From this table, it can be concluded that almost a half (0.48 in 1995; 0.53 in 2005) of that unit is spent on final consumption (of which approximately 60% will be transformed into social transfers in kind) and that more than a quarter is spent in current transfers (in cash) to households. Therefore, the direct effect of a reduction in the current expenditures of households, through a reduction in the direct taxes paid by households to the government, mainly means a reduction in the final consumption expenditure and in the current receipts of the government and, consequently, in the current receipts of households (coming from the government's current transfers – in cash or in kind). However, this impact on the current receipts of the households cannot be measured with the use of the multiplier methodology, since the accounts of the households are exogenous.

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Accounting multipliers and their components, quantify a global influence on the endogenous accounts, which is quantified by the values of Tables 13 and 14, as follows.

Table 13. Global influences of unitary changes in the exogenous current receipts of the government

	1995	2005
Aggregate Demand/Supply	0.968	0.831
Production Value/Total Costs	0.883	0.766
Aggregate Factors Income		
– Labour	0.408	0.380
– Own Assets	0.149	0.126
Aggregate Income		
– of the government	1.317	1.187
– of the other Institutions (except households)	0.097	0.064
Aggregate Investment/Investment Funds		
– of the government	- 0.101	- 0.123
– of the other Institutions (except households)	0.026	0.004

Source: Tables A.1.3 and A.1.4

(columns dig, corresponding to column 18, in both Table 4 and Table 5).

Apart from the effect on the aggregate income of the government, where 1 is the initial injection (leakage, in the case of scenario A) of income, the greatest effects of unitary changes in the current receipts of the government were felt on aggregate demand (supply) and production values (total costs), reflecting the great importance of final consumption for the total current outlays of the government, as noted earlier.

These global effects generally decreased from 1995 to 2005, meaning that the impacts of such a social policy measure on the whole economy were less noticeable in 2005.

Some more conclusions about these effects can be drawn from the multipliers' components, as shown in Table 14.

Table 14. Additional group influences of unitary changes in the exogenous current receipts of the government

	1995			2005		
	intra	inter	extra	intra	inter	extra
Aggregate Demand/Supply	0	0.088	0.880	0	0.074	0.757
Production Value/Total Costs	0	0.013	0.870	0	- 0.008	0.774
Aggregate Factors Income						
– Labour	0	0.040	0.368	0	0.044	0.336
– Own Assets	0	0.034	0.115	0	0.033	0.092
Aggregate Income						
– of the government	0.284	0.006	0.027	0.151	0.004	0.032
– of the other institutions (except households)	0	0.004	0.094	0	0.003	0.061

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

	1995			2005		
	intra	inter	extra	intra	inter	extra
Aggregate Investment/ /Investment Funds						
– of the government	0	- 0.001	- 0.100	0	- 0.001	- 0.122
– of the other institutions (except households)	0	0.023	0.003	0	0.015	- 0.011

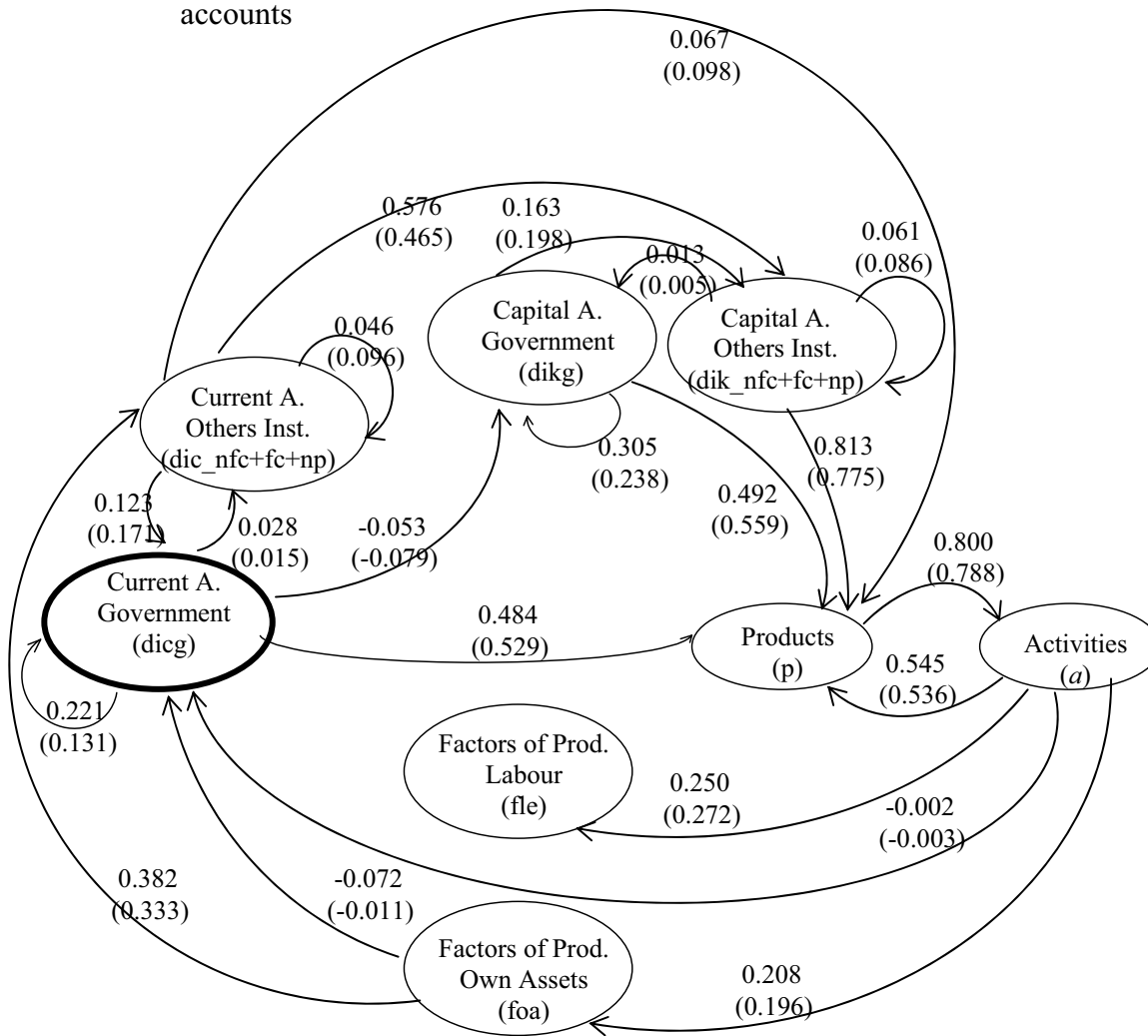
Source: Tables A.1.5 – A.1.10

(columns dicg, corresponding to column 18, in both Table 4 and Table 5).

Thus, additional intragroup effects were felt only at the level of the aggregate income of the government. There is a clear predominance of additional extragroup influences, meaning that most of the repercussions originating from the current account of the government do not return to it, with the low values of the additional intergroup influences representing those repercussions that do in fact return.

The importance of the additional extragroup influences, as well as the values of global influences, can be seen in Figure 1, which provides a schematic representation of the direct influences associated with the network of elementary paths and adjacent circuits linking endogenous accounts, with particular emphasis on the current account of the government.

Figure 1. Scenario A - Network of elementary paths and adjacent circuits linking endogenous accounts



Note: This outline represents only the *paths* whose poles of origin and destination are the endogenous accounts.

Source: Tables A.1.1 and A.1.2 (values in brackets)

Considering the importance of final consumption for the government, especially in the case of the products of group 6, relative to services¹⁶, which will be the social transfers in kind, the cells (p6, dicg) of the corresponding accounting multipliers (Tables A.1.3 and a.1.4) were decomposed through *structural path analysis*, in keeping with equation (20), with attention being centred on the accounts of that group of products and of the government. Table 15 shows the results of this analysis.

¹⁶ Services other than wholesale and retail trade services, repair services, hotel and restaurant services, transport and communication services (products 4) and financial intermediation services, real estate, renting and business services (products 5).

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table 15. Structural path analysis of the global influences on aggregate demand of unitary changes in the exogenous current receipts of the government

	1995	2005
Accounting Multiplier	0.659	0.642
<i>Path 1 (dicg → p6)</i>		
$I^T = I^D * Mp$	0.626	0.628
I^D	0.459	0.498
Mp	1.363	1.260
<i>Path 2 (dicg → dikg → p6)</i>		
$I^T = I^D * Mp$	0.000	0.000
I^D	0.000	0.000
Mp	1.969	1.655
<i>Other Paths (dicg → ... → p6)</i>		
I^T	0.033	0.014

Source: Tables A.1.3 and A.1.4.

Figure 1 helps us to see the linkages between accounts and how the impacts are widespread. Thus, *path 1* directly links the current account of the government (dicg or 18) to the account of the group of products 6 (p6 or 6) and absorbs almost all the impact, with the high values of the path multipliers showing that most of the impacts result from the adjacent feedback circuits. *Path 2* makes the same link through the capital account of the government (dikg) and has no importance in terms of total influence, although its path multiplier has a higher value than in *path 1*, showing its important role in the amplification of the effects through the adjacent feedback circuits. All the *other paths* have a significantly low importance.

The high values of the path multipliers help to underline the identified importance of the additional extragroup and intergroup influences, in the additional decomposition of the accounting multipliers.

It is important to remember that, with this methodology, apart from the unitary change in the current expenditures of households, through the reduction in the rate of direct taxes paid by households to the government (which is a direct effect), nothing more can be measured in terms of the global effects of that measure on the households' aggregate income and aggregate investment/investment funds, since their current and capital accounts were set as exogenous.

d) Scenario B (increase in the social benefits other than social transfers in kind received by households from the government) – first results

In this scenario, a flow from the government to the households will be studied. Thus, besides the financial and the rest of the world accounts, the (current and capital) accounts of the government were set as exogenous and the accounting multipliers were then calculated and decomposed.

A quantitative approach to the effects of social policy measures.**An application to Portugal, using Social Accounting Matrices.** (SSantos, July 2010)

Next, the effects or influences of unitary changes (an increase, in this case) in the households' current income were identified, as follows.

Table 16. Direct influences of unitary changes in the exogenous current receipts of households

	1995	2005
Final consumption expenditure	0.64	0.66
Current transfers		
– within households, to the other institutions and to the rest of the world	0.08	0.07
– to the government	0.18	0.20
Savings	0.01	0.07
Total	1.00	1.00

Source: Tables A.1.11 and A.1.12

(columns dich, corresponding to column 15, in both Table 4 and Table 5).

In this scenario, Table 16 shows, through the average expenditure propensities, the direct influences of unitary changes in the exogenous current receipts of households – for instance in the social benefits paid by the government. Thus, more than a half (0.64 in 1995; 0.66 in 2005) of that unit is spent in final consumption and a significant part of the remainder represents current transfers to the government. Therefore, the direct effect of an increase in the current expenditures of the government, through an increase in the social benefits paid by the government to households, mainly means an increase in the final consumption expenditure and in the current receipts of households and, consequently, in the current receipts of the government (coming from households' current transfers). Just as was seen in scenario A, this impact on the current receipts of the government cannot be measured using the multiplier methodology, since the accounts of the government are exogenous.

Tables 17 and 18 quantify and decompose the global influence of such changes on the endogenous accounts.

Table 17. Global influences of unitary changes in the exogenous current receipts of households

	1995	2005
Aggregate Demand/Supply	2.897	2.467
Production Value/Total Costs	2.294	1.926
Aggregate Factors Income		
– Labour	0.512	0.472
– Own Assets	0.492	0.403
Aggregate Income		
– of the households	1.875	1.726
– of the other institutions (except government)	0.296	0.233

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

	1995	2005
Aggregate Investment/Investment Funds		
– of the households	0.212	0.139
– of the other institutions (except government)	0.185	0.132

Source: Tables A.1.13 and A.1.14

(columns dich, corresponding to column 15, in both Table 4 and Table 5).

In this case, apart from the effect on the aggregate income of households, where 1 is the initial injection of income, the greatest effects (of unitary changes in the current receipts of households) were felt in a similar way to scenario A, but now more than twice as intensely at the level of the aggregate demand (supply) and production values (total costs), reflecting the great importance of final consumption for the total current outlays of the households, as seen in Table 13.

In this scenario, a general decrease in the global effects can also be noted from 1995 to 2005. This is shown in Table 18, where, at all levels of impact, the additional extragroup influences are dominant; the intergroup effects are almost insignificant and the intragroup effects almost null. Therefore, as was seen in scenario A, most of the repercussions originating from the current account of households do not return to it.

Table 18. Additional group influences of unitary changes in the exogenous current receipts of households

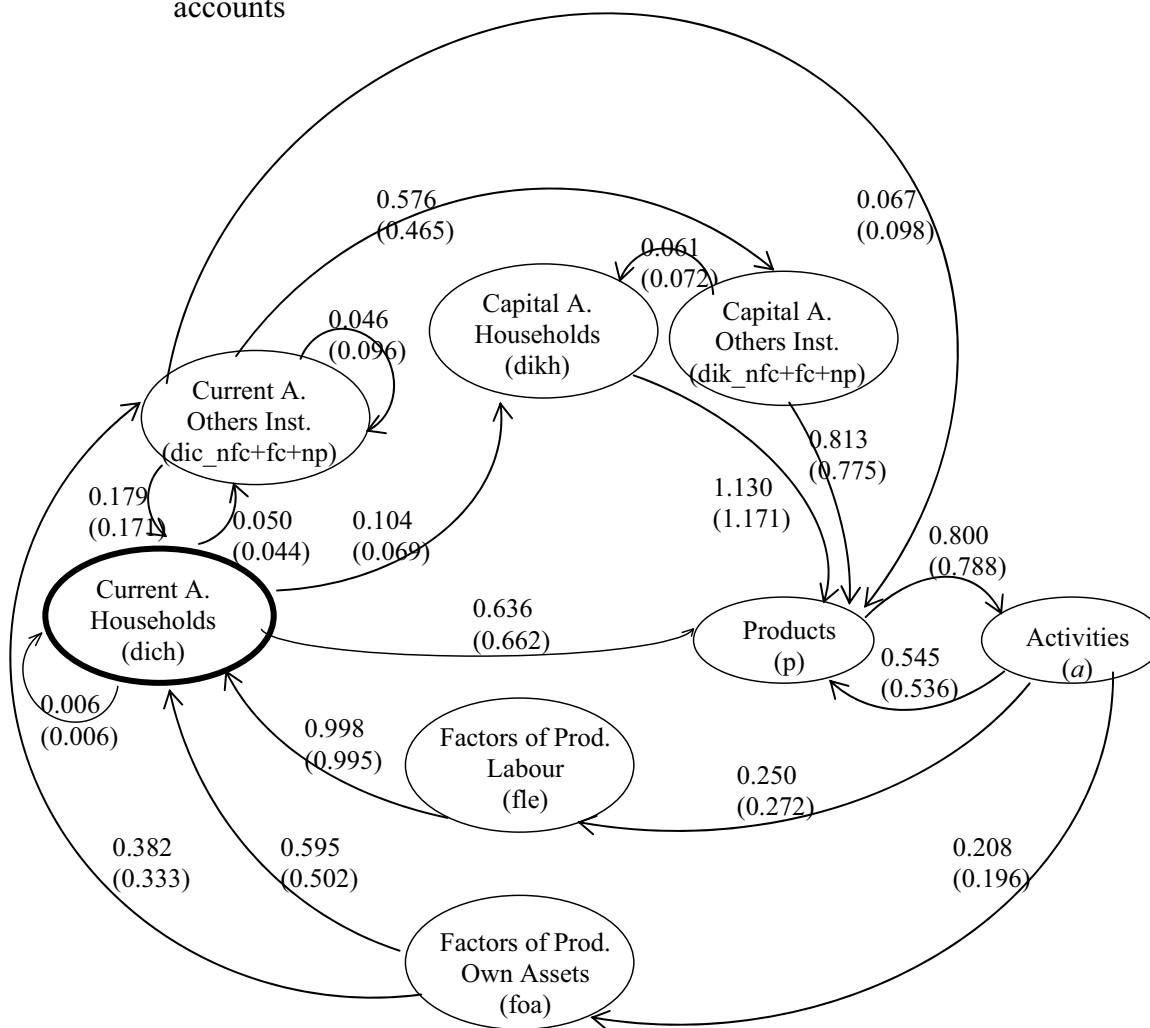
	1995			2005		
	intra	inter	extra	intra	inter	extra
Aggregate Demand/Supply	0	0.462	2.435	0	0.387	2.079
Production Value/Total Costs	0	0.321	1.973	0	0.248	1.678
Aggregate Factors Income						
– Labour	0	0.090	0.423	0	0.080	0.392
– Own Assets	0	0.093	0.398	0	0.078	0.325
Aggregate Income						
– of the households	0.006	0.164	0.705	0.006	0.128	0.592
– of the other institutions (except government)	0	0.053	0.243	0	0.039	0.194
Aggregate Investment/ /Investment Funds						
– of the households	0	0.031	0.181	0	0.020	0.119
– of the other institutions (except government)	0	0.045	0.140	0	0.031	0.101

Source: Tables A.1.15-A.1.20

(columns dich, corresponding to column 15, in both Table 4 and Table 5)

Structural path analysis helps us to understand these effects, through the schematic representation of the direct influences shown in Figure 2, which represents the network of elementary paths and adjacent circuits linking endogenous accounts, with special emphasis being placed on the current account of households.

Figure 2. Scenario B - Network of elementary paths and adjacent circuits linking endogenous accounts



Note: This outline represents only the *paths* whose poles of origin and destination are the endogenous accounts.

Source: Tables A.1.13. and A.1.14. (values in brackets)

Table 16 shows that the direct influences of unitary changes in the exogenous current receipts of households were centred mainly on their final consumption, thus underlining the importance of group 2, relating to manufactured products and energy products (as well as products from mining and quarrying). The cells (dich, p2) of the corresponding accounting multipliers were decomposed through *structural path analysis*, in keeping with equation (20), paying special attention to the accounts of that group of products and of households. The results are shown in Table 19.

Table 19. Structural path analysis of the global influences on aggregate demand of unitary changes in the exogenous current receipts of households

	1995	2005
Accounting Multiplier	1.521	1.187
<i>Path 1 (dich → p2)</i>		
$I^T = I^D * Mp$	1.086	0.894
I^D	0.366	0.342
Mp	2.967	2.611
<i>Path 2 (dich → dikh → p2)</i>		
$I^T = I^D * Mp$	0.047	0.020
I^D	0.016	0.008
Mp	2.978	2.624
<i>Other Paths (dich → ... → p2)</i>		
I^T	0.388	0.273

Source: Tables A.1.13 and A.1.14.

The studied *paths* can be identified in Figure 2, in which the other linkages between endogenous accounts can also be identified. Almost all of the global influence is centred on *path 1*, which directly links the current account of the households (dich) to the account of products 2 (p2); *path 2*, which makes the same link through the capital account of the households, has an almost insignificant (global) influence, especially if compared with the *other paths*. Mention should be made here of the values of the *path multipliers*, which, besides confirming the already identified importance of the additional extragroup and intergroup influences in the additional decomposition of the accounting multipliers, show the important role played by those paths in the amplification of these effects through the adjacent feedback circuits.

As in scenario A, it is important to bear in mind that, with this methodology, apart from the unitary change in the current expenditures of the government, through the increase in the social benefits paid by the government to households (which is a direct effect), nothing more can be measured in terms of the global effects of that measure on the government's aggregate income and aggregate investment/investment funds, since their current and capital accounts were set as exogenous.

3.2. The SAM-based linear model

This model was first developed by the author of this paper in Santos (2008) and Santos (2009), with the same basic structure but with some more details, especially in the latter study, associated with a more disaggregated numerical version, which was not possible here due to the unavailability of data for 2005. However, the author believes that this will not affect the purpose of understanding its results and of comparing them with those of the alternative methodology developed in the previous section (3.1).

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

As can be confirmed by comparing the structure of this model with the structure of the underlying database, or numerical version, presented in section 2, all the transactions of the national accounts are identified, although a significant part are still considered as exogenous. Parameters were calculated from the data used for the construction of the numerical versions, from which the exogenous variables were also identified.

The GAMS (General Algebraic Modelling System) software was used to run this model – firstly to calibrate it and then to perform the experiments associated with the described scenarios.

In this version of the model, it will be assumed that all domestically produced output is market output, and therefore any output produced for own final use and other non-market output will be considered as non-existent – the author hopes that this assumption can be eliminated in a future version of this model. On the other hand, since there is sufficient production capability available in the economy and imports are exogenous, domestic output will respond exclusively to aggregate demand.

Table 20. The formalized transactions (cells) in the basic SAM

	p	a	f	dic	dik	dif	rw	total
p – products	t_{pp}	t_{pa}	0	$t_{p\ dic}$	$t_{p\ dik}$	0	$t_{p\ rw}$	t_p
a – activities	t_{ap}	0	0	0	0	0	0	t_a
f – factors of production	0	t_{fa}	0	0	0	0	$t_{f\ rw}$	t_f
dic – current account of the (domestic) institutions	$t_{dic\ p}$	$t_{dic\ a}$	$t_{dic\ f}$	$t_{dic\ dic}$	0	0	$t_{dic\ rw}$	t_{dic}
dik – capital account of the (domestic) institutions	0	0	0	$t_{dik\ dic}$	$t_{dik\ dik}$	$t_{dik\ dif}$	$t_{dik\ rw}$	t_{dik}
dif – financial account of the (domestic) institutions	0	0	0	0	0	$t_{dif\ dif}$	$t_{dif\ rw}$	t_{dif}
rw – rest of the world	$t_{rw\ p}$	$t_{rw\ a}$	$t_{rw\ f}$	$t_{rw\ dic}$	$t_{rw\ dik}$	$t_{rw\ dif}$		t_{rw}
total	t_p	t_a	t_f	t_{dic}	t_{dik}	t_{dif}	t_{rw}	

cell	Equations (or exogenous variables) See “conventions and declarations” in the Appendix (A.2.3.)	Eq.nº
Compensation of factors of production		
t_{fa}	Gross Added Value $GAV_{f,a} = db_{f,a} * GAV_a$	(22)
	$GAV_a = \beta_a * VP_a$	(23)
	$GAV_f = \sum_a GAV_{f,a}$	(24)
$t_{f\ rw}$	Compensation of Factors (Received) from the rest of the world $CFR_{f,rw}$	---
$t_{dic\ f}$	Gross National Income $GNI_{dic,f} = cf_{dic,f} * GNI_f$	(25)

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

cell	Equations (or exogenous variables) See “conventions and declarations” in the Appendix (A.2.3.)	Eq.nº
	$GNI_f = GAV_f + CFR_{f,rw} - CFS_{rw,f}$	(26)
	$GNI_{dic} = \sum_f GNI_{dic,f}$	(27)
	$GNI = \sum_{dic} GNI_{dic}$	(28)
t_{rwf}	Compensation of Factors (Sent) to the rest of the world $CFS_{rw,f}$	---
Production		
t_{ap}	$VP_p = AD_p - TMT_p - NTP_p - IM_p$	(29)
	$VP_{a,p} = VP_p * \alpha_{a,p}$	(30)
	$VP_a = \sum_p VP_{a,p}$	(31)
External Trade		
t_{prw}	Exports $EX_{p,rw}$	---
t_{rwp} (part)	Imports $IM_{rw,p}$	---
Net indirect taxes or net taxes on production and imports		
Net Taxes on Production (of Activities)		
t_{dca}	$NTA_{dic,a} = ntag_{dic,a} * NTAA_a$	(32)
	$NTA_{dic} = \sum_a NTA_{dic,a}$	(33)
	$NTA_a = \sum_{dic} NTA_{dic,a}$	(34)
t_{rwa}	$NTA_{rw,a} = ntar_{rw,a} * NTAA_a$	(35)
	$NTA_{rw} = \sum_a NTA_{rw,a}$	(36)
	$NTA = \sum_{dic} NTA_{dic} + NTA_{rw}$	(37)
Net Taxes on Products		
t_{dcp}	$NTP_{dic,p} = ntpg_{dic,p} * NTP_p$	(38)
	$NTP_{dic} = \sum_p NTP_{dic,p}$	(39)
t_{rwp} (part)	$NTP_{rw,p} = ntp_{rw,p} * NTP_p$	(40)
	$NTP_{rw} = \sum_p NTP_{rw,p}$	(41)
	$NTP_p = tp_p * DT_p$	(42)
	$NTP = \sum_{dic} NTP_{dic} + NTP_{rw}$	(43)
Trade and Transport Margins		
t_{pp}	$TM_{p,p} = tmr_{p,p} * DT_p$	(44)
	$TMP_p = \sum_p TM_{p,p}$ (column sum)	(45)
Domestic Trade		
	$DTmp_p = VIC_p + FC_p + GCF_p$	(46)
	$DT_p = DTmp_p - TMP_p - NTP_p$	(47)
t_{nz}	(Value of) Intermediate Consumption	

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

cell	Equations (or exogenous variables) See “conventions and declarations” in the Appendix (A.2.3.)	Eq.nº
	$VIC_a = \gamma_a * VP_a$	(48)
	$VIC_{p,a} = icp_{p,a} * VIC_a$	(49)
	$VIC_p = \sum_a VIC_{p,a}$	(50)
	$VIC = \sum_p \sum_a VIC_{p,a}$	(51)
$t_{p,dic}$	Final Consumption	
	$FC_{dic} = apc_{dic} * DI_{dic}$	(52)
	$FC_{p,dic} = fcs_{p,dic} * FC_{dic}$	(53)
$t_{p,dik}$	Gross Capital Formation	
	$GCF_{p,dik} = gfcf_{p,dik} * P51_{dik} + P52_p * chin_{p,dik} + adv_{p,dik} * P53_{dik}$	(54)
	$GCF_{dik} = \sum_p GCF_{p,dik}$	(55)
	$P52_p = chin_{p,dik} * AS_p$	(56)
	$P53_{dik} = adv_{dik} * S_{dik}$	(57)
Current Transfers		
$t_{dic,dic}$	$CT_{dic,dic} = d5s_{dic,dic} * D5_{dic} + d61s_{dic,dic} * D61_{dic} + d62s_{dic,dic} * D62P_{dic} +$ $+ d7_{dic,dic} * D7P_{dic} + D8_{dic,dic}$	(58)
	$D5_{dic} = ti_{dic} * AI_{dic}$	(59)
	$D61_{dic} = sc_{dic} * GNI_{dic}$	(60)
	$CTR_{dic} = \sum_{dic} CT_{dic,dic}$	(61)
	$CTP_{dic} = \sum_{dic} CT_{dic,dic}$	(62)
$t_{dic,rw}$	$CT_{dic,rw} = D5RW_{dic,rw} + D61RW_{dic,rw} + D62RW_{dic,rw} + D7RW_{dic,rw}$	(63)
$t_{rw,dic}$	$CT_{rw,dic} = d5rws_{rw,dic} * D5_{dic} + d61rws_{rw,dic} * D61_{dic} + d62rws_{rw,dic} * D62P_{dic}$ $+ d7rws_{rw,dic} * D7P_{dic}$	(64)
	$FC_{rw,dic} = fcs_{rw,dic} * FC_{dic}$	(65)
Capital Transfers		
$t_{dik,dik}$	$KT_{dik,dik} = d91_{dik,dik} * D91P_{dik} + D92R_{dik} * d92_{dik,dik} + D99R_{dik} * d99_{dik,dik}$	(66)
	$D91P_{dik} = tk_{dik} * D99R_{dik}$	(67)
	$D92R_{dik} = cgfcf_{dik} * P51_{dik}$	(68)
	$KTR_{dik} = \sum_{dik} KT_{dik,dik}$	(69)
	$KTP_{dik} = \sum_{dik} KT_{dik,dik}$	(70)
$t_{dik,rw}$	$KT_{dik,rw} = D92R_{dik} * d92_{rw,dik} + D99R_{dik} * d99_{rw,dik}$	(71)
$t_{rw,dik}$	$KT_{rw,dik} = D92P_{rw,dik} + D99P_{rw,dik} + K2_{rw,dik}$	(72)
Gross Saving		
$t_{dik,dic}$	$S_{dik,dic} = si_{dik,dic} * S_{dic}$	(73)
	$S_{dik} = \sum_{dik} S_{dik,dic}$	(74)
	$S_{dic} = (1 - apc_{dic}) * DI_{dic}$	(75)

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

cell	Equations (or exogenous variables) See “conventions and declarations” in the Appendix (A.2.3.)	Eq.nº
	$S = \sum_{dic} S_{dic} = \sum_{dik} S_{dik}$	(76)
Financial Transactions		
$t_{dif,dif}$	FT_{dif}	---
$t_{dif,rw}$	$FTRW_{dif,rw} = FT_{rw,dif} + NLB_{dif}$	(77)
$t_{rw,dif}$	$FT_{rw,dif}$	---
Net borrowing/lending		
$t_{dik,dif}$	$NLB_{dik,dif} = AINV_{dik} - (S_{dik} + KTR_{dik} + KT_{dik,rw})$	(78)
	$NLB_{dif} = \sum_{dik} NLB_{dik,dif}$	(79)
Row totals		
t_p	Aggregate Demand $AD_p = VIC_p + FC_p + GCF_p + EX_{p,rw}$	(80)
t_a	Production Value $VPT_a = \sum_p VP_{ap}$	(81)
t_f	Aggregate Factors Income (Received) $AFIR_f = GAV_f + CFR_{f,rw}$	(82)
t_{dic}	Aggregate Income $AI_{dic} = GNI_{dic} + NTA_{dic} + NTP_{dic} + CTR_{dic} + CT_{dic,rw}$	(83)
t_{dik}	Investment Funds $INVF_{dik} = S_{dik} + KTR_{dik} + NLB_{dik,dif} + KT_{dik,rw}$	(84)
t_{dif}	Total Financial Transactions (Received) $TFTR_{dif} = FT_{dif,dif} + FTRW_{dif,rw}$	(85)
t_{rw}	Value of Transactions to the Rest of the World (Paid) $TVRWP_{rw} = CFS_{rw,f} + \sum_a NTA_{rw,a} + \sum_p (NTP_{rw,p} + IM_{rw,p}) + \sum_{dic} (CT_{rw,dic} + FC_{rw,dic}) + \sum_{dik} KT_{rw,dik} + FT_{rw,dif}$	(86)
Column totals		
t_p	Aggregate Supply $AS_p = VP_p + TMT_p + NTP_p + IM_{rw,p}$	(87)
t_a	Total Costs $VCT_a = GAV_a + VIC_a + NTA_a + NTA_{rw,a}$	(88)
t_f	Aggregate Factors Income (Paid) $AFIP_f = GNI_f + CFS_{rw,f}$	(89)
t_{dic}	Aggregate Income $AIP_{dic} = FC_{dic} + CTP_{dic} + S_{dic} + (CT_{rw,dic} + FC_{rw,dic})$	(90)
t_{dik}	Aggregate Investment $AINV_{dik} = GCF_{dik} + KTP_{dik} + KT_{rw,dik}$	(91)
t_{dif}	Total Financial Transactions (Paid) $TFTP_{dif} = NLB_{dif} + FT_{dif,dif} + FT_{rw,dif}$	(92)
t_{rw}	Value of Transactions from the Rest of the World (Received) $TVRWR_{rw} = CFR_{f,rw} + \sum_p EX_{p,rw} + \sum_{dic} CT_{dic,rw} + \sum_{dik} KT_{dik,rw} + FTRW_{dif,rw}$	(93)

Sources: Santos (2008a and 2009a)

3.3. Accounting multipliers and the SAM-based linear model

Comparing the two SAM-based modelling methodologies described above, besides the common assumptions referred to at the beginning of Section 3, the existence of many fixed parameters in the linear model and fixed average expenditure propensities in the multipliers can be considered to be amongst its strongest and most limitative assumptions.

Special mention should be made of the financial transactions and of the transactions with the rest of the world: all of these are considered as exogenous in the accounting multipliers and almost all of them are considered as exogenous in the SAM-based linear model.

On the other hand, using the methodology of multipliers, shocks can only be performed on matrix X (transactions between exogenous and endogenous accounts - injections from first into second) and therefore the account of origin of the flow to be studied has to be set as exogenous.

This means that, at the level of that account, all that can be measured is the direct influence of that shock. The global effect and the corresponding intra, inter and extragroup influences resulting from the impact of the same shock on the destination are not considered. This does not happen with the linear model, with which shocks can be performed using specific parameters (and exogenous variables) within specific SAM cells and not within SAM accounts. Therefore, more impacts can be measured with the linear model.

From the reading of the first results of the multipliers and its components, it is easy to gain an idea of the path of the impact of a unitary change, which is very useful in analysing and understanding the scenarios that result from the experiments.

4. Quantifying effects of social policy measures using macroeconomic aggregates and balances

Section 2 identified two scenarios associated with two experiments, using the two SAM algebraic versions described above. The results of those experiments will be measured at the level of macroeconomic aggregates and balances, which can be calculated either from the cells of the (recalculated) SAMs or by extending the linear model with the equations of Appendix A.2.2 – the latter form of calculation can also be seen as the methodology underlying the former.

In these experiments, shocks will be performed on the current transfers within domestic institutions (see cell (dic,dic) in Tables 1 and 2); more precisely, on the current transfers between government and households (see cell (18, 15 and 15, 18) in Tables 4 and 5).

Scenario A admits a reduction of 1% in the rate of direct taxes paid by households to the government, i.e. from 0.0645 to 0.0545, in 1995; from 0.0597 to 0.0497, in 2005. In absolute

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

terms, households paid/the government received less: $764.13 \cdot 10^6 \text{€}$ in 1995 and $1385.45 \cdot 10^6 \text{€}$ in 2005.

Thus, in the case of the multipliers, using the methodology described in Section 3.1 a) and c), in each year, the SAM cell (18, 15), in the X matrix, was recalculated, as well as the corresponding x vector. From equation (7), y_n was recalculated, using the accounting multipliers matrix (M_a) referred to in Section 3.1.c) (Tables A.1.3 and A.1.4). Besides the R matrix, which did not change, the remaining part of the SAM, i.e. the N and L matrices, were recalculated from equations (5) and (10), using the average expenditure propensities matrices (A_n and A_l) referred to in Section 3.1.c) (Tables A.1.1 and A.1.2).

In the case of the linear model, in equation (59), ti_{dich} was changed and the model was run subsequently.

With a reduction in the rate of direct taxes paid by households to the government, the receipts of the former will increase (due to their reduced expenditure) and those of the latter will decrease. Speaking about income in general and current income in particular, as seen in Section 2.1, we are dealing with an item that is one of the main sources of government income (current transfers from households) and yet is not very important in the case of household budgets. On the other hand, as seen in Section 3.1 c), the direct effect of changes in the government's (current) income are felt mainly at the level of final consumption (of which approximately 60% will be transformed into social transfers in kind to households and more than a quarter is expended in current transfers (in cash) to households). However, the global repercussions of this (direct) effect cannot be calculated using the methodology of multipliers, because the households' (current and capital) accounts had to be set as exogenous, but they can be calculated using the linear model, despite its (many) exogenous parameters and variables.

Tables 21 and 22 summarise the impacts at the level of macroeconomic aggregates and balances.

Table 21. Impacts of a reduction (of 1%) in the rate of direct taxes paid by households to the government on macroeconomic aggregates in 1995 and 2005.

Macroeconomic Aggregates	1995			2005		
	10^6€ (before the experiment)	percentage change		10^6€ (before the experiment)	percentage change	
		L.Model	Multipliers		L.Model	Multipliers
Gross domestic product at market prices (GDP)	80 827	- 1.34	- 0.55	149 123	- 2.13	- 0.49
Gross national income (at market prices) (GNIMP)	80 479	- 1.35	- 0.54	146 224	- 2.17	- 0.48

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Macroeconomic Aggregates		1995			2005		
		10 ⁶ € (before the experiment)	percentage change		10 ⁶ € (before the experiment)	percentage change	
			L.Model	Multipliers		L.Model	Multipliers
Gross Disposable Income (DI), of:	Households	57 857	0.13	0.11	103 239	- 0.48	0.14
	Non-financial corporations	9 342	- 1.15	- 0.28	9 884	- 2.40	- 0,25
	Financial corporations	1 558	- 2.37	- 0.17	4 072	- 3.37	- 0.18
	General government	13 371	- 7.57	- 3.24	27 199	- 8.39	- 2.72
	Non-profit institutions serving households	1 388	- 0.10	- 2.04	3 312	- 0.54	- 0.82
	Total	83 517	- 1.30	- 0.51	147 706	- 2.14	- 0.44

Source: Tables 4 and 5 and other data provided by Statistics Portugal (*INE*) (Portuguese National Accounts) for the calculation of the parameters used in the model defined in Section 3.2 (from which the values shown in this table were derived).

Therefore, the negative percentage changes felt at the level of all the macroeconomic aggregates represented in Table 21, except the households' DI, confirm the importance of direct taxes for the government's budget and the direct and global influence caused by a change in their value. Mention should also be made of the high values of the changes taking place in the government's DI and in the other institutions' DI, except that of households, as well as in the GDP and GNIMP. This also confirms the importance of the additional extragroup and intergroup influences, identified in Section 3.1c) with the decomposition of the accounting multipliers and the *structural path analysis* that was carried out. The higher values in the percentage changes calculated from the linear model are certainly explained by the above-mentioned effects, quantified by this analysis and not by the multipliers, due to the fact that the accounts of the households were set as exogenous. We are thinking here about the effects of the increase on the receipts of households, resulting from the reduction in their expenditures, and of the decrease in current transfers (in cash and in kind) from the government, (directly) resulting from the reduction in the latter's receipts. All of these aspects can be better understood with an analysis of the changes in the budgets of the institutions.

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table 22. Impacts of a reduction (of 1%) in the rate of direct taxes paid by households to the government on macroeconomic balances in 1995 and 2005.

Macroeconomic balances		1995			2005		
		10 ⁶ € (before the experiment)	percentage change		10 ⁶ € (before the experiment)	percentage change	
			L.Model	Multipliers		L.Model	Multipliers
Current balance or <u>Gross Saving of:</u>	Households	7 952	0.13	0.00	9 544	- 0.48	0.00
	Non-financial corporations	9 342	- 1.15	- 0.28	9 884	- 2.40	- 0.25
	Financial corporations	1 558	- 2.37	- 0.17	4 072	- 3.37	- 0.18
	General government	- 1661	- 7.57	- 3.24	- 4 775	- 8.39	- 2.72
	NPISHs	100	- 0.10	- 2.04	300	- 0.54	- 0.82
	Total (S)	17 291	- 0.05	0.13	19 025	- 0.11	0.50
Capital balance of:	Households	- 3 929	- 0.02	- 0.00	- 4 818	- 0.01	0.00
	Non-financial corporations	- 9292	- 0.03	- 0.29	- 18 642	- 0.02	- 0.13
	Financial corporations	- 1 271	- 0.01	- 0.20	- 3 391	- 0.03	- 0.21
	General government	- 2 761	0.00	1.95	- 4 248	- 0.02	3.06
	NPISHs	- 77	- 0.09	- 2.65	- 260	- 0.17	- 0.95
	Total	- 17 332	- 0.02	0.13	- 31 359	- 0.02	0.31
Total balance or Net <u>Lending(+)/Borrowing(-)</u> of:	Households	4 023	0.27	0.00	4 725	- 0.95	0.00
	Non-financial corporations	49	- 211.13	0.00	- 8 758	2.68	0.00
	Financial corporations	287	- 12.83	0.00	681	- 19.99	0.00
	General government	- 4 423	- 2.85	0.00	- 9 023	- 4.45	0.00
	NPISHs	23	- 0.17	0.00	41	- 2.89	0.00
	Total (NLB)	- 40	11.18	0.00	- 12 335	0.12	0.00

Source: see Table 21.

Thus, in the multiplier columns, the zero percentage changes in the budget balances of the households and the total balances of all the institutions result from the fact that the (current and capital) accounts of the households and the financial accounts are considered exogenous. The differences between these values and those that result from the use of the linear model undeniably have the same explanation as the one that is given for the differences between the macroeconomic aggregates.

Therefore, a social policy measure, such as the one studied in this scenario, which is designed to immediately improve the financial conditions of people, and whose first (direct) impact produces this effect, also has impacts at other levels and on the economy as a whole that, in the end,

worsen the situation. Nonetheless, it may be a plausible contribution for explaining the evolution of the Portuguese economy and its net borrowing.

Scenario B admits an increase of 1% in the social benefits other than social transfers in kind received by households from the government, i.e. a rise from 9485 to $9580 \cdot 10^6$ € in 1995; from 22121 to $22342 \cdot 10^6$ € in 2005. In other words, households received/the government paid more: $94.85 \cdot 10^6$ € in 1995 and $221.21 \cdot 10^6$ € in 2005).

In this case, in each year, the calculations made using the multiplier methodology followed the procedure outlined in Sections 3.1 a) and d), changing the cell (15, 18), in the X matrix of the SAM and recalculating the corresponding x vector. With equations (7), (5) and (10) and using the accounting multipliers matrix (M_a) (Tables A.1.13 and A.1.14) and the average expenditure propensities matrices (A_n and A_l) referred to in Section 3.1.d) (Tables A.1.11 and A.1.12), the y_n vector and the N and L matrices were respectively recalculated.

In the case of the linear model, after the change of $D62P_{dicg}$ in equation (58). this scenario was subsequently run through the model.

With the increase in the social benefits other than social transfers in kind received by households from the government, the receipts of the former will increase and those of the latter will decrease. Considering income in general and current income in particular, from what was seen in Section 2.1, we are dealing with an item that is one of the main sources of government expenditure (current transfers to households) and yet is not very important in the households' budget. In Section 3.1 d) the direct and global effects of changes in households' (current) income were analysed, in which the significant role of final consumption was identified, as well as its consequent impact on aggregate demand/supply and production value/total costs – the columns of percentage changes with multipliers in Tables 23 and 24, reflect and confirm this analysis. However, neither the global repercussions of the direct effect of changes in households' (current) income on their current transfers to the government (Table 16) nor the direct and global effects of the decrease in the government's income that result from this social policy measure are covered by the multiplier methodology. From the point of view of the author of this paper, this is the explanation for the negative values of the percentage changes calculated with the linear model, which have exogenous parameters and variables instead of accounts and can explain these effects, at least in part.

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table 23. Impacts of an increase (of 1%) in the social benefits other than social transfers in kind received by households from the government on macroeconomic aggregates in 1995 and 2005.

Macroeconomic Aggregates		1995			2005		
		10 ⁶ € (before the experiment)	percentage change		10 ⁶ € (before the experiment)	percentage change	
			L.Model	Multipliers		L.Model	Multipliers
Gross domestic product at market prices (GDP)		80 827	- 0.16	0.14	149 123	- 0.34	0.15
Gross national income (at market prices) (GNIMP)		80 479	- 0.16	0.13	146 224	- 0.34	0.14
Gross Disposable Income (DI), of:	Households	57 857	0.01	0.23	103 239	- 0.08	0.27
	Non-financial corporations	9 342	- 0.14	0.14	9 884	- 0.38	0.16
	Financial corporations	1 558	- 0.28	0.18	4 072	- 0.54	0.19
	General government	13 371	- 0.89	- 0.36	27 199	- 1.30	- 0.39
	Non-profit institutions serving households	1 388	- 0.01	0.08	3 312	- 0.09	0.15
	Total	83 517	- 0.15	0.12	147 706	- 0.34	0.14

Source: see Table 21.

Table 24. Impacts of an increase (of 1%) in the social benefits other than social transfers in kind received by households from the government the macroeconomic balances in 1995 and 2005.

Macroeconomic balances		1995			2005		
		10 ⁶ € (before the experiment)	percentage change		10 ⁶ € (before the experiment)	percentage change	
			L.Model	Multipliers		L.Model	Multipliers
Current balance or Gross Saving of:	Households	7 952	0.01	0.23	9 544	- 0.08	0.28
	Non-financial corporations	9 342	- 0.14	0.14	9 884	- 0.38	0.16
	Financial corporations	1 558	- 0,28	0.18	4 072	- 0.54	0.19
	General government	- 1661	- 0.89	0.00	- 4 775	- 1.30	0.00
	NPISHs	100	- 0.01	0.08	300	- 0.09	0.15
	Total (S)	17 291	- 0.01	0.20	19 025	- 0.03	0.26

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Macroeconomic balances		1995			2005		
		10 ⁶ € (before the experiment)	percentage change		10 ⁶ € (before the experiment)	percentage change	
			L.Model	Multipliers		L.Model	Multipliers
Capital balance of:	Households	- 3 929	0.00	0.47	- 4 818	0.00	0.55
	Non-financial corporations	- 9292	0.00	0.14	- 18 642	0.00	0.08
	Financial corporations	- 1 271	0.00	0.22	- 3 391	- 0.01	0.23
	General government	- 2 761	- 0.07	0.00	- 4 248	- 0.04	0.00
	NPISHs	- 77	0.00	0.10	- 260	0.00	0.17
	Total	- 17 332	0.00	0.20	- 31 359	0.00	0.16
Total balance or Net Lending(+)/Borrowing(-) of:	Households	4 023	0.03	0.00	4 725	- 0.17	0.00
	Non-financial corporations	49	- 25.21	0.00	- 8 758	0.42	0.00
	Financial corporations	287	- 1,53	0.00	681	- 3.23	0.00
	General government	- 4 423	- 0.34	0.00	- 9 023	- 0.70	0.00
	NPISHs	23	0.19	0.00	41	- 0.43	0.00
	Total (NLB)	- 40	2.03	0.00	- 12 335	0.03	0.00

Source: see Table 21.

Therefore, the low values of the percentage changes of the multipliers highlight the low importance of social benefits other than social transfers in kind in the households' budget and the non-consideration of their importance in the government's budget. Thus, the consideration of the importance of social benefits other than social transfers in kind in the government's budget by the linear model leads to percentage changes that compound those of the multipliers and worsen the situation of the economy in general and of households in particular.

The low percentage changes obtained with both methodologies are also explained by the low absolute changes associated with this measure (households received/the government paid more: $94.85 \cdot 10^6 \text{€}$ in 1995 and $221.21 \cdot 10^6 \text{€}$ in 2005), especially if compared with those of scenario A (households paid/the government received less: $764.13 \cdot 10^6 \text{€}$ in 1995 and $1385.45 \cdot 10^6 \text{€}$ in 2005).

5. Concluding Remarks

Constructed from the SNA, the numerical version of the SAM provided us not only with consistent databases for use in the SAM-based models, but also snapshots of the measured reality, from which different social policy measures and their corresponding scenarios could be identified.

From the snapshots of the two years that were studied, it was possible to see that in the functional distribution of income, labour (employees, essentially with lower and medium levels of education) accounted for more than a half, whereas in the institutional distribution of income, households accounted for more than three quarters, with those households where wages and salaries were the main source of income accounting for more than a half. Consequently, households accounted for most of the disposable income (almost 70%), which was almost completely spent on final consumption.

Due to the increased share of the final consumption expenditure of institutions, savings had a relatively lower share in the use of disposable income (20.7% in 1995 and 12.9% in 2005).

Despite the absence of any available information by groups of households, a significant (nominal and real) improvement was noted in *per capita* disposable income and final consumption (expenditure and actual) over the eleven years that were studied. The effects of social policy measures, which were certainly adopted for that improvement of the financial situation of people and therefore of households, were tested with flows of money directly involving government and households – direct taxes and social benefits.

Direct taxes and social benefits are current transfers between households and the government. They are, respectively, the main sources of income and expenditure of the latter, but they are not of great importance in the global budget of households, where the compensation of factors, mainly of labour, was the predominant concern. However, those flows were certainly significant in the budgets of some groups of households, in view of their levels of disposable income. Unfortunately, we have no information available about this, but its global impact can and should be studied.

Two alternative methodologies (SAM-based models or algebraic versions of the SAM) were used to study two scenarios resulting from the application of two social policy measures: scenario A, involving a decrease in direct taxes, in which households paid/the government received less: $764.13 \cdot 10^6 \text{€}$ in 1995 and $1385.45 \cdot 10^6 \text{€}$ in 2005; and scenario B, involving an increase in social benefits, in which households received/the government paid more: $94.85 \cdot 10^6 \text{€}$ in 1995 and $221.21 \cdot 10^6 \text{€}$ in 2005.

Although they have some common assumptions, the methodologies that were used – accounting multipliers and the linear model – are different, mainly because one (the accounting multipliers) works with endogenous and exogenous accounts (and fixed average expenditure propensities) while the other (the linear model) works with endogenous and exogenous parameters and variables. This means that, despite the limitations of the fixed parameters and variables of the latter model when shocks are introduced into certain flows of money, it can measure (at least in

part) effects that are not measured by the former and this can lead to different conclusions, which may be closer to the actual reality.

This seems to be empirically confirmed by the performance of the two experiments using those two methodologies and the measurement of their impacts (in terms of percentage changes) on the macroeconomic aggregates and balances. The interpretation of these results suggests that all these impacts were negative when measured with the linear model, whereas, when measured with multipliers, they were negative in scenario A and positive in scenario B. It would therefore seem that such differences are related to the impacts that were not measured with the accounting multipliers. Therefore, in scenario A, at the level of households, the methodology based on the use of multipliers only measured the above-mentioned reduction in the current transfers from households to the government and the consequent increase in its (aggregate and disposable) income, which does not have too much importance in terms of what is left out, because of the relative unimportance of direct taxes in the households' budget. This also explains the differences to be noted in relation to the results of the linear model, which were generally more negative. In turn, in scenario B, at the level of the government, the methodology based on the use of multipliers only measures the above-mentioned increase in current transfers from the government to households and the consequent decrease in the government's (aggregate and disposable) income, which is very important in terms of what is left out, because of the importance of social benefits in the government's budget. Again, this also explains the differences to be noted in comparison with the results of the linear model, which were generally negative.

With both methodologies, the impacts were lower in scenario B due to the lower absolute level of the shock that was introduced into the system.

All these results, and particularly those obtained from the application of the linear model, may provide a plausible explanation for the evolution of the Portuguese economy and its net borrowing, in which the government played an important role.

Therefore, there is no doubt that social policy measures, such as the ones that have been examined in this paper, can contribute to greater social justice and equity if applied to certain groups of people (something that is unfortunately beyond the scope of this paper). However, the impacts of these measures at the macroeconomic level should not be disregarded, lest they be allowed to bias all the conclusions.

In this study, the analysis based on the use of multipliers, their components and the use of *structural path analysis* turned out to be fundamental for understanding the effects resulting from the two experiments, using both methodologies. Thus, research into the linear model will be

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (*SSantos, July 2010*)

continued with the use of that methodology. Three main aspects are set to be studied in the next phase: flexibility of the fixed parameters and exogenous variables (time series for national accounting transactions are being collected in order to investigate econometric adjustments, marginal propensities and elasticities, as well as to obtain more information that will allow for a greater disaggregation of the financial account); consideration of the output produced for own final use and other non-market output; work undertaken with prices and quantities (developing the valuation system, as originally approached in Santos, 2009).

References

Eurostat (1996), *European System of Accounts* (ESA 95). Eurostat, Luxembourg

Inter-Secretariat Working Group on National Accounts – ISWGNA (1993) *System of National Accounts* (1993 SNA) United Nations Statistics Division and the United Nations regional commissions, New York; International Monetary Fund – IMF, Washington, DC; World Bank, Washington, DC; Organisation for Economic Cooperation and Development – OECD, Paris; Statistical Office of the European Communities – Eurostat, Brussels/Luxembourg.

Defourny, J. and Thorbecke, E. (1984) “Structural Path Analysis and Multiplier Decomposition within a Social Accounting Matrix Framework”, *The Economic Journal*, 94: 111-136.

Pyatt, G. and Roe, A. (1977) *Social Accounting for Development Planning with special reference to Sri Lanka*. Cambridge: Cambridge University Press.

Pyatt G. and Round J. (1985), Accounting and Fixed Price Multipliers in a Social Accounting Matrix Framework, in Pyatt G. and Round J. (eds.) - *Social Accounting Matrices. A Basis for Planning*, Washington, US, The World Bank: 186-206. Also in *Economic Journal* 89 (356): 850-873.

Santos S. (1999), “The Social Accounting Matrix as a working instrument to define economic policy. Application to Portugal during the 1986-90 period, with emphasis on the agroindustrial sector”, PhD dissertation, ISEG-TULisboa, Lisbon, April 1999, 309pp. (only available in Portuguese)

Santos S. (2005), “Social Accounting Matrix and the System of National Accounts: An Application”, Higher Institute of Economics and Business Administration. Working Paper No. 14/2005/ Department of Economics/Research Unit on Complexity and Economics - ISEG-TU Lisboa, 41pp.

Santos S. (2004), “Portuguese net borrowing and the government budget balance. A SAM approach”, *Journal of Policy Modeling* 26: 703-717.

Santos S. (2007), “Modelling Economic Circuit Flows in a Social Accounting Matrix Framework. An Application to Portugal”. *Applied Economics* 39: 1753-1771.

A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Santos S. (2007a), “Macro-SAMs for Modelling Purposes. An Application to Portugal in 2003”, Working Paper No. 17/2007/ Department of Economics/Research Unit on Complexity and Economics - ISEG-TU Lisboa, 17pp.

Santos S. (2008), “A SAM-based Model, constructed from the SNA, to be used for studying the distributional impacts of government policies in Portugal”. Working Paper Series – SSRN (Social Science Research Network) abstract=1159389, July 2008, 58pp.

Santos S. (2008a), “Better databases for economic modelling: constructing SAMs from the SNA” in Papanikos, G.T. (ed.) *Applied Economic Research*, Atiner, Athens (Greece), 2008, pp.193-198.

Santos S. (2009), *From the System of National Accounts (SNA) to a Social Accounting Matrix (SAM)-Based Model. An Application to Portugal*, Edições Almedina, Coimbra (Portugal), 194pp.

Santos S. (2009a), “Using a SAM-Based Model to measure the distributional impacts of government policies”, Working Paper No. 31/2009/ Department of Economics/Research Unit on Complexity and Economics - ISEG-TULisboa, Lisbon, July 2009; (and) WPIOX (Working Papers in Input-Output Economics) 09-010/International Input-Output Association, September 2009, 33pp.

Stone R. (1985), The disaggregation of the household sector in the National Accounts, in Pyatt, G. and Round J. (coord.) - *Social Accounting Matrices. A Basis for Planning*, Washington, US, The World Bank, 145-185.

Appendices

A.1. Accounting multipliers for Portugal in 1995 and 2005

Table A.1.1. Average expenditure propensities matrices – 1995 (Scenario A)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dicnfc	dicfc	dicg	dicnp	diknfc	dikfc	dikg	diknp	
$A_n = N * \hat{Y}_n^{-1}$																							
p1	0	0	0	0	0	0	0,09	0,08	0	0,01	0	0	0	0	0	0	0	0	0,01	0	0	0	
p2	0	0	0	0	0	0	0,27	0,52	0,36	0,20	0,07	0,14	0	0	0	0	0,02	0	0,48	0,17	0,07	0,66	
p3	0	0	0	0	0	0	0	0	0,24	0,01	0,03	0,01	0	0	0	0	0	0	0,26	0,21	0,42	0,32	
p4	0,14	0,14	0	-0,81	0	0	0,02	0	0	0,13	0,04	0	0	0	0	0	0	0	0,02	0,01	0	0	
p5	0	0	0	0	0	0	0,02	0,1	0	0,1	0,36	0,10	0	0	0	0	0	0	0,10	0,05	0	0	
p6	0	0	0	0	0	0	0	0	0	0,01	0,03	0	0	0	0	0	0,46	0,88	0,01	0	0	0	
a1	0,69	0,00	0,00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
a2	0,00	0,54	0,00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
a3	0	0,00	0,96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
a4	0	0,00	0,00	1,71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
a5	0,00	0,00	0,00	0,00	0,82	0,00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
a6	0,00	0,00	0,00	0,00	0,03	0,98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
fle	0	0	0	0	0	0	0,1	0,2	0,2	0,25	0,20	0,56	0	0	0	0	0	0	0	0	0	0	
foa	0	0	0	0	0	0	0,51	0,1	0,2	0,29	0,27	0,14	0	0	0	0	0	0	0	0	0	0	
dicnfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0,33	0,08	0	0	0	0	0	0	0	
dicfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0,05	0,02	0	0	0	0	0	0	0	
dicg	0,00	0,07	0,03	0,06	0,05	0,02	-0,02	0	0	0	0	0	0	-0,07	0,16	0,05	0,22	0	0	0	0	0	
dicnp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,03	0	0	0	0	0	0	
diknfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0,70	0	0	0	0	0	0	0,12	0	
dikfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,36	0	0	0,04	0,16	0	0	0	
dikg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0,05	0	0,01	0	0,30	0,01		
diknp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,07	0	0	0,05	0		
$A_l = L * \hat{Y}_n^{-1}$																							
dich	0	0	0	0	0	0	0	0	0	0	0	0	1	0,60	0,10	0,47	0,31	0	0	0	0	0	
dikh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,39	0,03	0	
dif	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
rw	0,17	0,24	0	0,05	0	0	0	0	0	0	0	0	0	0,1	0,01	0	0,01	0	0,06	0,01	0,01	0	
Sum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

Source: Table 4.

Table A.1.2. Average expenditure propensities matrices – 2005 (Scenario A)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dicnfc	dicfc	dicg	dicnp	diknfc	dikfc	dikg	diknp
$A_n = N * \hat{Y}_n^{-1}$																						
p1	0	0	0	0	0	0	0,14	0,06	0	0,01	0	0	0	0	0	0	0	0	0	0	0	0
p2	0	0	0	0	0	0	0,27	0,56	0,32	0,19	0,04	0,12	0	0	0	0	0,03	0	0,41	0,05	0,11	0,47
p3	0	0	0	0	0	0	0,01	0	0,31	0,01	0,02	0,01	0	0	0	0	0	0	0,35	0,12	0,44	0,37
p4	0,20	0,14	0	-0,65	0	0	0,02	0	0	0,13	0,03	0,1	0	0	0	0	0	0	0,01	0	0	0,01
p5	0	0	0	0	0	0	0,06	0,1	0	0,15	0,28	0,09	0	0	0	0	0	0	0,14	0,01	0,01	0,09
p6	0	0	0	0	0	0	0	0	0	0,01	0,01	0,1	0	0	0	0	0,50	0,82	0,01	0	0	0,06
a1	0,62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a2	0	0,49	0,01	0,02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a3	0	0	0,94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a4	0	0,01	0,01	1,51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a5	0	0	0,00	0,01	0,80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a6	0	0	0,01	0,01	0,04	0,97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
fle	0	0	0	0	0	0	0,11	0,2	0,2	0,29	0,20	0,56	0	0	0	0	0	0	0	0	0	0
foa	0	0	0	0	0	0	0,47	0,1	0,1	0,21	0,41	0,13	0	0	0	0	0	0	0	0	0	0
dicnfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0,24	0,01	0,11	0	0	0	0	0	0
dicfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0,07	0,06	0	0	0	0	0	0	0
dicg	-0,02	0,08	0,03	0,06	0,06	0,02	-0,06	0	0	0	0	0	0	-0,01	0,25	0,05	0,13	0	0	0	0	0
dicnp	0	0	0	0	0	0	0	0	0	0	0	0	0	0,02	0,03	0	0,01	0	0	0	0	0
diknfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,55	0	0	0	0	0	0,17	0
dikfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,44	0	0	0	0	0,39	0	0
dikg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-0,08	0	0	0,02	0,24	0,01
diknp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,09	0	0,01	0,02	0
$A_l = L * \hat{Y}_n^{-1}$																						
dich	0	0	0	0	0	0	0	0	0	0	0	0	1	0,50	0,10	0,37	0,38	0,01	0	0	0	0
dikh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,34	0,03	0
dif	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
rw	0,20	0,28	0	0,04	0	0,01	-0,03	0	0	0	0	0	0	0,18	0,01	0,02	0,03	0	0,06	0,06	-0,03	0
Sum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Source: Table 5.

A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table A.1.3. Accounting multipliers matrix – 1995 (Scenario A)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dicnfc	dicfc	dicg	dicnp	diknfc	dikfc	dikg	diknp
p1	1,10	0,08	0,04	0,04	0,02	0,02	0,14	0,14	0,04	0,04	0,02	0,02	0,00	0,02	0,05	0,02	0,013	0,02	0,07	0,03	0,05	0,07
p2	0,51	1,60	0,81	0,49	0,35	0,32	0,63	0,95	0,83	0,52	0,37	0,32	0,00	0,26	0,79	0,28	0,182	0,39	1,08	0,55	0,93	1,34
p3	0,06	0,03	1,34	0,06	0,08	0,04	0,08	0,05	0,35	0,06	0,10	0,04	0,00	0,10	0,28	0,15	-0,037	0,07	0,40	0,35	0,90	0,46
p4	0,16	0,16	0,10	0,69	0,08	0,06	0,09	0,12	0,10	0,14	0,08	0,06	0,00	0,03	0,10	0,04	0,037	0,07	0,13	0,07	0,11	0,14
p5	0,10	0,13	0,16	0,21	1,50	0,18	0,11	0,17	0,16	0,22	0,58	0,19	0,00	0,07	0,21	0,08	0,113	0,22	0,27	0,16	0,17	0,14
p6	0,03	0,09	0,08	0,07	0,12	1,06	0,03	0,07	0,06	0,05	0,09	0,06	0,00	0,02	0,17	0,08	0,659	0,95	0,09	0,05	0,08	0,09
a1	0,76	0,06	0,03	0,03	0,02	0,02	1,10	0,10	0,03	0,03	0,02	0,02	0,00	0,01	0,04	0,01	0,010	0,02	0,05	0,02	0,04	0,05
a2	0,28	0,88	0,45	0,27	0,22	0,18	0,35	1,52	0,46	0,28	0,21	0,18	0,00	0,14	0,44	0,15	0,102	0,22	0,59	0,30	0,51	0,73
a3	0,06	0,03	1,29	0,06	0,08	0,03	0,07	0,05	1,34	0,06	0,09	0,04	0,00	0,10	0,27	0,14	-0,036	0,07	0,39	0,33	0,87	0,45
a4	0,27	0,28	0,18	1,18	0,17	0,11	0,16	0,22	0,18	1,25	0,16	0,11	0,00	0,06	0,18	0,06	0,066	0,12	0,23	0,13	0,19	0,25
a5	0,09	0,11	0,13	0,17	1,24	0,15	0,09	0,14	0,13	0,18	1,48	0,15	0,00	0,05	0,17	0,07	0,093	0,18	0,22	0,13	0,14	0,12
a6	0,04	0,10	0,09	0,08	0,16	1,05	0,03	0,07	0,07	0,06	0,11	1,06	0,00	0,02	0,18	0,08	0,647	0,93	0,10	0,06	0,09	0,10
fle	0,24	0,31	0,43	0,44	0,44	0,68	0,26	0,40	0,43	0,45	0,45	0,69	1,00	0,08	0,30	0,13	0,408	0,64	0,33	0,20	0,37	0,35
foa	0,55	0,29	0,39	0,47	0,46	0,26	0,70	0,39	0,40	0,49	0,51	0,26	0,00	1,08	0,25	0,10	0,149	0,26	0,32	0,19	0,34	0,32
dicnfc	0,18	0,10	0,13	0,16	0,15	0,09	0,23	0,13	0,13	0,16	0,17	0,09	0,00	0,36	1,09	0,12	0,050	0,09	0,11	0,06	0,11	0,11
dicfc	0,03	0,02	0,02	0,03	0,03	0,02	0,04	0,02	0,02	0,03	0,03	0,02	0,00	0,06	0,04	1,01	0,009	0,03	0,02	0,01	0,02	0,02
dicg	0,03	0,16	0,13	0,10	0,13	0,06	0,03	0,10	0,09	0,06	0,07	0,04	0,00	0,01	0,30	0,12	1,317	0,07	0,13	0,07	0,12	0,15
dicnp	0,00	0,01	0,01	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,01	0,01	0,038	1,00	0,01	0,00	0,01	0,01
diknfc	0,13	0,07	0,09	0,11	0,11	0,06	0,16	0,09	0,09	0,11	0,12	0,06	0,00	0,25	0,76	0,08	0,023	0,06	1,08	0,04	0,24	0,08
dikfc	0,02	0,01	0,01	0,02	0,02	0,01	0,03	0,01	0,02	0,02	0,02	0,01	0,00	0,04	0,06	0,44	0,005	0,01	0,06	1,19	0,02	0,01
dikg	0,00	-0,01	-0,01	-0,01	-0,01	0,00	0,00	-0,01	-0,01	0,00	0,00	0,00	0,00	0,00	-0,01	-0,01	-0,101	0,00	0,01	0,00	1,43	0,01
diknp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-0,002	0,07	0,00	0,00	0,07	1,00

Source: Tables 4 and A.1.1.

Table A.1.4. Accounting multipliers matrix – 2005 (Scenario A)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dicnfc	dicfc	dicg	dicnp	diknfc	dikfc	dikg	diknp
p1	1,11	0,05	0,03	0,03	0,01	0,01	0,17	0,10	0,03	0,03	0,01	0,01	0,00	0,01	0,02	0,01	0,007	0,02	0,04	0,01	0,03	0,04
p2	0,44	1,53	0,72	0,40	0,23	0,26	0,58	0,94	0,74	0,42	0,23	0,26	0,00	0,16	0,57	0,20	0,120	0,34	0,93	0,30	0,88	1,03
p3	0,06	0,03	1,44	0,06	0,08	0,03	0,08	0,05	0,47	0,06	0,09	0,04	0,00	0,09	0,29	0,17	-0,067	0,08	0,54	0,32	0,98	0,57
p4	0,21	0,17	0,10	0,75	0,06	0,07	0,11	0,14	0,10	0,15	0,06	0,07	0,00	0,02	0,08	0,03	0,039	0,08	0,13	0,04	0,12	0,13
p5	0,16	0,15	0,17	0,27	1,37	0,17	0,17	0,20	0,17	0,29	0,42	0,17	0,00	0,06	0,21	0,07	0,090	0,23	0,32	0,08	0,21	0,26
p6	0,03	0,11	0,09	0,09	0,12	1,10	0,05	0,09	0,08	0,07	0,09	0,09	0,00	0,07	0,25	0,08	0,642	0,94	0,11	0,04	0,10	0,16
a1	0,69	0,04	0,02	0,02	0,01	0,01	1,11	0,06	0,02	0,02	0,01	0,01	0,00	0,00	0,02	0,01	0,005	0,01	0,02	0,01	0,02	0,03
a2	0,22	0,75	0,37	0,21	0,13	0,13	0,29	1,46	0,37	0,21	0,12	0,13	0,00	0,08	0,28	0,10	0,061	0,17	0,46	0,15	0,45	0,51
a3	0,06	0,03	1,36	0,06	0,08	0,03	0,08	0,05	1,45	0,06	0,09	0,03	0,00	0,08	0,28	0,16	-0,063	0,08	0,51	0,30	0,92	0,53
a4	0,33	0,28	0,17	1,14	0,16	0,12	0,18	0,23	0,16	1,24	0,12	0,12	0,00	0,04	0,14	0,05	0,064	0,13	0,21	0,07	0,20	0,23
a5	0,13	0,12	0,14	0,22	1,09	0,14	0,14	0,16	0,14	0,23	1,34	0,14	0,00	0,05	0,17	0,05	0,072	0,18	0,26	0,07	0,17	0,21
a6	0,04	0,11	0,11	0,11	0,17	1,08	0,05	0,09	0,09	0,09	0,11	1,10	0,00	0,08	0,26	0,08	0,627	0,93	0,12	0,05	0,12	0,18
fle	0,27	0,30	0,49	0,49	0,40	0,69	0,29	0,40	0,50	0,51	0,39	0,70	1,00	0,09	0,32	0,12	0,380	0,64	0,37	0,15	0,43	0,40
foa	0,49	0,23	0,30	0,39	0,53	0,24	0,66	0,33	0,30	0,41	0,61	0,24	0,00	1,06	0,20	0,07	0,126	0,25	0,28	0,10	0,28	0,28
dicnfc	0,12	0,06	0,08	0,10	0,13	0,06	0,17	0,08	0,08	0,10	0,16	0,06	0,00	0,27	1,06	0,13	0,032	0,07	0,07	0,03	0,07	0,07
dicfc	0,04	0,02	0,03	0,04	0,05	0,02	0,06	0,03	0,03	0,04	0,06	0,02	0,00	0,10	0,08	1,02	0,012	0,03	0,03	0,01	0,03	0,03
dicg	0,03	0,18	0,15	0,13	0,17	0,07	0,04	0,13	0,12	0,09	0,11	0,05	0,00	0,09	0,39	0,12	1,187	0,10	0,15	0,05	0,15	0,16
dicnp	0,01	0,01	0,01	0,01	0,02	0,01	0,02	0,01	0,01	0,01	0,02	0,01	0,00	0,03	0,04	0,01	0,020	1,02	0,01	0,00	0,01	0,01
diknfc	0,07	0,03	0,04	0,05	0,07	0,03	0,09	0,04	0,04	0,06	0,08	0,03	0,00	0,15	0,58	0,07	-0,004	0,03	1,04	0,02	0,27	0,04
dikfc	0,03	0,02	0,02	0,03	0,03	0,02	0,04	0,02	0,02	0,03	0,04	0,02	0,00	0,07	0,06	0,73	0,008	0,02	0,02	1,64	0,02	0,02
dikg	0,00	-0,02	-0,01	-0,01	-0,02	-0,01	0,00	-0,01	-0,01	-0,01	-0,01	-0,01	0,00	-0,01	-0,04	0,00	-0,123	-0,01	-0,01	0,03	1,30	0,00
diknp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	-0,001	0,09	0,00	0,02	0,03	1,00

Source: Tables 5 and A.1.2.

A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table A.1.5. Additional intragroup or direct effects matrix ($M_1 - I$) – 1995 (Scenario A)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dicnfc	dicfc	dicg	dicnp	diknfc	dikfc	dikg	diknp
p1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p4	0	0	0	-0,45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
fle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
foa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dicnfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,004	0	0	0	0	0	0	0
dicfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,01	0	0	0	0	0	0
dicg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,284	0	0	0	0	0
dicnp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,00	0	0	0	0
diknfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dikfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,19	0	0
dikg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,44	0
diknp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: Table A.1.1.

Table A.1.6. Additional intragroup or direct effects matrix ($M_1 - I$) – 2005 (Scenario A)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dicnfc	dicfc	dicg	dicnp	diknfc	dikfc	dikg	diknp
p1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p4	0	0	0	-0,39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
fle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
foa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dicnfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,007	0	0	0	0	0	0	0
dicfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,01	0	0	0	0	0	0
dicg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,151	0	0	0	0	0
dicnp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,01	0	0	0	0
diknfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dikfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,63	0	0
dikg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,31	0
diknp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: Table A.1.2.

A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table A.1.7. Additional intergroup or indirect effects matrix $(M_2 - I) * M_1 - 1995$ (Scenario A)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dicnfc	dicfc	dicg	dicnp	diknfc	dikfc	dikg	diknp
p1	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,01	0,01	0,01	0,01	0,00	0,00	0,01	0,00	0,00	0,005	0,01	0,02	0,01	0,01	0,02
p2	0,08	0,05	0,05	0,05	0,05	0,03	0,06	0,08	0,10	0,06	0,06	0,04	0,00	0,07	0,04	0,03	0,043	0,07	0,13	0,09	0,16	0,15
p3	0,03	0,01	0,01	0,02	0,02	0,01	0,01	0,01	0,02	0,01	0,01	0,00	0,00	0,02	0,01	0,00	0,003	0,01	0,02	0,02	0,04	0,02
p4	0,01	0,02	0,02	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,00	0,00	0,02	0,01	0,004	0,01	0,01	0,01	0,02	0,01
p5	0,02	0,02	0,02	0,02	0,02	0,01	0,02	0,03	0,03	0,03	0,05	0,02	0,00	0,02	0,02	0,01	0,026	0,04	0,04	0,03	0,03	0,04
p6	0,02	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,00	0,01	0,01	0,00	0,006	0,01	0,02	0,01	0,02	0,02
a1	0,01	0,01	0,01	0,01	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,001	0,00	0,00	0,00	0,01	0,00
a2	0,05	0,07	0,12	0,07	0,06	0,04	0,05	0,03	0,03	0,03	0,03	0,02	0,00	0,01	0,12	0,04	-0,001	0,02	0,03	0,01	0,06	0,03
a3	0,01	0,01	0,06	0,01	0,02	0,01	0,04	0,01	0,01	0,02	0,02	0,01	0,00	0,01	0,05	0,02	-0,008	0,01	0,01	0,00	0,02	0,01
a4	0,02	0,02	0,02	0,03	0,03	0,02	0,03	0,04	0,04	0,03	0,02	0,02	0,00	0,02	0,03	0,01	0,015	0,02	0,05	0,03	0,05	0,06
a5	0,02	0,03	0,04	0,05	0,09	0,04	0,02	0,02	0,01	0,01	0,01	0,01	0,00	0,00	0,05	0,02	0,005	0,01	0,02	0,01	0,02	0,02
a6	0,00	0,02	0,02	0,01	0,02	0,01	0,02	0,01	0,01	0,01	0,01	0,01	0,00	0,00	0,03	0,01	0,002	0,01	0,01	0,00	0,02	0,01
fle	0,02	0,03	0,03	0,02	0,02	0,01	0,02	0,05	0,06	0,04	0,06	0,03	0,00	0,05	0,03	0,02	0,040	0,07	0,08	0,05	0,09	0,09
foa	0,03	0,03	0,03	0,02	0,02	0,01	0,03	0,05	0,06	0,04	0,06	0,03	0,00	0,04	0,03	0,02	0,034	0,06	0,07	0,05	0,08	0,08
dicnfc	0,02	0,02	0,03	0,03	0,04	0,02	0,01	0,01	0,01	0,01	0,01	0,00	0,00	0,00	0,04	0,01	0,002	0,01	0,01	0,01	0,02	0,02
dicfc	0,00	0,00	0,01	0,00	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,001	0,00	0,00	0,00	0,00	0,00
dicg	0,01	0,01	0,02	0,01	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,01	0,00	0,00	0,02	0,01	0,006	0,01	0,01	0,01	0,02	0,01
dicnp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,000	0,00	0,00	0,00	0,00	0,00
diknfc	0,01	0,01	0,01	0,01	0,01	0,00	0,02	0,03	0,02	0,02	0,03	0,01	0,00	0,00	0,01	0,00	0,021	0,03	0,03	0,02	0,03	0,03
dikfc	0,01	0,00	0,00	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,002	0,00	0,00	0,00	0,00	0,00
dikg	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,000	0,00	0,00	0,00	0,00	0,00
diknp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,000	0,00	0,00	0,00	0,00	0,00

Source: Table A.1.1.

Table A.1.8. Additional intergroup or indirect effects matrix $(M_2 - I) * M_1 - 2005$ (Scenario A)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dicnfc	dicfc	dicg	dicnp	diknfc	dikfc	dikg	diknp
p1	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,003	0,00	0,01	0,00	0,01	0,01
p2	0,05	0,03	0,03	0,03	0,03	0,02	0,06	0,08	0,10	0,05	0,04	0,03	0,00	0,05	0,02	0,03	0,033	0,06	0,13	0,05	0,14	0,14
p3	0,02	0,00	0,01	0,01	0,02	0,01	0,01	0,01	0,03	0,01	0,01	0,00	0,00	0,02	0,00	0,01	0,002	0,01	0,04	0,02	0,06	0,04
p4	0,02	0,02	0,02	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,00	0,00	0,00	0,02	0,01	0,004	0,01	0,01	0,01	0,02	0,01
p5	0,03	0,02	0,02	0,01	0,01	0,01	0,02	0,03	0,03	0,03	0,03	0,02	0,00	0,02	0,01	0,01	0,022	0,04	0,04	0,01	0,04	0,04
p6	0,02	0,01	0,01	0,01	0,02	0,01	0,01	0,02	0,02	0,01	0,01	0,01	0,00	0,01	0,01	0,01	0,010	0,02	0,02	0,01	0,02	0,02
a1	0,01	0,01	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,000	0,00	0,00	0,00	0,00	0,00
a2	0,04	0,05	0,10	0,05	0,03	0,03	0,02	0,02	0,02	0,01	0,02	0,01	0,00	0,01	0,08	0,03	-0,006	0,02	0,02	0,01	0,05	0,02
a3	0,01	0,01	0,09	0,01	0,02	0,01	0,03	0,01	0,01	0,01	0,02	0,01	0,00	0,00	0,06	0,03	-0,014	0,01	0,00	0,01	0,03	0,01
a4	0,02	0,02	0,02	0,03	0,02	0,02	0,03	0,04	0,04	0,02	0,01	0,01	0,00	0,01	0,03	0,01	0,011	0,02	0,05	0,02	0,05	0,05
a5	0,02	0,03	0,04	0,05	0,06	0,03	0,02	0,02	0,01	0,01	0,01	0,01	0,00	0,00	0,05	0,01	0,002	0,01	0,02	0,01	0,03	0,02
a6	0,02	0,02	0,03	0,03	0,03	0,02	0,02	0,01	0,01	0,01	0,02	0,01	0,00	0,01	0,04	0,01	0,000	0,01	0,01	0,00	0,02	0,01
fle	0,03	0,03	0,03	0,02	0,01	0,01	0,04	0,06	0,07	0,05	0,04	0,03	0,00	0,05	0,03	0,03	0,044	0,08	0,09	0,04	0,09	0,10
foa	0,03	0,03	0,02	0,01	0,01	0,01	0,04	0,05	0,05	0,04	0,04	0,03	0,00	0,03	0,02	0,02	0,033	0,06	0,07	0,02	0,06	0,07
dicnfc	0,02	0,01	0,02	0,03	0,03	0,02	0,01	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,02	0,01	0,001	0,01	0,01	0,00	0,01	0,01
dicfc	0,01	0,00	0,01	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,00	0,001	0,00	0,00	0,00	0,01	0,00
dicg	0,01	0,02	0,03	0,02	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,00	0,00	0,02	0,01	0,004	0,01	0,02	0,01	0,02	0,02
dicnp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,001	0,00	0,00	0,00	0,00	0,00
diknfc	0,01	0,01	0,00	0,00	0,00	0,00	0,01	0,01	0,01	0,01	0,02	0,01	0,00	0,00	0,00	0,00	0,010	0,02	0,02	0,01	0,01	0,02
dikfc	0,01	0,00	0,00	0,00	0,00	0,00	0,01	0,01	0,00	0,01	0,01	0,00	0,00	0,00	0,00	0,00	0,004	0,01	0,01	0,00	0,01	0,01
dikg	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-0,001	0,00	0,00	0,00	0,00	0,00
diknp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,000	0,00	0,00	0,00	0,00	0,00

Source: Table A.1.2.

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table A.1.9. Additional extragroup or cross effects matrix (M₃ - I) * M₂ * M₁- 1995 (Scenario A)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dicnfc	dicfc	dicg	dicnp	diknfc	dikfc	dikg	diknp
p1	0,09	0,08	0,04	0,04	0,02	0,02	0,13	0,13	0,03	0,04	0,02	0,02	0,00	0,01	0,05	0,01	0,008	0,02	0,05	0,02	0,04	0,05
p2	0,43	0,55	0,76	0,44	0,31	0,29	0,58	0,87	0,73	0,46	0,31	0,29	0,00	0,19	0,75	0,25	0,140	0,31	0,94	0,46	0,77	1,18
p3	0,03	0,02	0,33	0,04	0,06	0,03	0,07	0,04	0,33	0,06	0,08	0,03	0,00	0,08	0,27	0,14	-0,041	0,06	0,38	0,33	0,86	0,44
p4	0,14	0,15	0,08	0,12	0,07	0,05	0,08	0,11	0,09	0,13	0,07	0,06	0,00	0,03	0,08	0,03	0,033	0,06	0,12	0,06	0,09	0,13
p5	0,08	0,11	0,14	0,20	0,49	0,17	0,09	0,15	0,13	0,19	0,54	0,17	0,00	0,05	0,19	0,08	0,087	0,17	0,23	0,14	0,13	0,11
p6	0,02	0,09	0,07	0,06	0,11	0,06	0,02	0,06	0,05	0,05	0,08	0,05	0,00	0,01	0,17	0,07	0,653	0,93	0,07	0,04	0,06	0,07
a1	0,75	0,05	0,02	0,02	0,01	0,01	0,09	0,10	0,03	0,03	0,02	0,02	0,00	0,01	0,02	0,01	0,009	0,02	0,05	0,02	0,03	0,05
a2	0,23	0,81	0,33	0,21	0,16	0,14	0,30	0,49	0,43	0,25	0,18	0,16	0,00	0,14	0,32	0,11	0,103	0,19	0,56	0,29	0,45	0,70
a3	0,05	0,03	1,23	0,05	0,06	0,03	0,04	0,04	0,33	0,04	0,07	0,03	0,00	0,09	0,22	0,12	-0,027	0,06	0,38	0,33	0,85	0,44
a4	0,26	0,26	0,15	1,15	0,14	0,09	0,13	0,17	0,14	0,22	0,14	0,10	0,00	0,04	0,15	0,05	0,051	0,10	0,18	0,10	0,15	0,19
a5	0,07	0,08	0,10	0,13	1,14	0,11	0,07	0,13	0,12	0,17	0,47	0,15	0,00	0,05	0,12	0,05	0,088	0,17	0,20	0,13	0,12	0,10
a6	0,04	0,08	0,06	0,07	0,14	1,03	0,01	0,06	0,06	0,05	0,10	0,05	0,00	0,02	0,14	0,07	0,646	0,92	0,09	0,05	0,07	0,09
fle	0,22	0,27	0,41	0,42	0,42	0,67	0,24	0,34	0,37	0,41	0,40	0,66	0,00	0,03	0,27	0,11	0,368	0,57	0,25	0,15	0,29	0,26
foa	0,52	0,26	0,36	0,45	0,44	0,25	0,67	0,34	0,34	0,45	0,45	0,24	0,00	0,04	0,22	0,08	0,115	0,21	0,24	0,14	0,26	0,24
dicnfc	0,16	0,07	0,10	0,12	0,11	0,07	0,23	0,12	0,12	0,16	0,16	0,08	0,00	0,36	0,05	0,11	0,048	0,08	0,09	0,06	0,10	0,09
dicfc	0,03	0,01	0,02	0,02	0,02	0,01	0,04	0,02	0,02	0,03	0,03	0,01	0,00	0,06	0,03	0,01	0,008	0,02	0,02	0,01	0,02	0,02
dicg	0,02	0,15	0,11	0,09	0,12	0,05	0,01	0,08	0,08	0,05	0,06	0,03	0,00	0,01	0,29	0,12	0,027	0,06	0,12	0,06	0,11	0,13
dicnp	0,00	0,01	0,00	0,00	0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	0,01	0,01	0,038	0,00	0,00	0,00	0,00	0,00
diknfc	0,11	0,05	0,08	0,10	0,10	0,06	0,14	0,07	0,07	0,09	0,09	0,05	0,00	0,25	0,76	0,08	0,002	0,03	0,04	0,02	0,22	0,05
dikfc	0,01	0,01	0,01	0,01	0,01	0,01	0,02	0,01	0,01	0,02	0,02	0,01	0,00	0,04	0,06	0,44	0,003	0,01	0,06	0,00	0,02	0,01
dikg	0,00	-0,01	-0,01	0,00	-0,01	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	-0,01	-0,01	-0,100	0,00	0,01	0,00	0,00	0,01
diknp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	-0,002	0,07	0,00	0,00	0,07	0,00

Source: Table A.1.1.

Table A.1.10. Additional extragroup or cross effects matrix (M₃ - I) * M₂ * M₁- 2005 (Scenario A)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dicnfc	dicfc	dicg	dicnp	diknfc	dikfc	dikg	diknp
p1	0,11	0,05	0,02	0,03	0,01	0,01	0,17	0,09	0,02	0,02	0,01	0,01	0,00	0,00	0,02	0,01	0,004	0,01	0,03	0,01	0,02	0,03
p2	0,39	0,49	0,68	0,38	0,20	0,24	0,52	0,86	0,64	0,37	0,19	0,23	0,00	0,11	0,54	0,18	0,088	0,28	0,80	0,25	0,74	0,89
p3	0,04	0,02	0,44	0,04	0,06	0,03	0,08	0,04	0,44	0,05	0,08	0,03	0,00	0,07	0,29	0,16	-0,069	0,07	0,50	0,30	0,92	0,53
p4	0,20	0,16	0,07	0,13	0,06	0,06	0,10	0,13	0,09	0,14	0,06	0,07	0,00	0,02	0,06	0,02	0,035	0,06	0,11	0,04	0,10	0,12
p5	0,13	0,12	0,15	0,26	0,35	0,16	0,15	0,17	0,14	0,26	0,39	0,15	0,00	0,04	0,20	0,06	0,067	0,19	0,27	0,07	0,17	0,22
p6	0,02	0,10	0,08	0,08	0,10	0,09	0,03	0,07	0,06	0,06	0,08	0,08	0,00	0,07	0,25	0,07	0,632	0,92	0,08	0,03	0,08	0,14
a1	0,68	0,03	0,01	0,01	0,01	0,01	0,11	0,06	0,02	0,02	0,01	0,01	0,00	0,00	0,01	0,00	0,005	0,01	0,02	0,01	0,02	0,02
a2	0,18	0,70	0,27	0,16	0,09	0,10	0,26	0,44	0,35	0,20	0,10	0,12	0,00	0,07	0,20	0,08	0,067	0,15	0,44	0,14	0,40	0,49
a3	0,05	0,02	1,27	0,04	0,06	0,02	0,05	0,04	0,44	0,05	0,07	0,03	0,00	0,08	0,21	0,13	-0,048	0,07	0,50	0,29	0,89	0,53
a4	0,32	0,26	0,14	1,11	0,14	0,10	0,14	0,18	0,13	0,22	0,10	0,11	0,00	0,03	0,11	0,04	0,053	0,11	0,17	0,05	0,15	0,18
a5	0,11	0,09	0,10	0,17	1,04	0,10	0,12	0,14	0,12	0,22	0,33	0,13	0,00	0,04	0,12	0,04	0,070	0,17	0,24	0,06	0,15	0,19
a6	0,03	0,09	0,08	0,08	0,14	1,06	0,03	0,08	0,08	0,07	0,09	0,09	0,00	0,07	0,22	0,07	0,627	0,92	0,12	0,04	0,10	0,17
fle	0,24	0,26	0,47	0,47	0,38	0,68	0,25	0,34	0,43	0,46	0,35	0,67	0,00	0,04	0,30	0,09	0,336	0,56	0,28	0,11	0,34	0,31
foa	0,46	0,20	0,28	0,37	0,52	0,23	0,63	0,29	0,25	0,37	0,57	0,22	0,00	0,03	0,18	0,06	0,092	0,19	0,21	0,08	0,22	0,21
dicnfc	0,11	0,04	0,06	0,07	0,11	0,05	0,16	0,08	0,07	0,10	0,15	0,06	0,00	0,27	0,03	0,12	0,031	0,06	0,06	0,02	0,06	0,06
dicfc	0,04	0,02	0,02	0,03	0,04	0,02	0,06	0,03	0,02	0,03	0,05	0,02	0,00	0,10	0,07	0,01	0,011	0,03	0,02	0,01	0,02	0,02
dicg	0,01	0,16	0,12	0,11	0,16	0,06	0,02	0,11	0,11	0,08	0,09	0,05	0,00	0,09	0,36	0,11	0,032	0,08	0,14	0,05	0,13	0,14
dicnp	0,01	0,01	0,01	0,01	0,01	0,01	0,02	0,01	0,01	0,01	0,02	0,01	0,00	0,03	0,04	0,01	0,020	0,01	0,01	0,00	0,01	0,01
diknfc	0,06	0,02	0,04	0,05	0,07	0,03	0,08	0,03	0,03	0,04	0,07	0,02	0,00	0,15	0,58	0,07	-0,014	0,02	0,02	0,01	0,25	0,02
dikfc	0,03	0,01	0,02	0,02	0,03	0,01	0,04	0,02	0,02	0,02	0,03	0,01	0,00	0,07	0,06	0,73	0,004	0,02	0,02	0,00	0,02	0,01
dikg	0,00	-0,02	-0,01	-0,01	-0,01	-0,01	0,00	-0,01	-0,01	-0,01	-0,01	0,00	0,00	-0,01	-0,04	0,00	-0,122	-0,01	-0,01	0,03	-0,01	0,00
diknp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,01	-0,001	0,09	0,00	0,02	0,03	0,00

Source: Table A.1.2.

A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table A.1.11. Average expenditure propensities matrices – 1995 (Scenario B)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dich	dicnfc	dicfc	dicnp	dikh	diknfc	dikfc	diknp
$A_n = N_n \hat{Y}_n^{-1}$																						
p1	0	0	0	0	0	0	0,09	0,08	0	0,01	0	0	0	0	0,03	0	0	0	0,04	0,01	0	0
p2	0	0	0	0	0	0	0,27	0,52	0,36	0,20	0,07	0,14	0	0	0,37	0	0	0	0,15	0,48	0,17	0,66
p3	0	0	0	0	0	0	0,00	0,00	0,24	0,01	0,03	0,01	0	0	0,00	0	0	0	0,81	0,26	0,21	0,32
p4	0,14	0,14	0	-0,81	0	0	0,02	0,02	0,02	0,13	0,04	0,04	0	0	0,07	0	0	0	0,02	0,02	0,01	0
p5	0	0	0	0	0	0	0,02	0,05	0,04	0,10	0,36	0,10	0	0	0,08	0	0	0,03	0,10	0,10	0,05	0
p6	0	0	0	0	0	0	0	0,01	0	0,01	0,03	0,03	0	0	0,08	0	0	0,88	0,01	0,01	0	0
a1	0,69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a2	0	0,54	0,005	0	0,02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a3	0	0	0,96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a4	0	0	0	1,71	0,03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a5	0	0	0	0	0,82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a6	0	0	0	0	0,03	0,98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
fle	0	0	0	0	0	0	0,10	0,17	0,18	0,25	0,20	0,56	0	0	0	0	0	0	0	0	0	0
foa	0	0	0	0	0	0	0,51	0,14	0,16	0,29	0,27	0,14	0	0	0	0	0	0	0	0	0	0
dich	0	0	0	0	0	0	0	0	0	0	0	0	1,00	0,60	0,01	0,10	0,47	0,01	0	0	0	0
dicnfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0,33	0,02	0	0,08	0	0	0	0	0
dicfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0,05	0,03	0,02	0,01	0,01	0	0	0	0
dicnp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,01	0	0	0	0	0
dikh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,10	0	0	0	0	0	0,39	0
diknfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,70	0	0	0	0	0	0
dikfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,36	0	0	0,04	0,16	0
diknp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,07	0	0	0	0
$A_l = L * Y^{n-1}$																						
dicg	0	0,07	0,03	0,06	0,05	0,02	-0,02	0	0	0	0	0	0	-0,07	0,18	0,16	0,05	0	0	0	0	0
dikg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,01	0,01	0,00	0,01
dif	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
rw	0,17	0,24	0,002	0,05	0,05	0,01	-0,01	0	0	0	0	0	0	0,1	0,02	0,01	0,01	0	-0,14	0,06	0,01	0
Sum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Source: Table 4.

Table A.1.12. Average expenditure propensities matrices – 2005 (Scenario B)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dich	dicnfc	dicfc	dicnp	dikh	diknfc	dikfc	diknp
$A_n = N_n \hat{Y}_n^{-1}$																						
p1	0	0	0	0	0	0	0,14	0,06	0	0,01	0	0	0	0	0,03	0	0	0	0,03	0	0	0
p2	0	0	0	0	0	0	0,27	0,56	0,32	0,19	0,04	0,12	0	0	0,34	0	0	0,01	0,11	0,41	0,05	0,47
p3	0	0	0	0	0	0	0,01	0,01	0,31	0,01	0,02	0,01	0	0	0,00	0	0	0	0,82	0,35	0,12	0,37
p4	0,20	0,14	0	-0,65	0	0	0,02	0,03	0,01	0,13	0,03	0,05	0	0	0,10	0	0	0	0,02	0,01	0	0,01
p5	0	0	0	0	0	0	0,06	0,07	0,04	0,15	0,28	0,09	0	0	0,11	0	0	0,04	0,18	0,14	0,01	0,09
p6	0	0	0	0	0	0	0	0,00	0	0,01	0,01	0,05	0	0	0,08	0	0	0,82	0,02	0,01	0	0,06
a1	0,62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a2	0	0,49	0,01	0	0,01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a3	0	0	0,94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a4	0	0,01	0,01	1,51	0,04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a5	0	0	0	0	0,80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a6	0	0	0,01	0	0,04	0,97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
fle	0	0	0	0	0	0	0,11	0,16	0,22	0,29	0,20	0,56	0	0	0	0	0	0	0	0	0	0
foa	0	0	0	0	0	0	0,47	0,12	0,10	0,21	0,41	0,13	0	0	0	0	0	0	0	0	0	0
dich	0	0	0	0	0	0	0	0	0	0	0	0	1,00	0,50	0,01	0,10	0,37	0,01	0	0	0	0
dicnfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0,24	0,01	0,01	0,11	0	0	0	0	0
dicfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0,07	0,02	0,06	0,01	0,01	0	0	0	0
dicnp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,01	0,03	0	0,01	0	0	0	0
dikh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,07	0	0	0	0	0	0,34	0
diknfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,55	0	0	0	0	0	0
dikfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,44	0	0	0,00	0,39	0
diknp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,09	0	0	0,01	0
$A_l = L * Y^{n-1}$																						
dicg	-0,02	0,08	0,03	0,06	0,06	0,02	-0,06	0	0	0	0	0	0	-0,01	0,20	0,25	0,05	0,01	0	0	0	0
dikg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,02	0	0,02	0,01
dif	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
rw	0,20	0,28	0	0,04	0,04	0,01	-0,03	0	0	0	0	0	0	0,18	0,02	0,01	0,02	0	-0,19	0,06	0,06	0
Sum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Source: Table 5.

A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table A.1.13. Accounting multipliers matrix – 1995 (Scenario B)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dich	dicnfc	dicfc	dicnp	dikh	diknfc	dikfc	diknp
p1	1,19	0,15	0,15	0,15	0,13	0,15	0,25	0,24	0,15	0,16	0,14	0,16	0,16	0,14	0,158	0,13	0,15	0,15	0,20	0,15	0,17	0,15
p2	1,41	2,25	1,78	1,56	1,39	1,57	1,72	1,88	1,83	1,65	1,53	1,61	1,52	1,48	1,521	1,48	1,57	1,59	2,02	1,83	1,93	2,07
p3	0,25	0,18	1,55	0,29	0,30	0,30	0,31	0,25	0,57	0,31	0,34	0,30	0,31	0,36	0,310	0,45	0,57	0,32	1,33	0,57	1,06	0,62
p4	0,32	0,28	0,27	0,87	0,26	0,28	0,28	0,28	0,28	0,34	0,28	0,29	0,26	0,24	0,265	0,22	0,25	0,28	0,32	0,26	0,29	0,27
p5	0,37	0,32	0,44	0,52	1,80	0,55	0,43	0,45	0,45	0,56	0,92	0,57	0,45	0,42	0,450	0,40	0,46	0,57	0,61	0,48	0,58	0,35
p6	0,13	0,10	0,14	0,16	0,18	1,19	0,15	0,14	0,14	0,17	0,21	0,20	0,19	0,16	0,193	0,11	0,17	1,06	0,17	0,12	0,15	0,11
a1	0,83	0,11	0,11	0,11	0,10	0,11	1,18	0,17	0,11	0,12	0,11	0,11	0,12	0,10	0,115	0,09	0,11	0,11	0,15	0,11	0,13	0,11
a2	0,78	1,23	0,98	0,86	0,79	0,87	0,95	2,03	1,01	0,91	0,85	0,89	0,84	0,81	0,838	0,82	0,86	0,88	1,12	1,01	1,07	1,14
a3	0,24	0,17	1,49	0,28	0,29	0,29	0,30	0,24	1,54	0,29	0,33	0,29	0,30	0,35	0,298	0,43	0,55	0,31	1,28	0,55	1,02	0,59
a4	0,55	0,48	0,47	1,50	0,49	0,49	0,49	0,50	0,49	1,60	0,51	0,50	0,46	0,43	0,465	0,39	0,45	0,49	0,56	0,46	0,52	0,47
a5	0,31	0,26	0,36	0,43	1,48	0,46	0,35	0,37	0,37	0,46	1,76	0,47	0,37	0,35	0,371	0,33	0,38	0,47	0,51	0,40	0,48	0,29
a6	0,14	0,11	0,16	0,18	0,24	1,19	0,17	0,15	0,16	0,19	0,24	1,22	0,21	0,18	0,206	0,13	0,18	1,06	0,19	0,14	0,17	0,13
fle	0,54	0,48	0,72	0,77	0,75	1,09	0,62	0,68	0,75	0,82	0,83	1,11	1,51	0,49	0,512	0,46	0,54	1,02	0,78	0,55	0,70	0,56
foa	0,84	0,49	0,69	0,81	0,78	0,66	1,05	0,68	0,72	0,85	0,88	0,68	0,49	1,47	0,492	0,45	0,53	0,65	0,77	0,55	0,69	0,55
dich	1,11	0,82	1,21	1,33	1,29	1,55	1,34	1,16	1,24	1,41	1,43	1,59	1,87	1,48	1,875	0,89	1,41	1,49	1,32	0,94	1,17	0,94
dicnfc	0,30	0,18	0,26	0,30	0,29	0,25	0,38	0,25	0,26	0,31	0,32	0,26	0,20	0,52	0,202	1,18	0,29	0,25	0,28	0,20	0,25	0,20
dicfc	0,08	0,05	0,08	0,09	0,08	0,08	0,10	0,07	0,08	0,09	0,09	0,09	0,08	0,13	0,083	0,08	1,08	0,09	0,08	0,06	0,07	0,06
dicnp	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,011	0,01	0,02	1,01	0,01	0,01	0,01	0,01
dikh	0,13	0,10	0,14	0,16	0,15	0,18	0,16	0,14	0,15	0,17	0,17	0,18	0,21	0,18	0,212	0,12	0,33	0,17	1,15	0,13	0,60	0,11
diknfc	0,21	0,13	0,18	0,21	0,20	0,18	0,26	0,18	0,18	0,22	0,23	0,18	0,14	0,36	0,141	0,82	0,20	0,17	0,20	1,14	0,18	0,14
dikfc	0,05	0,03	0,04	0,05	0,05	0,04	0,06	0,04	0,04	0,05	0,05	0,05	0,04	0,07	0,043	0,08	0,47	0,05	0,05	0,09	1,23	0,03
diknp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,001	0,00	0,00	0,07	0,00	0,00	0,00	1,00

Source: Tables 4 and A.1.11.

Table A.1.14. Accounting multipliers matrix – 2005 (Scenario B)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dich	dicnfc	dicfc	dicnp	dikh	diknfc	dikfc	diknp
p1	1,17	0,09	0,09	0,09	0,07	0,09	0,24	0,15	0,09	0,10	0,08	0,09	0,10	0,07	0,099	0,06	0,09	0,09	0,13	0,08	0,10	0,08
p2	1,08	1,94	1,43	1,18	0,97	1,20	1,37	1,57	1,47	1,25	1,06	1,23	1,18	0,96	1,187	1,04	1,18	1,22	1,63	1,48	1,38	1,60
p3	0,21	0,13	1,61	0,23	0,25	0,24	0,26	0,19	0,64	0,25	0,28	0,24	0,24	0,28	0,241	0,44	0,63	0,28	1,38	0,67	1,10	0,69
p4	0,36	0,27	0,26	0,92	0,23	0,29	0,29	0,28	0,26	0,34	0,25	0,30	0,27	0,21	0,274	0,19	0,24	0,28	0,31	0,25	0,26	0,26
p5	0,42	0,31	0,45	0,58	1,66	0,55	0,49	0,45	0,46	0,62	0,76	0,56	0,48	0,38	0,480	0,39	0,48	0,58	0,73	0,53	0,57	0,49
p6	0,12	0,08	0,13	0,15	0,15	1,21	0,15	0,12	0,13	0,16	0,17	0,22	0,19	0,15	0,188	0,12	0,15	1,03	0,17	0,11	0,14	0,17
a1	0,73	0,06	0,06	0,06	0,05	0,06	1,15	0,10	0,06	0,06	0,05	0,06	0,06	0,05	0,065	0,04	0,06	0,06	0,09	0,05	0,07	0,06
a2	0,54	0,95	0,73	0,60	0,50	0,60	0,68	1,78	0,73	0,62	0,53	0,61	0,59	0,48	0,591	0,52	0,59	0,61	0,82	0,74	0,70	0,80
a3	0,20	0,12	1,51	0,22	0,24	0,23	0,25	0,19	1,60	0,24	0,27	0,23	0,23	0,26	0,230	0,41	0,60	0,26	1,30	0,63	1,04	0,65
a4	0,58	0,44	0,43	1,43	0,44	0,47	0,47	0,46	0,44	1,55	0,43	0,48	0,44	0,34	0,446	0,31	0,40	0,46	0,53	0,42	0,43	0,44
a5	0,34	0,25	0,37	0,47	1,33	0,44	0,40	0,37	0,37	0,50	1,61	0,45	0,39	0,31	0,388	0,31	0,39	0,47	0,60	0,43	0,46	0,40
a6	0,14	0,09	0,16	0,17	0,21	1,20	0,17	0,14	0,15	0,18	0,20	1,24	0,21	0,17	0,207	0,14	0,17	1,03	0,21	0,14	0,17	0,20
fle	0,52	0,41	0,74	0,76	0,65	1,05	0,60	0,61	0,75	0,81	0,70	1,08	1,47	0,39	0,472	0,41	0,52	0,96	0,81	0,55	0,65	0,59
foa	0,71	0,36	0,53	0,64	0,77	0,56	0,93	0,54	0,54	0,69	0,89	0,57	0,40	1,32	0,403	0,34	0,42	0,55	0,65	0,46	0,52	0,47
dich	0,93	0,62	1,05	1,14	1,09	1,38	1,14	0,93	1,07	1,21	1,21	1,42	1,72	1,15	1,726	0,73	1,16	1,30	1,19	0,82	0,96	0,86
dicnfc	0,19	0,10	0,15	0,18	0,21	0,16	0,25	0,15	0,15	0,19	0,24	0,17	0,13	0,35	0,129	1,11	0,24	0,16	0,18	0,13	0,15	0,13
dicfc	0,09	0,05	0,08	0,09	0,10	0,09	0,11	0,07	0,08	0,09	0,11	0,09	0,08	0,15	0,081	0,11	1,09	0,09	0,09	0,06	0,07	0,06
dicnp	0,02	0,01	0,02	0,02	0,03	0,02	0,03	0,02	0,02	0,03	0,03	0,02	0,02	0,04	0,023	0,05	0,03	1,03	0,02	0,02	0,02	0,02
dikh	0,09	0,05	0,09	0,10	0,10	0,12	0,11	0,08	0,09	0,11	0,11	0,12	0,14	0,12	0,139	0,08	0,35	0,11	1,10	0,07	0,64	0,08
diknfc	0,11	0,06	0,08	0,10	0,12	0,09	0,14	0,08	0,08	0,11	0,13	0,09	0,07	0,19	0,071	0,61	0,13	0,09	0,10	1,07	0,08	0,07
dikfc	0,06	0,04	0,05	0,06	0,07	0,06	0,08	0,05	0,06	0,07	0,08	0,06	0,06	0,11	0,058	0,08	0,78	0,07	0,07	0,05	1,68	0,05
diknp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,003	0,00	0,01	0,09	0,00	0,00	0,02	1,00

Source: Tables 5 and A.1.12.

Table A.1.15. Additional intragroup or direct effects matrix ($M_1 - I$) – 1995 (Scenario B)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dich	dicnfc	dicfc	dicnp	dikh	diknfc	dikfc	diknp	
p1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p4	0	0	0	-0,45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
fle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
foa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dich	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,006	0	0	0	0	0	0	0	0
dicnfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,00	0	0	0	0	0	0	0
dicfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,01	0	0	0	0	0	0
dicnp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,00	0	0	0	0	0
dikh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
diknfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dikfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,19	0
diknp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: Table A.1.11.

Table A.1.16. Additional intragroup or direct effects matrix ($M_1 - I$) – 2005 (Scenario B)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dich	dicnfc	dicfc	dicnp	dikh	diknfc	dikfc	diknp	
p1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p4	0	0	0	-0,39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
p6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
fle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
foa	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dich	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,006	0	0	0	0	0	0	0	0
dicnfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,01	0	0	0	0	0	0	0
dicfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,01	0	0	0	0	0	0
dicnp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,01	0	0	0	0	0
dikh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
diknfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
dikfc	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,63	0
diknp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: Table A.1.12.

A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table A.1.17. Additional intergroup or indirect effects matrix $(M_2 - I) * M_1 - 1995$ (Scenario B)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dich	dicnfc	dicfc	dicnp	dikh	diknfc	dikfc	diknp
p1	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,03	0,03	0,04	0,02	0,02	0,028	0,02	0,02	0,04	0,05	0,03	0,03	0,04
p2	0,24	0,17	0,22	0,23	0,22	0,22	0,29	0,29	0,33	0,31	0,33	0,31	0,20	0,24	0,254	0,17	0,26	0,44	0,48	0,32	0,32	0,33
p3	0,08	0,04	0,07	0,09	0,08	0,10	0,05	0,04	0,06	0,05	0,06	0,05	0,05	0,07	0,034	0,03	0,08	0,05	0,10	0,05	0,06	0,05
p4	0,05	0,04	0,06	0,05	0,05	0,06	0,05	0,04	0,04	0,05	0,05	0,04	0,04	0,04	0,038	0,04	0,05	0,07	0,06	0,04	0,06	0,04
p5	0,07	0,06	0,07	0,07	0,07	0,07	0,09	0,09	0,09	0,10	0,13	0,10	0,06	0,07	0,078	0,05	0,07	0,14	0,12	0,09	0,09	0,08
p6	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,03	0,03	0,04	0,03	0,02	0,02	0,030	0,02	0,02	0,07	0,05	0,03	0,03	0,03
a1	0,03	0,02	0,03	0,03	0,02	0,03	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,02	0,013	0,02	0,02	0,02	0,02	0,01	0,02	0,01
a2	0,19	0,15	0,25	0,23	0,20	0,26	0,15	0,12	0,12	0,13	0,14	0,12	0,17	0,15	0,109	0,18	0,17	0,14	0,14	0,11	0,20	0,11
a3	0,04	0,03	0,10	0,05	0,06	0,05	0,10	0,06	0,07	0,09	0,08	0,10	0,05	0,06	0,053	0,09	0,07	0,04	0,04	0,03	0,13	0,03
a4	0,08	0,06	0,09	0,11	0,10	0,12	0,10	0,10	0,10	0,10	0,09	0,10	0,07	0,08	0,077	0,07	0,08	0,08	0,12	0,09	0,10	0,10
a5	0,07	0,06	0,09	0,11	0,15	0,12	0,07	0,06	0,06	0,06	0,06	0,06	0,08	0,07	0,050	0,07	0,08	0,06	0,07	0,05	0,08	0,05
a6	0,04	0,03	0,05	0,06	0,06	0,08	0,03	0,02	0,02	0,03	0,03	0,03	0,03	0,02	0,019	0,02	0,03	0,03	0,03	0,02	0,03	0,02
fle	0,08	0,07	0,08	0,08	0,08	0,08	0,13	0,12	0,13	0,14	0,15	0,16	0,10	0,12	0,090	0,08	0,12	0,12	0,16	0,11	0,12	0,11
foa	0,08	0,07	0,09	0,08	0,08	0,08	0,12	0,12	0,13	0,13	0,14	0,14	0,09	0,11	0,093	0,08	0,12	0,12	0,16	0,12	0,12	0,12
dich	0,18	0,16	0,26	0,25	0,28	0,21	0,15	0,16	0,15	0,15	0,15	0,14	0,28	0,22	0,164	0,25	0,26	0,18	0,19	0,16	0,30	0,16
dicnfc	0,04	0,04	0,05	0,05	0,06	0,04	0,03	0,04	0,03	0,03	0,03	0,03	0,05	0,04	0,037	0,05	0,05	0,05	0,05	0,04	0,06	0,04
dicfc	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,014	0,01	0,01	0,03	0,02	0,01	0,02	0,01
dicnp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,002	0,00	0,00	0,00	0,00	0,00	0,00	0,00
dikh	0,03	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,03	0,03	0,04	0,03	0,02	0,02	0,031	0,02	0,02	0,08	0,05	0,03	0,03	0,03
diknfc	0,03	0,03	0,03	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,05	0,03	0,02	0,02	0,038	0,02	0,02	0,05	0,07	0,04	0,04	0,04
dikfc	0,01	0,01	0,01	0,01	0,01	0,02	0,01	0,01	0,01	0,01	0,01	0,01	0,00	0,00	0,006	0,00	0,01	0,01	0,01	0,01	0,01	0,01
diknp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,000	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Source: Table A.1.11.

Table A.1.18. Additional intergroup or indirect effects matrix $(M_2 - I) * M_1 - 2005$ (Scenario B)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dich	dicnfc	dicfc	dicnp	dikh	diknfc	dikfc	diknp
p1	0,01	0,01	0,01	0,01	0,01	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,01	0,01	0,017	0,01	0,01	0,03	0,03	0,02	0,02	0,02
p2	0,18	0,11	0,15	0,15	0,15	0,15	0,23	0,22	0,27	0,24	0,23	0,25	0,13	0,14	0,197	0,11	0,21	0,35	0,41	0,27	0,22	0,29
p3	0,05	0,03	0,05	0,06	0,06	0,07	0,05	0,03	0,06	0,04	0,05	0,04	0,05	0,05	0,029	0,02	0,11	0,04	0,11	0,06	0,05	0,06
p4	0,05	0,04	0,05	0,05	0,04	0,05	0,04	0,04	0,04	0,05	0,05	0,04	0,04	0,03	0,038	0,04	0,04	0,07	0,06	0,04	0,05	0,04
p5	0,08	0,05	0,07	0,07	0,06	0,07	0,09	0,08	0,10	0,11	0,11	0,11	0,06	0,06	0,079	0,05	0,08	0,14	0,14	0,09	0,08	0,10
p6	0,03	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,03	0,03	0,03	0,03	0,01	0,01	0,028	0,01	0,02	0,06	0,05	0,03	0,03	0,03
a1	0,02	0,01	0,02	0,02	0,01	0,02	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,007	0,01	0,01	0,01	0,01	0,01	0,01	0,01
a2	0,13	0,10	0,19	0,16	0,14	0,19	0,09	0,07	0,08	0,08	0,08	0,08	0,12	0,09	0,068	0,12	0,12	0,10	0,10	0,07	0,15	0,08
a3	0,03	0,02	0,12	0,04	0,05	0,04	0,07	0,04	0,05	0,06	0,07	0,07	0,04	0,05	0,043	0,10	0,06	0,04	0,04	0,03	0,16	0,03
a4	0,08	0,05	0,09	0,11	0,10	0,12	0,09	0,09	0,09	0,08	0,08	0,09	0,07	0,06	0,065	0,05	0,07	0,07	0,10	0,08	0,08	0,09
a5	0,07	0,05	0,09	0,12	0,12	0,13	0,06	0,05	0,05	0,06	0,06	0,06	0,08	0,06	0,047	0,07	0,07	0,06	0,07	0,05	0,09	0,05
a6	0,04	0,02	0,05	0,06	0,06	0,08	0,03	0,02	0,02	0,03	0,03	0,03	0,02	0,02	0,017	0,02	0,02	0,03	0,03	0,02	0,03	0,02
fle	0,08	0,06	0,08	0,07	0,06	0,07	0,12	0,10	0,13	0,13	0,13	0,15	0,08	0,09	0,080	0,06	0,14	0,12	0,17	0,11	0,10	0,11
foa	0,07	0,05	0,07	0,06	0,05	0,06	0,11	0,10	0,11	0,12	0,12	0,13	0,07	0,07	0,078	0,05	0,11	0,10	0,14	0,10	0,08	0,10
dich	0,15	0,12	0,23	0,22	0,21	0,19	0,13	0,12	0,12	0,12	0,11	0,11	0,25	0,17	0,128	0,21	0,21	0,15	0,16	0,12	0,29	0,13
dicnfc	0,03	0,02	0,03	0,04	0,04	0,03	0,02	0,02	0,02	0,02	0,02	0,02	0,04	0,02	0,021	0,03	0,03	0,03	0,03	0,02	0,04	0,02
dicfc	0,01	0,01	0,01	0,02	0,02	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,014	0,01	0,01	0,03	0,02	0,01	0,02	0,02
dicnp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,004	0,00	0,00	0,01	0,01	0,00	0,01	0,00
dikh	0,02	0,01	0,01	0,02	0,02	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,01	0,01	0,020	0,01	0,01	0,05	0,03	0,02	0,02	0,02
diknfc	0,02	0,01	0,01	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,01	0,01	0,021	0,01	0,01	0,03	0,03	0,02	0,02	0,02
dikfc	0,02	0,01	0,01	0,02	0,02	0,02	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,011	0,01	0,01	0,01	0,02	0,01	0,01	0,01
diknp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,000	0,00	0,00	0,00	0,00	0,00	0,00	0,00

Source: Table A.1.12.

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table A.1.19. Additional extragroup or cross effects matrix $(M_3 - I) * M_2 * M_1$ - 1995 (Scenario B)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dich	dicnfc	dicfc	dicnp	dikh	diknfc	dikfc	diknp
p1	0,17	0,13	0,12	0,13	0,11	0,13	0,22	0,20	0,11	0,13	0,11	0,12	0,14	0,12	0,130	0,11	0,13	0,11	0,16	0,12	0,14	0,11
p2	1,17	1,07	1,56	1,34	1,17	1,36	1,43	1,59	1,50	1,34	1,20	1,29	1,32	1,23	1,267	1,32	1,31	1,15	1,54	1,51	1,61	1,74
p3	0,17	0,13	0,48	0,20	0,23	0,20	0,26	0,21	0,51	0,26	0,29	0,26	0,25	0,29	0,276	0,42	0,49	0,27	1,24	0,52	1,00	0,56
p4	0,27	0,24	0,21	0,27	0,21	0,22	0,23	0,24	0,23	0,29	0,23	0,24	0,22	0,20	0,226	0,18	0,21	0,21	0,26	0,22	0,24	0,23
p5	0,30	0,26	0,37	0,45	0,73	0,48	0,34	0,36	0,36	0,45	0,80	0,46	0,39	0,35	0,372	0,35	0,39	0,43	0,49	0,40	0,48	0,27
p6	0,10	0,08	0,12	0,14	0,16	0,17	0,13	0,11	0,11	0,14	0,17	0,17	0,18	0,15	0,163	0,10	0,15	1,00	0,12	0,09	0,12	0,08
a1	0,80	0,09	0,08	0,08	0,07	0,08	0,16	0,16	0,09	0,10	0,09	0,10	0,09	0,08	0,102	0,07	0,09	0,09	0,13	0,10	0,11	0,10
a2	0,59	1,08	0,73	0,63	0,59	0,61	0,80	0,92	0,89	0,78	0,71	0,76	0,67	0,67	0,729	0,64	0,69	0,74	0,98	0,90	0,86	1,03
a3	0,21	0,14	1,39	0,23	0,23	0,23	0,20	0,18	0,48	0,21	0,25	0,20	0,25	0,29	0,246	0,34	0,49	0,27	1,24	0,52	0,89	0,56
a4	0,47	0,42	0,38	1,39	0,38	0,37	0,39	0,40	0,38	0,50	0,42	0,40	0,39	0,34	0,387	0,32	0,37	0,41	0,44	0,37	0,42	0,37
a5	0,24	0,20	0,27	0,32	1,34	0,33	0,29	0,31	0,31	0,40	0,70	0,41	0,29	0,28	0,321	0,26	0,30	0,41	0,44	0,35	0,39	0,24
a6	0,10	0,08	0,11	0,12	0,18	1,11	0,14	0,13	0,13	0,16	0,21	0,19	0,18	0,15	0,187	0,11	0,15	1,03	0,16	0,12	0,15	0,11
fle	0,46	0,41	0,64	0,69	0,67	1,01	0,49	0,57	0,61	0,68	0,67	0,96	0,42	0,37	0,423	0,38	0,42	0,90	0,62	0,44	0,58	0,45
foa	0,76	0,42	0,61	0,73	0,71	0,58	0,93	0,57	0,59	0,72	0,74	0,53	0,40	0,36	0,398	0,38	0,40	0,53	0,61	0,44	0,57	0,43
dich	0,94	0,66	0,95	1,08	1,01	1,34	1,19	1,00	1,09	1,26	1,28	1,45	1,59	1,27	0,705	0,64	1,15	1,32	1,12	0,78	0,87	0,78
dicnfc	0,26	0,14	0,20	0,24	0,23	0,21	0,35	0,22	0,23	0,28	0,29	0,23	0,15	0,48	0,165	0,12	0,24	0,20	0,24	0,17	0,19	0,16
dicfc	0,07	0,04	0,06	0,07	0,07	0,07	0,09	0,06	0,06	0,08	0,08	0,07	0,07	0,12	0,069	0,07	0,06	0,06	0,06	0,04	0,06	0,04
dicnp	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,009	0,01	0,02	0,01	0,01	0,01	0,01	0,01
dikh	0,11	0,08	0,12	0,13	0,13	0,16	0,13	0,11	0,11	0,13	0,13	0,15	0,20	0,17	0,181	0,11	0,31	0,10	0,10	0,10	0,57	0,08
diknfc	0,18	0,10	0,15	0,18	0,17	0,14	0,23	0,14	0,15	0,18	0,18	0,15	0,12	0,35	0,103	0,80	0,18	0,12	0,13	0,10	0,13	0,10
dikfc	0,03	0,02	0,03	0,03	0,03	0,03	0,05	0,03	0,04	0,04	0,04	0,04	0,04	0,07	0,036	0,07	0,47	0,04	0,04	0,08	0,03	0,03
diknp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,001	0,00	0,00	0,07	0,00	0,00	0,00	0,00

Source: Table A.1.11.

Table A.1.20. Additional extragroup or cross effects matrix $(M_3 - I) * M_2 * M_1$ - 2005 (Scenario B)

	p1	p2	p3	p4	p5	p6	a1	a2	a3	a4	a5	a6	fle	foa	dich	dicnfc	dicfc	dicnp	dikh	diknfc	dikfc	diknp
p1	0,15	0,08	0,07	0,08	0,06	0,08	0,22	0,13	0,07	0,08	0,06	0,07	0,09	0,06	0,082	0,05	0,08	0,06	0,10	0,06	0,08	0,06
p2	0,91	0,83	1,28	1,03	0,82	1,06	1,14	1,35	1,20	1,01	0,83	0,99	1,05	0,81	0,990	0,93	0,97	0,88	1,22	1,21	1,17	1,31
p3	0,15	0,10	0,56	0,17	0,19	0,17	0,22	0,16	0,57	0,20	0,23	0,20	0,19	0,23	0,212	0,41	0,52	0,23	1,27	0,61	1,05	0,63
p4	0,31	0,23	0,20	0,27	0,19	0,23	0,24	0,24	0,22	0,29	0,21	0,25	0,23	0,17	0,236	0,15	0,20	0,21	0,25	0,21	0,21	0,22
p5	0,34	0,25	0,38	0,51	0,60	0,48	0,40	0,37	0,36	0,51	0,65	0,46	0,42	0,32	0,400	0,34	0,40	0,44	0,60	0,44	0,49	0,39
p6	0,10	0,06	0,11	0,13	0,13	0,19	0,12	0,09	0,10	0,13	0,14	0,19	0,17	0,14	0,160	0,11	0,13	0,96	0,12	0,08	0,11	0,14
a1	0,71	0,05	0,04	0,04	0,04	0,04	0,14	0,09	0,05	0,06	0,04	0,05	0,05	0,04	0,058	0,03	0,05	0,05	0,08	0,05	0,06	0,05
a2	0,41	0,85	0,53	0,44	0,36	0,41	0,59	0,70	0,66	0,55	0,45	0,54	0,47	0,39	0,523	0,40	0,48	0,52	0,72	0,67	0,55	0,72
a3	0,17	0,10	1,39	0,18	0,20	0,18	0,18	0,14	0,55	0,18	0,20	0,17	0,19	0,22	0,187	0,32	0,53	0,22	1,27	0,60	0,88	0,63
a4	0,50	0,38	0,34	1,32	0,34	0,35	0,38	0,37	0,35	0,47	0,35	0,40	0,37	0,27	0,381	0,26	0,33	0,39	0,42	0,34	0,35	0,35
a5	0,27	0,20	0,27	0,35	1,21	0,32	0,33	0,31	0,32	0,44	0,55	0,40	0,30	0,24	0,341	0,25	0,32	0,41	0,53	0,38	0,37	0,34
a6	0,10	0,07	0,12	0,12	0,16	1,13	0,14	0,12	0,13	0,16	0,17	0,21	0,18	0,15	0,189	0,12	0,15	1,00	0,18	0,12	0,15	0,18
fle	0,45	0,35	0,66	0,69	0,58	0,98	0,48	0,51	0,62	0,68	0,57	0,93	0,39	0,30	0,392	0,34	0,38	0,84	0,64	0,44	0,56	0,47
foa	0,64	0,31	0,46	0,58	0,72	0,49	0,82	0,44	0,43	0,57	0,77	0,44	0,33	0,25	0,325	0,28	0,32	0,45	0,52	0,37	0,44	0,37
dich	0,78	0,50	0,82	0,92	0,89	1,19	1,01	0,81	0,95	1,10	1,11	1,30	1,46	0,98	0,592	0,52	0,96	1,15	1,03	0,69	0,67	0,73
dicnfc	0,16	0,08	0,12	0,14	0,17	0,13	0,23	0,13	0,13	0,17	0,22	0,15	0,09	0,33	0,108	0,07	0,21	0,13	0,15	0,11	0,10	0,11
dicfc	0,07	0,04	0,06	0,07	0,08	0,07	0,10	0,06	0,06	0,08	0,10	0,08	0,07	0,14	0,067	0,10	0,06	0,07	0,07	0,05	0,05	0,05
dicnp	0,02	0,01	0,02	0,02	0,02	0,02	0,03	0,02	0,02	0,02	0,03	0,02	0,02	0,04	0,019	0,04	0,02	0,02	0,02	0,01	0,01	0,01
dikh	0,07	0,04	0,08	0,08	0,08	0,10	0,09	0,06	0,07	0,08	0,09	0,10	0,13	0,11	0,119	0,07	0,34	0,06	0,07	0,05	0,62	0,05
diknfc	0,09	0,04	0,07	0,08	0,10	0,07	0,12	0,06	0,07	0,08	0,11	0,07	0,06	0,19	0,051	0,60	0,12	0,06	0,07	0,05	0,06	0,05
dikfc	0,05	0,03	0,04	0,05	0,05	0,04	0,07	0,04	0,05	0,06	0,07	0,05	0,05	0,10	0,048	0,08	0,77	0,05	0,05	0,04	0,04	0,03
diknp	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,002	0,00	0,01	0,09	0,00	0,00	0,02	0,00

Source: Table A.1.12.

A.2. The SAM-based linear model

A.2.1. Structural indicators

See “conventions and declarations in the A.2.3.”

cell	Equations (or exogenous variables)	Eq.nº
Distribution of generated income (gross added value) - among factors of production		
	$Digav_f = (GAV_f / \sum_a GAV_a) * 100$	(A.1)
Distribution of generated income (gross national income) - among institutions		
	$Digni_{dic} = (GNI_{dic} / GNI) * 100$	(A.2)
Distribution of disposable income (among institutions)		
	$Didi_{dic} = (DI_{dic} / DI) * 100$	(A.3)
Use of disposable income (among institutions)		
	$UdiFC_{dic} = (FC_{dic} / DI_{dic}) * 100$	(A.4)
	$UdiS_{dic} = (S_{dic} / DI_{dic}) * 100 = 100 - UdiFC_{dic}$	(A.5)

A.2.2. Macroeconomic aggregates

See “conventions and declarations in the A.2.3.”

cell	Equations (or exogenous variables)	Eq.nº
Gross Domestic Product at market prices		
	$GDP = \sum_a GAV_a + NTP + NTA$	(A.6)
Gross National Income (at Market Prices)		
	$GNIMP = GNI + \sum_{dic} NTP_{dic} + \sum_{dic} NTA_{dic}$	(A.7)
Gross Disposable Income		
	$DI = \sum_{dic} DI_{dic}$	(A.8)
	$DI_{dic} = GNI_{dic} + NTA_{dic} + NTP_{dic} + CTR_{dic} + CT_{dicrw} - CTP_{dic} - CT_{rwdic}$	(A.9)

A.2.3. Conventions and declarations

Sets (set indices: lower-case subscripts)

p ε Products [products of agriculture, hunting, forestry, fisheries and aquaculture (group 1, **p1**); products from mining and quarrying, manufactured products and energy products (group 2, **p2**); construction work (group 3, **p3**); wholesale and retail trade services, repair services, hotel and restaurant services, transport and communication services (group 4, **p4**); financial intermediation services, real estate, renting and business services (group 5, **p5**); other services (group 6, **p6**)]

a ε Activities [agriculture, hunting and forestry; fishing and operation of fish hatcheries and fish farms (group1, **a1**); industry, including energy (group 2, **a2**); construction (group 3, **a3**); wholesale and retail trade, repair of motor vehicles and household goods, hotels and restaurants;

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

transport and communications (group 4, **a4**); financial, real-estate, renting and business activities (group 5, **a5**); other service activities (group 6, **a6**)

f ε Factors of production

- Labour – employees (**fle**)
- Own assets (**foa**) (employers and/or own-account workers; capital)

di ε Domestic Institutions

- **dic** (current account of di) [households (**dich**); non-financial corporations (**dicnfc**); financial corporations (**dicfc**); general government (**dicg**); non-profit institutions serving households (**dicnp-NPISHs**)]
- **dik** (capital account of di) [households (**dikh**), non-financial corporations (**diknfc**), financial corporations (**dikfc**), general government (**dikg**), and non-profit institutions serving households (**diknp-NPISHs**)]
- **dif** (financial account of di)

rw ε rest of the world

In variables and parameters with **two indices**, the **first** represent the **row** and the **second** the **column accounts** (both indices may be equal).

Parameters (lower-case, italics)

- α* .. share of the production of each group of activities in the value of production of each group of products
- β* .. proportion of gross added value in the value of production of each group of activities
- γ* .. proportion of intermediate consumption in the value of production of each group of activities
- adv*.. share of the value of acquisitions less disposals of valuables of each group of products by each group of domestic institutions in the total value of acquisitions less disposals of valuables by these institutions
- advc* .. coefficient of acquisitions less disposals of valuables: amount expended by each group of domestic institutions on acquisitions less disposals of valuables per unit of gross saving
- apc* .. average propensity to consume of each group of domestic institutions: amount of final consumption per unit of (gross) disposable income
- cf*.. share of compensation of factors received by domestic institutions

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

<i>cgfcf ..</i>	rate of coverage of gross fixed capital formation of each group of domestic institutions by investment grants received by these institutions
<i>chinvc ..</i>	share of the value of changes in inventories of each group of products by each group of domestic institutions in the total value of changes in inventories of that group of products
<i>chinvc ..</i>	coefficient of changes in inventories: amount of change in inventories of each group of products per unit of supply
<i>dfs..</i>	share of compensation of factors (compensation of employees, gross operating surplus and gross mixed income) in the gross added value
<i>d5s ..</i>	share of current tax on income, wealth, etc. paid by each group of domestic institutions to each group of domestic institutions (Portuguese general government), in the total of current tax on income, wealth, etc. paid by the former
<i>d5rws..</i>	share of current tax on income, wealth, etc. paid by each group of domestic institutions to the rest of the world in the total of current tax on income, wealth, etc. paid by the former
<i>d61s ..</i>	share of social contributions paid by each group of domestic institutions to each group of domestic institutions in the total of social contributions paid by the former
<i>d61rws..</i>	share of social contributions paid by each group of domestic institutions to the rest of the world in the total of social contributions paid by the former
<i>d62s ..</i>	share of social benefits other than social transfers in kind paid by each group of domestic institutions to each group of domestic institutions in the total of social benefits other than social transfers in kind paid by the former
<i>d62rws..</i>	share of social benefits other than social transfers in kind paid by each group of domestic institutions to the rest of the world in the total of social benefits other than social transfers in kind paid by the former
<i>d7 ..</i>	share of other current transfers paid by each group of domestic institutions to each group of domestic institutions in the total of other current transfers paid by the former
<i>d7rws ..</i>	share of other current transfers paid by each group of domestic institutions to the rest of the world in the total of social benefits other than social transfers in kind paid by the former
<i>d91 ..</i>	share of capital taxes paid by each group of domestic institutions (households) to each group of domestic institutions (Portuguese general government) in the total of capital taxes paid by the former

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

<i>d92..</i>	share of investment grants paid by each group of domestic institutions (Portuguese general government) to each group of domestic institutions in the total of investment grants received by the latter
<i>d92rw..</i>	share of investment grants paid by the rest of the world to each group of domestic institutions in the total of investment grants received by the latter
<i>d99..</i>	share of other capital transfers paid by each group of domestic institutions to each group of domestic institutions in the total of other capital transfers received by the latter
<i>d99rw..</i>	share of other capital transfers paid by the rest of the world to each group of domestic institutions in the total of other capital transfers received by the latter
<i>fcs ..</i>	proportion of expenditure on final consumption in each group of products in the total value of the final consumption of each group of domestic institutions
<i>fcsrw ..</i>	proportion of expenditure on final consumption in the rest of the world in the total value of the final consumption of each group of domestic institutions
<i>gfcf ..</i>	share of the value of gross fixed capital formation in each group of products by each group of domestic institutions in the total value of gross fixed capital formation by these institutions
<i>icp ..</i>	coefficient of the intermediate consumption of products: proportion of intermediate consumption of each group of products per unit of intermediate consumption of each group of activities
<i>ntag ..</i>	share of net taxes on production paid by each group of activities and received by domestic institutions (Portuguese general government)
<i>ntarw ..</i>	share of net taxes on production paid by each group of activities and received by the rest of the world (European Union institutions)
<i>ntpg ..</i>	share of net taxes on each group of products received by domestic institutions (Portuguese general government)
<i>ntprw ..</i>	share of net taxes on each group of products received by the rest of the world (European Union institutions)
<i>sc ..</i>	social contribution rate: social contributions paid by domestic institutions, per unit of received gross national income
<i>si ..</i>	saving identity special
<i>ti ..</i>	rate of direct taxes: current taxes on income, wealth, etc. paid by domestic institutions, per unit of received aggregate income
<i>tk ..</i>	rate of capital tax levied on other capital transfers received by domestic institutions

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

- tmr* .. rate of trade and transport margins on each group of domestically transacted products: amount of trade and transport margins per unit of value of domestically transacted products
- tp* .. (net) tax rate on each group of products: amount of (net) taxes on products per unit of the value of domestically transacted products

Exogenous variables (upper-case, at least the first letter, italics)

- CFR*.. compensation of the factors of production received from the rest of the world
- CFS*.. compensation of the factors of production sent to the rest of the world
- D5RW* .. current taxes on income, wealth, etc. (transaction D5 of the National Accounts) received by domestic institutions from the rest of the world
- D61RW* .. social contributions (transaction D61 of the National Accounts) received by domestic institutions from the rest of the world
- D62P* .. social benefits other than social transfers in kind (transaction D62 of the National Accounts) paid by domestic institutions
- D62RW* .. social benefits other than social transfers in kind (transaction D62 of the National Accounts) received by domestic institutions from the rest of the world
- D7P* .. other current transfers (transaction D7 of the National Accounts) paid by domestic institutions
- D7RW* .. other current transfers (transaction D7 of the National Accounts) received by domestic institutions from the rest of the world
- D8* .. adjustment made for the change in the net equity of households in pension fund reserves (transaction D8 of the National Accounts)
- D92P* .. investment grants (transaction D92 of the National Accounts) paid by domestic institutions (Portuguese general government) to the rest of the world
- D99P* .. other capital transfers (transaction D99 of the National Accounts) paid by domestic institutions to the rest of the world
- D99R* .. other capital transfers (transaction D99 of the National Accounts) received by domestic institutions
- EX* .. value of exports (transaction P6 of the National Accounts, at f.o.b. prices)
- FT* .. financial transactions (transactions F1 to F7 of the National Accounts), except those received from the rest of the world
- IM* .. value of imports (transaction P7 of the National Accounts, at c.i.f. prices)
- K2* .. acquisitions less disposals of non-financial non-produced assets (transaction K2 of the National Accounts)

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

NTAA .. net taxes on production paid by each group of activities
P51 .. value of gross fixed capital formation (transaction P51 of the National Accounts)

Endogenous variables (upper-case, at least the first letter, normal)

AD .. value of aggregate demand (at market prices)
AFIP .. aggregate factors income (paid)
AFIR .. aggregate factors income (received)
AI .. aggregate income (received)
AINV .. aggregate investment
AIP .. aggregate income (paid)
AS .. aggregate supply (value at market prices)
CT .. current transfers
CTP .. (total) current transfers paid by each group of domestic institutions to (all) domestic institutions
CTR .. (total) current transfers received by each group of domestic institutions from (all) domestic institutions
DI .. (gross) disposable income
Didi .. percentage of gross disposable income received by domestic institutions
Digav .. percentage of income generated by the factors production
Digni.. percentage of generated income (gross national income) received by domestic institutions
DT.. value of domestically transacted products, at basic-c.i.f. prices
DTmp .. value of domestically transacted products, at market prices
D5 .. current taxes on income, wealth, etc. (transaction D5 of the National Accounts)
D61 .. social contributions (transaction D61 of the National Accounts)
D91P .. capital taxes (transaction D91 of the National Accounts) paid by domestic institutions
D92R .. investment grants (transaction D92 of the National Accounts) received by domestic institutions
FC .. value of final consumption (transaction P3 of the National Accounts), at market prices
FTRW .. financial transactions (transactions F1 to F7 of the National Accounts) received by domestic institutions from the rest of the world
GAV .. gross added value, at factor cost

A quantitative approach to the effects of social policy measures.

An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

GCF ..	value of gross capital formation (transaction P5 of the National Accounts), at market prices
GDP..	gross domestic product, at market prices
GNI ..	gross national income, at factor cost
GNIMP..	gross national income, at market prices
INVF ..	investment funds
KT ..	capital transfers
KTP ..	(total) capital transfers paid by each group of domestic institutions to (all) domestic institutions
KTR ..	(total) capital transfers received by each group of domestic institutions from (all) domestic institutions
NLB ..	net lending / borrowing
NTA ..	net taxes on production (transaction D29-D39 of the National Accounts)
NTP ..	net taxes on products (transaction D21-D31 of the National Accounts)
P52 ..	value of changes in inventories (transaction P52 of the National Accounts)
P53 ..	value of acquisitions less disposals of valuables (transaction P53 of the National Accounts)
S ..	gross saving
TFTP ..	total financial transactions (paid)
TFTR ..	total financial transactions (received)
TM..	trade and transport margins on transacted products p
TMP..	trade and transport margins on transacted products p - total
TVRWP ..	value of transactions to the rest of the world
TVRWR ..	transactions value from the rest of the world
UdiFC ..	percentage of gross disposable income used in final consumption by domestic institutions
UdiS ..	percentage of gross disposable income used in (gross) saving by domestic institutions
VCT ..	value of total costs (at basic prices)
VIC ..	value of intermediate consumption (transaction P2 of the National Accounts) at market prices
VP ..	value of production (transaction P1 of the National Accounts), at basic prices
VPT..	total production value (at basic prices)

A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

A.3. Portuguese Integrated Economic Accounts

Table A.3.1. Portuguese Integrated Economic Accounts for 1995 (in millions of euros)

Current accounts											
Uses											
Accounts	Total	Goods and Services Account (Resources)	S.2 Rest of the World Account	S.1 Total of the Economy	S.15 NPISHs	S.14 Households	S.13 General Government	S.12 Financial Corporations	S.11 Non-Financial Corporations	Code	Transactions and other flows, stocks and balancing items
I. Production / external account of goods and services	29 454	29 454								P.7	Imports of goods and services
	24 433		24 433							P.6	Exports of goods and services
	154 394	154 394								P.1	Output of goods and services
	84 102			84 102	1 527	9 294	3 003	1 631	64 959	P.2	Intermediate consumption
	10 535	10 535								D.21-D.31	Net taxes on products
	80 827			80 827	1 190	16 966	12 386	4 333	39 105	B.1g/B.1'g	Gross added value/gross domestic product
	13 457			13 457	279	3 715	1 526	733	7 204	K.1	Consumption of fixed capital
	67 369			67 369	911	13 251	10 860	3 600	31 900	B.1n/B.1'n	Value added, net/Net domestic product
	5 021		5 021							B.11	External balance of goods and services
	38 683		120	38 563	1 126	2 111	10 990	2 309	22 027	D.1	Compensation of employees
10 102			10 102	- 14	- 118	- 56	- 4	- 241	D.2-D.3	Net taxes on production and imports	
10 535			10 535						D.21-D.31	Net taxes on products	
- 433			- 433	- 14	- 118	- 56	- 4	- 241	D.29-D.39	Net taxes on production	
17 189			17 189	78		1 452	2 028	17 319	B.2g	Gross operating surplus	
14 973			14 973		14 973				B.3g	Gross mixed income	
7 446			7 446	- 201		- 74	1 295	10 115	B.2n	Net operating surplus	
11 258			11 258		11 258				B.3n	Net mixed income	
31 314		3 123	28 191	38	2 976	5 066	12 175	7 936	D.4	Property income	
80 479			80 479	137	59 614	7 379	1 787	11 561	B.5g	Gross national income/ Gross balance of primary incomes	
67 022			67 022	- 142	55 899	5 853	1 054	4 357	B.5n	Net national income/ Net balance of primary incomes	
7 161			7 161	2	4 932		226	2 000	D.5	Current taxes on income, wealth, etc	
11 718			11 718		11 718				D.61	Social contributions	
11 659		29	11 630	13	42	9 515	720	1 339	D.62	Social benefits other than social transfers in kind	
15 737		3 931	11 807	19	1 865	8 194	1 066	663	D.7	Other current transfers	
83 517			83 517	1 388	57 105	13 371	2 311	9 342	B.6g	Gross disposable income	
70 059			70 059	1 109	53 390	11 845	1 578	2 138	B.6n	Net disposable income	
10 177			10 177	1 288		8 889			D.63	Social transfers in kind	
83 517			83 517	100	67 282	4 482	2 311	9 342	B.7g	Gross adjusted disposable income	
70 059			70 059	- 178	63 566	2 956	1 578	2 138	B.7n	Net adjusted disposable income	
83 517			83 517	1 388	57 105	13 371	2 311	9 342	B.6g	Gross disposable income	
70 059			70 059	1 109	53 390	11 845	1 578	2 138	B.6n	Net disposable income	
66 225			66 225		60 082	6 143			P.4	Actual Final Consumption	
66 225			66 225	1 288	49 905	15 032			P.3	Final consumption expenditure	
752			752				752		D.8	Adjustment for the change in the net equity of households in pension funds reserves	
17 291			17 291	100	7 952	- 1 661	1 558	9 342	B.8g	Gross saving	
3 834			3 834	- 178	4 237	- 3 187	825	2 138	B.8n	Net saving	
2 331		2 331							B.12	Current external balance	
Accumulation accounts											
Changes in Assets											
III.1. Change in net worth due to saving and capital transfers account										B.8g	Gross saving
										B.8n	Net saving
										B.12	Current external balance
	6 165		40	6 125	110	5 324	- 2 902	496	3 096	D.9	Capital transfers, receivable
18 457			18 457	359	5 383	3 018	918	8 781	D.9	Capital transfers, payable (-)	
- 13 457			- 13 457	- 279	- 3 715	- 1 526	- 733	- 7 204	B.10.1	Changes in net worth due to saving and capital transfers	
1 026			1 026	1	255			769	P.51	Gross fixed capital formation	
140			140	6	117		4	12	K.1	Consumption of fixed capital (-)	
		0	0		- 738	29	20	689	P.52	Changes in inventories	
		40	- 40	23	4 023	- 4 423	287	49	P.53	Acquisitions less disposals of valuables	
									K.2	Acquisitions less disposals of non-produced non-financial assets	
									B.9	Net lending (+) / borrowing (-)	
			S.2	S.1	S.15 + S.14	S.13	S.12	S.11			
III.2 Financial account	44 247		9 257	34 990	9 771		1 282	18 231	5 706		Net acquisition of financial assets
											Net incurrence of liabilities
			- 13	13				13		F.1	Monetary gold and SDRs
17 287		6 604	10 683		5 860		1 794	2 883	147	F.2	Currency and deposits
6 379		1 679	4 699	1 320			- 15	2 838	557	F.3	Securities other than shares
8 745		912	7 833	451			96	7 193	94	F.4	Loans
4 175		48	4 127	- 86			- 420	3 162	1 471	F.5	Shares and other equity
3 400		6	3 394	3 260			1	37	96	F.6	Insurance technical reserves
4 260		20	4 240	- 1 033			- 173	2 105	3 342	F.7	Other accounts receivable/payable
			40	- 40	4 332	- 4 422	187	- 137	- 137	B.9 F	Net lending (+) / borrowing (-)
					287		- 100	- 187			Statistical discrepancy

Source: Statistics Portugal (INE) - Portuguese National Accounts for 1995.

A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table A.3.1. Portuguese Integrated Economic Accounts for 1995 (in millions of euros)
(continued)

										Current accounts	
										Resources	
		S.12	S.13	S.14	S.15	S.1	S.2	Goods and Services Account (Uses)		Accounts	
Code	Transactions and other flows, stocks and balancing items	Financial Corporations	General Government	Households	NPISHs	Total of the Economy	Rest of the World Account		Total		
P.7	Imports of goods and services						29 454		29 454	I. Production / external account of goods and services	
P.6	Exports of goods and services							24 433	24 433		
P.1	Output of goods and services	5 964	15 389	26 260	2 717	154 394			154 394		
P.2	Intermediate consumption							84 102	84 102		
D.21-D.31	Net taxes on products					10 535			10 535		
B.1g/B.1'g	Gross added value/gross domestic product	4 333	12 386	16 966	1 190	80 874			80 874	II.1. Generation of income account	
K.1	Consumption of fixed capital										
B.1m/B.1'n	Value added, net/Net domestic product	3 600	10 860	13 251	911	67 369			67 369		
B.11	External balance of goods and services						5 021		5 021		
D.1	Compensation of employees			38 620		38 620	64		38 683	II.2. Allocation of primary income account	
D.2-D.3	Net taxes on production and imports		9 937			9 937	165		10 102		
D.21-D.31	Net taxes on products		10 283			10 283	252		10 535		
D.29-D.39	Net taxes on production		1 220			- 346	- 87		- 433		
B.2g	Gross operating surplus	2 028	1 452		78	17 189			17 189		
B.3g	Gross mixed income			14 973		14 973			14 973		
B.2n	Net operating surplus	1 295	- 74		- 201	7 446			7 446		
B.3n	Net mixed income			11 258		11 258			11 258		
D.4	Property income	15 623	1 056	8 998	97	27 952	3 363		31 314		
P.119	Adjustment to the FISIM (Financial Intermediation Services Indirectly Measured)	- 3 688									
B.5g	Gross national income/ Gross balance of primary incomes	1 787	7 379	59 614	137	80 479			80 479	II.2. Secondary distribution income account	
B.5n	Net national income/ Net balance of primary incomes	1 054	5 853	55 899	- 142	67 022			67 022		
D.5	Current taxes on income, wealth, etc		7 161			7 161			7 161		
D.61	Social contributions	1 473	8 851	42	13	11 718			11 718		
D.62	Social benefits other than social transfers in kind			11 629		11 629	30		11 659		
D.7	Other current transfers	1 063	7 690	4 376	1 272	14 845	892		15 737		
B.6g	Gross disposable income	2 311	13 371	57 105	1 388	83 517			83 517	III.3. Redistribution of income in kind account	
B.6n	Net disposable income	1 578	11 845	53 390	1 109	70 059			70 059		
D.63	Social transfers in kind			10 177		10 177			10 177		
B.7g	Gross adjusted disposable income	2 311	4 482	67 282	100	83 517			83 517	III.4. Use of income account	
B.7n	Net adjusted disposable income	1 578	2 956	63 566	- 178	70 059			70 059		
B.6g	Gross disposable income	2 311	13 371	57 105	1 388	83 517			83 517		
B.6n	Net disposable income	1 578	11 845	53 390	1 109	70 059			70 059		
P.4	Actual Final Consumption							66 225	66 225		
P.3	Final consumption expenditure							66 225	66 225		
D.8	Adjustment for the change in the net equity of households in pension funds reserves			752		752			752		
B.8g	Gross saving										
B.8n	Net saving										
B.12	Current external balance										
										Accumulation accounts	
										Changes in liabilities and net worth	
B.8g	Gross saving	1 558	- 1 661	7 952	100	17 291			17 291	III.1. Change in net worth due to saving and capital transfers account	
B.8n	Net saving	825	- 3 187	4 237	- 178	3 834			3 834		
B.12	Current external balance						2 331		2 331		
D.9	Capital transfers, receivable	814	3 375	1 166	292	7 250	29		7 278		
D.9	Capital transfers, payable (-)	- 1 143	- 3 089	- 78	- 4	- 4 959	- 2 320		- 7 278		
B.10.1	Changes in net worth due to saving and capital transfers	496	- 2 902	5 324	110	6 125	40		6 165	III.2. Acquisitions of non-financial assets account	
P.51	Gross fixed capital formation							18 457	18 457		
K.1	Consumption of fixed capital (-)										
P.52	Changes in inventories							1 026	1 026		
P.53	Acquisitions less disposals of valuables							140	140		
K.2	Acquisitions less disposals of non-produced non-financial assets							0	0		
B.9	Net lending (+) / borrowing (-)										
										III.2. Financial account	
	Net acquisition of financial assets										
	Net incurrence of liabilities	18 044	5 704	5 438		35 030	9 217		44 247		
F.1	Monetary gold and SDRs										
F.2	Currency and deposits	12 961	1 317			14 278	3 010		17 287		
F.3	Securities other than shares	127	4 038			5 345	1 034		6 379		
F.4	Loans	134	545	4 626		7 450	1 295		8 745		
F.5	Shares and other equity	1 288				3 683	492		4 175		
F.6	Insurance technical reserves	3 213				3 362	37		3 400		
F.7	Other accounts receivable/payable	321	- 196	812		911	3 349		4 260		
B.9 F	Net lending (+) / borrowing (-)										
	Statistical discrepancy										

Source: Statistics Portugal (INE) - Portuguese National Accounts for 1995.

A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table A.3.2. Portuguese Integrated Economic Accounts for 2005 (in millions of euros)

Current accounts												
Uses												
Accounts	Total	Goods and Services Account (Resources)	S.2 Rest of the World Account	S.1 Total of the Economy	S.15 NPISHs	S.14 Households	S.13 General Government	S.12 Financial Corporations	S.11 Non-Financial Corporations	Code	Transactions and other flows, stocks and balancing items	
I. Production / external account of goods and services	55 774	55 774									P.7	Imports of goods and services
	42 567		42 567								P.6	Exports of goods and services
	276 675	276 675									P.1	Output of goods and services
	148 312			148 312	3 708	19 847	6 316	4 635	113 807		P.2	Intermediate consumption
	20 761	20 761									D.21-D.31	Net taxes on products
	149 123			149 123	2 573	26 661	23 962	8 221	66 946		B.1g/B.1'g	Gross added value/gross domestic product
	24 753			24 753	556	6 807	2 622	588	14 181		K.1	Consumption of fixed capital
	124 370			124 370	20 761	2 017	19 854	21 341	7 633		B.1n/B.1'n	Value added, net/Net domestic product
	13 207		13 207								B.11	External balance of goods and services
	II.1.1. Generation of income account	75 547		189	75 358	2 086	4 297	21 541	3 642	43 792		D.1
	25 995			25 995	49	1 419	131	40	1 755		D.2-D.3	Net taxes on production and imports
	22 602			22 602							D.21-D.31	Net taxes on products
	3 394			3 394	49	1 419	131	40	1 755		D.29-D.39	Net taxes on production
	31 678			31 678	529		2 552	4 583	24 014		B.2g	Gross operating surplus
	22 589			22 589		22 589					B.3g	Gross mixed income
	13 732			13 732	- 27		- 70	3 995	9 833		B.2n	Net operating surplus
	15 783			15 783		15 783					B.3n	Net mixed income
II.1.2. Allocation of primary income account	40 424		7 633	32 791	128	2 239	4 119	12 541	13 764		D.4	Property income
	146 224			146 224	984	106 255	19 339	4 638	15 009		P.119	Adjustment to the FISIM (Financial Intermediation Services Indirectly Measured)
	121 470			121 470	428	99 448	16 717	4 050	828		B.5g	Gross national income/ Gross balance of primary incomes
											B.5n	Net national income/ Net balance of primary incomes
II.2. Secondary distribution income account	12 594		29	12 566	2	8 275		391	3 897		D.5	Current taxes on income, wealth, etc
	23 154		98	23 056		23 056					D.61	Social contributions
	26 040		34	26 005	20	51	22 250	1 932	1 753		D.62	Social benefits other than social transfers in kind
	23 962		4 442	19 520	92	3 924	11 017	2 047	2 441		D.7	Other current transfers
	147 706			147 706	3 312	102 404	27 199	4 907	9 884		B.6g	Gross disposable income
	122 953			122 953	2 756	95 597	24 577	4 319	- 4 297		B.6n	Net disposable income
II.3. Redistribution of income in kind account	22 133			22 133	3 012		19 121				D.63	Social transfers in kind
	147 706			147 706	300	124 537	8 078	4 907	9 884		B.7g	Gross adjusted disposable income
	122 953			122 953	- 256	117 730	5 456	4 319	- 4 297		B.7n	Net adjusted disposable income
II.4. Use of income account	147 706			147 706	3 312	102 404	27 199	4 907	9 884		B.6g	Gross disposable income
	122 953			122 953	2 756	95 597	24 577	4 319	- 4 297		B.6n	Net disposable income
	128 681			128 681		115 828	12 853				P.4	Actual Final Consumption
	128 681			128 681	3 012	93 695	31 974				P.3	Final consumption expenditure
	835			835				835			D.8	Adjustment for the change in the net equity of households in pension funds reserves
	19 025			19 025	300	9 544	- 4 775	4 072	9 884		B.8g	Gross saving
	- 5 728			- 5 728	- 256	2 737	- 7 397	3 484	- 4 297		B.8n	Net saving
	14 624		14 624								B.12	Current external balance
Accumulation accounts												
Changes in Assets												
III.1.1. Change in net worth due to saving and capital transfers account	8 896		12 383	- 3 487	130	4 848	- 7 500	1 488	- 2 452		B.8g	Gross saving
											B.8n	Net saving
											B.12	Current external balance
											D.9	Capital transfers, receivable
											D.9	Capital transfers, payable (-)
											B.10.1	Changes in net worth due to saving and capital transfers
III.1.2. Acquisitions of non-financial assets account	33 098			33 098	569	8 252	4 374	1 002	18 901		P.51	Gross fixed capital formation
	- 24 753			- 24 753	- 556	- 6 807	- 2 622	- 588	- 14 181		K.1	Consumption of fixed capital (-)
	382			382		63			318		P.52	Changes in inventories
	170			170	77	51	6	35	1		P.53	Acquisitions less disposals of valuables
			49	- 49		- 1 437	- 236	358	1 266		K.2	Acquisitions less disposals of non-produced non-financial assets
			12 335	- 12 335	41	4 725	- 9 023	681	- 8 758		B.9	Net lending (+) / borrowing (-)
			S.2	S.1	S.15 + S.14	S.13	S.12	S.11				
III.2. Financial account	87 810		31 113	56 697	15 454		579	34 233	6 431			Net acquisition of financial assets
												Net incurrence of liabilities
			507	- 507				- 507			F.1	Monetary gold and SDRs
	20 302		9 172	11 130	991		880	5 039	4 220		F.2	Currency and deposits
	25 430		10 148	15 282	88		520	15 768	- 1 094		F.3	Securities other than shares
	18 095		3 859	14 236	4		281	12 267	1 684		F.4	Loans
	17 890		7 427	10 463	6 589		- 523	2 948	1 449		F.5	Shares and other equity
	8 132		11	8 121	7 842		2	82	195		F.6	Insurance technical reserves
	- 2 039		- 11	- 2 028	- 60		- 581	- 1 364	- 23		F.7	Other accounts receivable/payable
											B.9 F	Net lending (+) / borrowing (-)
												Statistical discrepancy

Source: Statistics Portugal (INE) - Portuguese National Accounts for 2005.

A quantitative approach to the effects of social policy measures.
An application to Portugal, using Social Accounting Matrices. (SSantos, July 2010)

Table A.3.2. Portuguese Integrated Economic Accounts for 2005 (in millions of euros)
(continued)

										Current accounts		Resources								
										S.11	S.12	S.13	S.14	S.15	S.1	S.2	Goods and Services Account (Uses)	Total	Accounts	
Transactions and other flows, stocks and balancing items										Non-Financial Corporations	Financial Corporations	General Government	Households	NPISHs	Total of the Economy	Rest of the World Account				
Code																				
P.7	Imports of goods and services															55 774		55 774	I. Production / external account of goods and services	
P.6	Exports of goods and services																42 567	42 567		
P.1	Output of goods and services									180 752	12 856	30 278	46 508	6 282	276 675			276 675		
P.2	Intermediate consumption																148 312	148 312		
D.21-D.31	Net taxes on products														20 761		20 761			
B.1g/B.1'g	Gross added value/gross domestic product									66 946	8 221	23 962	26 661	2 573	149 123			149 123	II.1. Generation of income account	
K.1	Consumption of fixed capital																	124 370		
B.1n/B.1'n	Value added, net/Net domestic product									7 633	21 341	19 854	2 017	20 761	124 370			124 370		
B.11	External balance of goods and services															13 207		13 207		
D.1	Compensation of employees												75 198		75 198	350		75 547	II.2. Allocation of primary income account	
D.2-D.3	Net taxes on production and imports											24 723			24 723	1 273		25 995		
D.21-D.31	Net taxes on products											21 737			21 737	864		22 602		
D.29-D.39	Net taxes on production											2 985			2 985	409		3 394		
B.2g	Gross operating surplus									24 014	4 583	2 552		529	31 678			31 678		
B.3g	Gross mixed income												22 589		22 589			22 589		
B.2n	Net operating surplus									9 833	3 995	- 70		- 27	13 732			13 732		
B.3n	Net mixed income												15 783		15 783			15 783		
D.4	Property income									4 759	12 595	861	10 707	582	29 505	10 919		40 424		
P.119	Adjustment to the FISIM (Financial Intermediation Services Indirectly Measured)										- 3 688									
B.5g	Gross national income/ Gross balance of primary incomes									15 009	4 638	19 339	106 255	984	146 224			146 224	II.2. Secondary distribution income account	
B.5n	Net national income/ Net balance of primary incomes									828	4 050	16 717	99 448	428	121 470			121 470		
D.5	Current taxes on income, wealth, etc											12 574			12 574	20		12 594		
D.61	Social contributions									1 753	2 589	18 697	51	20	23 109	45		23 154		
D.62	Social benefits other than social transfers in kind												25 910		25 910	129		26 040		
D.7	Other current transfers									1 214	2 050	9 857	5 492	2 423	21 036	2 926		23 962		
B.6g	Gross disposable income									9 884	4 907	27 199	102 404	3 312	147 706			147 706	II.3. Redistribution of income in kind account	
B.6n	Net disposable income									- 4 297	4 319	24 577	95 597	2 756	122 953			122 953		
D.63	Social transfers in kind												22 133		22 133			22 133		
B.7g	Gross adjusted disposable income									9 884	4 907	8 078	124 537	300	147 706			147 706	II.4. Use of income account	
B.7n	Net adjusted disposable income									- 4 297	4 319	5 456	117 730	- 256	122 953			122 953		
B.6g	Gross disposable income									9 884	4 907	27 199	102 404	3 312	147 706			147 706		
B.6n	Net disposable income									- 4 297	4 319	24 577	95 597	2 756	122 953			122 953		
P.4	Actual Final Consumption																128 681	128 681		
P.3	Final consumption expenditure																128 681	128 681		
D.8	Adjustment for the change in the net equity of households in pension funds reserves												835		835			835		
B.8g	Gross saving																			
B.8n	Net saving																			
B.12	Current external balance																			
										Accumulation accounts										
										Changes in liabilities and net worth										
B.8g	Gross saving									9 884	4 072	- 4 775	9 544	300	19 025			19 025	III.1. Change in net worth due to saving and capital transfers account	
B.8n	Net saving									- 4 297	3 484	- 7 397	2 737	- 256	- 5 728		14 624	- 5 728		
B.12	Current external balance															14 624		14 624		
D.9	Capital transfers, receivable									1 991	2 279	3 589	2 326	392	10 578	162		10 740		
D.9	Capital transfers, payable (-)									- 146	- 4 275	- 3 693	- 216	- 7	- 8 336	- 2 404		- 10 740		
B.10.1	Changes in net worth due to saving and capital transfers									- 2 452	1 488	- 7 500	4 848	130	- 3 487	12 383		8 896	III.2. Acquisitions of non-financial assets account	
P.51	Gross fixed capital formation																33 098	33 098		
K.1	Consumption of fixed capital (-)																			
P.52	Changes in inventories																382	382		
P.53	Acquisitions less disposals of valuables																170	170		
K.2	Acquisitions less disposals of non-produced non-financial assets																			
B.9	Net lending (+) / borrowing (-)																			
										S.11	S.12	S.13	S.14 + S.15	S.1	S.2					
Net acquisition of financial assets																				III.2. Financial account
Net incurrence of liabilities										14 850	33 798	9 604	10 686	68 938	18 872			87 810		
F.1	Monetary gold and SDRs																			
F.2	Currency and deposits										16 393	538			16 931	3 371		20 302		
F.3	Securities other than shares									5 328	- 4 490	10 313	- 65		11 086	14 344		25 430		
F.4	Loans									5 731	3 285	- 174	11 627		20 469	- 2 373		18 096		
F.5	Shares and other equity									6 178	9 762				15 940	1 949		17 889		
F.6	Insurance technical reserves									- 101	8 151				8 050	82		8 132		
F.7	Other accounts receivable/payable									- 2 286	697	- 1 073	- 876		- 3 538	1 499		- 2 039		
B.9 F	Net lending (+) / borrowing (-)									- 8 419	435	- 9 025	4 768	- 12 241	12 241					
Statistical discrepancy										339	- 246	- 2	2	94	- 94					

Source: Statistics Portugal (INE) - Portuguese National Accounts for 2005.