



A SAM (Social Accounting Matrix) - based Approach for the Study of the Real Estate Market

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A SAM (Social Accounting Matrix) - based approach for the study of the real estate market¹.

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Abstract: A matrix representation of the national accounts is used to approach the economic activity of a country, with emphasis on real estate activities and services.

By adopting the nomenclatures and rules of the System of National Accounts, this study simultaneously researches production and institutions, using a top-down methodology. In the case of production: factors (of production), activities, and products are identified - with real estate activities being classified as part of activities, and real estate services being classified as part of products. In turn, institutions under study are financial and non-financial corporations, general government, households, and non-profit institutions serving households, to which are associated current, capital, and financial accounts. The rest of the world account completes the representation of the economic activity of a country.

Taking advantage of both the matrix representation and the underlying network of linkages, from which multiplier effects can be captured, two versions of the matrix representation are considered to measure and model the activity of a country. A numerical version provides an empirical description of the reality under study, with an emphasis in this case on real estate activities and services. In addition, an algebraic version (or model) provides a theoretical description of the same reality and enables the construction of a scenario resulting from an experiment of changes on specific aspects of this reality, with taxation on real estate activities being used for the study.

This study shows how more or less complex networks of the linkages of the flows measured by the National Accounts, organised in a SAM, can influence our knowledge of the importance of real estate activities, as well as the effects of a change in net taxes on their production for the economy as a whole.

The methodology proposed for this study is accompanied by an application to Portugal.

Key words: National Accounts; Social Accounting Matrix; Multiplier Effects; Real Estate Market; Real Estate Taxation.

JEL Codes: E01; E16; D58; E62

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Abbreviations

CPA.. Statistical Classification of Products by Activity (version 2.1)

CPC.. Central Product Classification (version 2.1)

ESA or ESA2010.. European System of National and Regional Accounts in the European Union 2010
– EU (2013)

IEA.. Integrated Economic Accounts

ISIC.. International Standard Industrial Classification of All Economic Activities (revision 4)

NACE.. Statistical Classification of Economic Activities in the European Community (revision 2)

NAM .. National Accounting Matrix

SAM.. Social Accounting Matrix

SNA or SNA2008.. System of National Accounts 2008 – ISWGNA (2009)

1. Introduction

To study the real estate market, a SAM (Social Accounting Matrix)-based approach is adopted, with the transactions defined and measured by the national accounts being used to construct numerical and algebraic versions of matrices, whose underlying network of linkages enable the identification of multiplier effects of changes in net taxes on the production of the real estate activities. The objective of the study is to illustrate how the proposed methodology can be used in the study of the real estate market and its specificities.

Accordingly, consonant with the national accounts and the underlying system, square matrices are constructed with row sums equal to column sums. Resources and changes in liabilities and net worth are represented in rows. Uses and changes in assets are represented in columns. Moving towards the terminology used by the authors who conceived this approach, the author has designed here a version where inflows, incomes, or receipts are recorded in rows, and outflows, outlays, or expenditures are recorded in columns. In this way, each cell can have two readings, according to its row and column. Among the main references adopted for the definition of the approach adopted in this study, the following are the most relevant: Stone (1986); Pyatt and Round (1985); Pyatt (1988, 1991).

The above-mentioned approach is therefore the tool adopted in this study to measure and model the activity of a country and its specificities – in this case Portugal. The transactions of the national accounts associated with the generation, distribution, redistribution, use, and accumulation of income, are represented through the interconnection of two main groups of accounts: those of the domestic economy, and those of the rest of the world. The domestic economy is comprised of factors of production, activities (industries), and products accounts that are integrated in the “production” (subgroup). Current, capital, and financial accounts are integrated in the “institutions” (subgroup) of the domestic economy. For each account of the institutions (sub)group, the following five institutional sectors are identified, which are also distinct sub-sections of the national accounts, namely: financial and non-financial corporations, general government, households, and non-profit institutions serving households. In turn, the rest of the world is comprised of a single account with the same name.

Having organised the SAM as described above, Chapter 2 describes and presents a numerical version, consistent with the national accounts, by adopting a top-down method. Firstly, this is done in an aggregated – also called basic – form, and then with a disaggregation which is able to provide an empirical description of the aspects of that activity which subsequently enable the study of the real estate activities, namely, the income they generate and the taxes they pay.

This (basic) form of the SAM is compared with one which is the representation of the sequence of the national accounts, which we call the NAM (National Accounting Matrix). Common points can be found between the two forms, as well as differences in the organization and description of the information contained.

In turn, Chapter 3 presents an algebraic version of the SAM, in accordance with an accounting multiplier model, which provides a theoretical description of the above-mentioned activity and enables the construction of a scenario resulting from an experiment of a change in the net taxes on the production of real estate activities, summarized by the macro-effects reflected at the level of macroeconomic aggregates.

The paper ends with a summary and some concluding remarks, while identifying aspects associated to the potential and limitations of the approach adopted and the underlying methodology used as illustrated by the worked case study.

2. Social Accounting Matrices for the empirical approach of a country's economic activity

2.1. Basic forms and relationship with the national accounts

As previously mentioned, our SAM-based approach is supported by the transactions defined and measured by the national accounts. Accordingly, these can be described as being the latest version of the “System of National Accounts” (ISWGNA, 2009), which is also referenced hereinafter in its abbreviated form as SNA 2008, or simply SNA. In turn, the application that accompanies our study refers to Portugal, whose national accounts are based on the adaptation of SNA to Europe, that is, the “European System of National and Regional Accounts in the European Union” (EU, 2013), which is also referenced hereinafter in its abbreviated form as ESA 2010, or simply ESA.

The SNA mention the SAMs as ways of expressing the sequence of (national) accounts in the matrix form, to which extra details and extensive adjustments can be incorporated. The incorporation of extra details, through the disaggregation of the accounts, is considered in the scope of its central framework, whereas the incorporation of extensive adjustments is considered in the scope of the satellite accounts.

As shown below, the SAM that is proposed as base for this approach for the real estate market has many points in common with the matrix form proposed by the SNA, although some differences exist regarding the organization and description of the information contained. Accordingly, we designate the latter the ‘National Accounting Matrix (NAM)’.

Table 1 shows the basic form of our SAM, which represents the highest level of aggregation and is the starting point for the construction of the numerical version, in this chapter, and also of the algebraic version, in the following chapter. Table 2 presents the description of the accounts, represented in each row and column, as well as how they correspond with the national accounts and which discrepancies can be found between them both. In turn, Table 3 describes the transactions represented in each cell, identified with a “T”, followed by the initials of the row and column accounts between brackets.

Table 1. The SAM in the basic form

		f	a	p	dic	dik	dif	rw	Total
		1	2	3	4	5	6	7	
f	1		T(f,a)					T(f,rw)	p.
a	2			T(a,p)					a.
p	3		T(p,a)	T(p,p)	T(p,dic)	T(p,dik)		T(p,rw)	f.
dic	4	T(dic,f)	T(dic,a)	T(dic,p)	T(dic,dic)			T(dic,rw)	dic.
dik	5				T(dik,dic)	T(dik,dik)		T(dik,rw)	dik.
dif	6					T(dif,dik)	T(dif,dif)	T(dif,rw)	dif.
rw	7	T(rw,f)	T(rw,a)	T(rw,p)	T(rw,dic)	T(rw,dik)	T(rw,dif)		rw.
Total		.p	.a	.f	.dic	.dik	.dif	.rw	

Source: Own construction, following Santos (2018).

Note: rows represent resources and changes in liabilities and net worth; columns represent uses and changes in assets.

Table 2. Correspondence, description and discrepancies between the SAM and the national accounts

SAM accounts			national accounts	accounts description	discrepancies between SAM and national accounts
production	p	products	goods and services	use of available products	
	a	activities	production	transactions that constitute the production process	net taxes on products(total)
	f	factors of production	primary distribution of income	distribution of incomes, which may be needed for production purposes, among institutions and activities	net taxes on production and imports and property income
institutions	dic	current account of (domestic) institutions	secondary distribution of income, redistribution of income in kind account	transformation of the balance of primary income (national income) into disposable income, through the receipt and payment of current transfers	disposable income
			use of income	distribution of gross disposable income between final consumption and saving	
	dik	capital account of (domestic) institutions	capital	transactions linked to acquisitions of non-financial assets and capital transfers involving the redistribution of wealth	
	dif	financial account of (domestic) institutions	financial	transactions in financial assets and liabilities between institutional units, and between these and the rest of the world	
	rw	rest of the world	rest of the world	transactions between resident and non-resident units	

Sources: Own construction, following Santos (2018), ISWGNA (2009), and EU (2013).

Table 3. Description of the SAM's cells

cells	national accounts transaction	
	description	code
T(f,a)	compensation of factors of production [part paid by domestic institutions]	
	- income of the institutional sectors originating from the compensation of employees	D1
	- compensation of employers and own-account (or self-employed) workers (gross mixed income)	B3g
	- property income	D4
T(f,rw)	- compensation of capital (gross operating surplus)	B2g
	compensation of factors of production [part paid by the rest of the world]	
	- income of the institutional sectors originating from the compensation of employees	D1
T(p,a)	- property income	D4
	intermediate consumption (basic prices) – value of the goods and services consumed as inputs of the process of production, excluding those fixed assets whose consumption is recorded as consumption of fixed capital	P2
T(a,p)	production (basic prices) – output of goods and services	P1
T(p,dic)	final consumption (purchasers' prices) – expenditure incurred by resident institutional units on goods or services which are used for the direct satisfaction of individual needs or wants, or the collective needs of members of the community	P3

(to be continued)

Table 3 (continuation). Description of the SAM's cells

cells	national accounts transaction	
	description	code
T(p,dik)	gross capital formation (purchasers' prices) – gross fixed capital formation, changes in inventories, and acquisitions less disposals of valuables	P5
T(p,rw)	exports (purchasers' prices) - transactions in goods and services from residents to non-residents	P6
T(rw,p) (part)	imports (purchasers' prices) - transactions in goods and services from non-residents to residents	P7
T(dic,dic)	current transfers	
T(rw,dic)	- current taxes on income, wealth, etc.	D5
T(dic,rw)	- net social contributions	D61
	- social benefits other than social transfers in kind	D62
	- other current transfers	D7
	adjustment made for the change in pension entitlements	D8
T(dik,dik)	capital transfers	
T(rw,dik)	- capital taxes	D91
T(dik,rw)	- investment grants	D92
	- other capital transfers	D99
	acquisitions less disposals of non-produced non-financial assets	NP
T(dif,dif)	financial transactions	
T(rw,dif)	- monetary gold and special drawing rights	F1
T(dif,rw)	- currency and deposits	F2
	- debt securities	F3
	- loans	F4
	- equity and investment fund shares or units	F5
	- insurance, pension and standardised guarantee schemes	F6
	- financial derivatives and employee stock options	F7
	- other accounts receivable/payable	F8
	(statistical discrepancy regarding capital transactions)	
T(dif,dik)	net lending(+) /borrowing(-) – (respectively) the net resources that the total economy makes available to the rest of the world or the net resources that it receives from the rest of the world in order to finance the corresponding needs of investment funds	B9
T(dik,dic)	gross saving - portion of aggregate income that is not used for final consumption expenditure and current transfers to domestic institutions or to the rest of the world	B8g
T(dic,a)	net taxes on production – (other) taxes on production minus (other) subsidies	D29-D39
T(rw,a)	to production	
T(dic,p)	net taxes on products – taxes on products minus subsidies on products	D21-D31
T(rw,p) (part)		

(to be continued)

Table 3 (continuation). Description of the SAM's cells

cells	national accounts transaction	
	description	code
T(dic,f)	compensation of factors of production [part received by domestic institutions]	
	- income of the institutional sectors originating from the compensation of employees	D1
	- compensation of employers and own-account (or self-employed) workers (gross mixed income)	B3g
	- property income (net)	D4
	- compensation of capital (gross operating surplus)	B2g
T(rw,f)	compensation of factors of production [part received by the rest of the world]	
	- income of the institutional sectors originating from the compensation of employees	D1
	- property income	D4

Sources: Own construction, following Santos (2018), ISWGNA (2009), and EU (2013).

Notes:

- The basic prices of output of goods and services are defined as being prices before taxes, less subsidies on products (include other taxes, less subsidies on production), excluding any transport charges.
- The purchasers' prices for the transactions of goods and services are defined as being prices after taxes, less subsidies on production and imports, excluding the deductible part of value-added type taxes, including any transport charges.

Everything that has been described above can be applied to a country that measures its activity by adopting the SNA 2008, or an adapted version, such as is the case of Portugal, which adopts the ESA 2010 and will be studied for the rest of the paper.

As a starting point, we consider the Integrated Economic Accounts (IEA), as shown in Table A.1 (in Appendix), which shows the sequence of the national accounts that records transactions and the corresponding balancing items. The IEA can also be presented in a sequence of (T-) Economic Accounts, as shown in Table A.2 (in Appendix). Therefore, our approach does not consider the other flows (recorded in the other changes in the volume of assets and revaluation accounts, of the accumulation accounts) and the stocks (recorded in the balance sheets).

Both the basic SAM presented in Table 4 and the basic NAM presented in Table 5, were constructed by adopting the data of Tables A.1 and A.2. However, the former adopted the description of the three previous tables whereas the latter adopted the description of the sources of data (Tables A.1 and A.2).

Table 4. The basic SAM for Portugal in 2017

Unit: million euros

		f	a	p	dic	dik	dif	rw	Total
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	
f	<i>1</i>		168 756					6 731	175 487
a	<i>2</i>			347 793					347 793
p	<i>3</i>		178 151	0	160 214	33 755		83 717	455 837
dic	<i>4</i>	163 016	1 988	26 344	94 338			8 535	294 221
dik	<i>5</i>				35 717	5 210		1 683	42 610
dif	<i>6</i>					3 601	17 429	9 982	31 012
rw	<i>7</i>	12 471	- 1 101	81 700	3 952	44	13 583		110 648
Total		175 487	347 793	455 837	294 221	42 610	31 012	110 648	

Source: Own construction, from the Integrated Economic Accounts – Table A.1(in Appendix).

Table 5. The basic NAM for Portugal in 2017

Unit: million euros

	0	I	II.1	II.2&3	II.4	III.1	III.2	V	Total
0	0	178 151	0	0	160 214	33 755	0	83 717	455 837
I	374 098	0	0	0	0	0	0	0	374 098
II.1	0	195 947	27 540	0	0	0	0	6 731	230 218
II.2&3	0	0	191 348	94 403	0	0	0	8 535	294 286
II.4	0	0	0	195 931	- 65	0	0	0	195 866
III.1	0	0	0	0	35 717	5 210	0	1 683	42 610
III.2	0	0	0	0	0	3 601	17 429	9 982	31 012
V	81 739	0	11 331	3 952	0	44	13 583	0	110 648
Total	455 837	374 098	230 218	294 286	195 866	42 610	31 012	110 648	

Source: Own construction, from the sequence of (T-) Economic Accounts – Table A.2(in Appendix).

Note: see the descriptions of the accounts in Tables A.2 and A.3 and of the cells (by correspondence with those of SAM) in Table A.4 (in Appendix).

Tables A.3, and A.4 (in Appendix) show the correspondence and the differences between the accounts and the cells of the basic SAM (Table 4) and the basic NAM (Table 5). An analysis of these tables leads us to confirm that, as mentioned above, despite the many common points, especially with regards the coverage of transactions measured by national accounts, there are differences in the organization and description of information. Among these differences, it is worth mentioning the fact that, in the SAM, the net taxes on production and products are treated separately, in more detail. Additionally, as shown in Table 6, the macroeconomic aggregates/balancing items, which are represented in italics in the NAM (Table 5), are calculated outside the SAM, except for the case of saving and net lending/borrowing.

In both the cases of the SAM and for the NAM, we can say that the corresponding basic forms identify the “grand” totals, from which the consistency of the data (and the system) can be ensured in subsequent levels of disaggregation for the study of specific aspects of the economic activity of the country under study – in this case Portugal. From now on, we just continue with the SAM.

Table 6. Macroeconomic aggregates/balancing items of Portugal in 2017

SAM cells	national accounts transactions		algebraic operation	values (million euros)	
	Description	Code		IEA	SAM
---	Gross added value	B1g		169 642	169 642
T(a,p)	Output of goods and services	P1	+	347 793	347 793
T(p,a)	Intermediate Consumption	P2	-	178 151	178 151
	Gross domestic product	B1*g		195 947	
---	Production Approach			195 947	195 947
T(a,p)	Output of goods and services	P1	+	347 793	347 793
T(dic,p)	Net taxes on products (received by general government)	D.21-D.31	+	26 305	26 344
T(dic,rw) part	Net taxes on products (received by the rest of the world)				- 39
T(p,a)	Intermediate Consumption	P2	-	178 151	178 151
---	Expenditure Approach			195 947	195 947
T(p,dic)	Final Consumption expenditure	P3	+	160 214	160 214
T(p,dik)	Gross Capital Formation	P5	+	33 755	33 755
T(p,rw)	Exports of goods and services	P6	+	83 717	83 717
T(rw,p) (part)	Imports of goods and services	P7	-	81 739	81 739
---	Income Approach			195 947	195 947
T(f,a)	Compensation of Employees (paid by domestic institutions)	D1	+	86 097	168 756
	Gross Mixed Income	B.2g	+	62 316	
	Gross Operating Surplus	B.3g	+	20 343	
T(dic,p)	Net taxes on production and imports (paid by domestic institutions)	D2-D3	+	27 191	26 344
T(rw,p) (part)					- 39
T(dic,a)					1 988
T(rw,a)					-1 101
---	Gross national income	B5g		191 348	191 348
T(dic,f)	Compensation of Factors of Production (received by domestic institutions)	D1; B2g; B3g;D4	+	163 016	163 016
T(dic,a)	Net Taxes on Production (received by domestic institutions)	D29-D39	+	28 332	1 988
T(dic,p)	Net Taxes on Products (received by domestic institutions)	D21-D31	+		26 344
---	Gross disposable income	B6g		195 931	195 931
T(dic,f)	Compensation of Factors of Production (received by domestic institutions)	D1; B2g; B3g;D4	+	163 016	163 016
T(dic,a)	Net Taxes on Production (received by domestic institutions)	D29-D39	+	28 332	1 988
T(dic,p)	Net Taxes on Products (received by domestic institutions)	D21-D31	+		26 344
T(dic,rw)	Current Transfers from the rest of the world	D61;D62;	+	8 535	8 535
T(rw,dic)	Current Transfers to the rest of the world	D7	-	3 952	3 952
T(dik,dic)	Gross Saving	B.8g		35 717	35 717
T(dif,dik)	Net lending (+) /borrowing (-)	B9		3 601	3 601

Sources: Own construction from Tables 4 and A.1 (in Appendix).

2.2. Empirical approach to specific aspects of a country's economic activity

From the previous section, it has been shown that the “production” group in the SAM accounts is composed of the factors of production, activities, and products accounts, and that it also records the income generated through the involvement of institutions in the process of production and the corresponding (primary) distribution. In turn, the “institutions” group is composed of the current, capital, and financial accounts, and it also records the redistribution, use, and accumulation of income. On the other hand, the rest of the world account records the transactions between the resident and non-resident institutions.

When it comes to studying the specific aspects of economic activity of a country, the national accounts provide a set of possibilities for the disaggregation of the above-mentioned accounts. Continuing with the application to Portugal, as shown in Table 4, the basic SAM, which has 7 rows and columns, is disaggregated, as explained in Part B of the Appendix, and is converted into a matrix with 37 rows and columns, which is shown in Table A.7 of the Appendix. This disaggregated version can be understood to be a snapshot of the reality under study, which in this case is Portugal, in 2017, from which specific aspects for an approach for the study of the real estate market can be identified.

Next, we focus attention on the net taxes on both production and products.

It can be seen in Table 3 that the “net taxes on production”, represent the (other) taxes on production minus the (other) subsidies to production (codes SNA: D29-D39) are recorded in cells T(dic,a) and T(rw,a) of the SAM in the basic form (Table 1). In turn, the “net taxes on products”, represent the taxes on products minus the subsidies on products (codes SNA: D21-D31) that are recorded in cells T(dic,p) and T(rw,p) of the same. With the disaggregation of the basic SAM (Table 4), all the cells are converted into submatrices in Table A.7, from which Tables 7 and 8 were extracted.

Table 7. Submatrices of “A disaggregated SAM for Portugal in 2017” representing net taxes on production

Unit: million euros

		a									
		a01	a02	a03	a04	a05	a06	a07	a08	a09	a10
		3	4	5	6	7	8	9	10	11	12
		total									
dic	nfc	23	0	0	0	0	0	0	0	0	0
	fc	24	0	0	0	0	0	0	0	0	0
	g	25	- 1 686	881	143	863	228	990	2 032	83	- 1 060
	h	26	0	0	0	0	0	0	0	0	0
	npi	27	0	0	0	0	0	0	0	0	0
	total		- 1 686	881	143	863	228	990	2 032	83	- 1 060
rw	37		934	- 488	- 79	- 478	- 126	- 548	- 1 126	- 46	588
											268
											- 1 101

Source: Table A.7 (in Appendix).

Note: see the description of the rows and the columns in the Part B of the Appendix.

Table 8. Submatrices of “A disaggregated SAM for Portugal in 2017” representing net taxes on products

Unit: million euros

			p										
			p01	p02	p03	p04	p05	p06	p07	p08	p09	p10	total
			13	14	15	16	17	18	19	20	21	22	
dic	nfc	23	0	0	0	0	0	0	0	0	0	0	0
	fc	24	0	0	0	0	0	0	0	0	0	0	0
	g	25	150	16 639	576	2 569	962	1 140	13	2 496	13	1 787	26 344
	h	26	0	0	0	0	0	0	0	0	0	0	0
	npi	27	0	0	0	0	0	0	0	0	0	0	0
	total		150	16 639	576	2 569	962	1 140	13	2 496	13	1 787	26 344
rw		37	3 626	65 823	128	6 209	1 530	714	11	3 534	54	69	81 700

Table 10. Taxes and subsidies paid and received by the transactions on products in Portugal, in 2017

products (goods and services) of activity...		taxes on products (D.21)		subsidies on products (D.31)	
		10 ⁶ euros	%	10 ⁶ euros	%
Agriculture, forestry, and fishing	p01	380	1	230	70
Industry, energy, water supply and sewerage	p02	16 634	62	20	6
Construction	p03	575	2	0	0
Wholesale and retail trade, repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service activities	p04	2 630	10	65	20
Information and communication	p05	976	4	16	5
Financial and insurance activities	p06	1 138	4	0	0
Real estate activities	p07	13	0	0	0
Professional, scientific, and technical activities; administrative and support service activities	p08	2 492	9	0	0
Public administration and defense; compulsory social security; education; human health and social work activities	p09	13	0	0	0
Arts; entertainment; repair of household goods and other services	p10	1 784	7	0	0
total		26 636	100	331	100

Source: Statistics Portugal (*INE*).

Therefore, although the transactions of their products – in this case, “real estate services” (p07) – receive no subsidies and pay almost no taxes, “real estate activities” (a07) are responsible for the payment of 33% of the total paid as “other taxes on production”. The relative meaning of such a position is clarified when it is confirmed that the second highest taxpaying group of activities for this category is “wholesale and retail trade, repair of motor vehicles and motorcycles, transportation and storage, accommodation and food service activities” (a04), which pays 17% – almost half of the total paid by the “real estate activities” (a07).

The taxes referred to are “taxes imposed on the producer that do not apply to products nor are levied on the profits of the producer... consist mainly of taxes on the ownership or use of land, buildings or other assets used in production or on the labour employed, or compensation of employees paid” (SNA2008, Paragraphs 6.50 and 7.73, 7.97). In turn, real estate activities only receive 2% of the total of the “other subsidies to production”.

According to the ISIC description (Section L), these activities comprise “acting as lessors, agents and/or brokers in one or more of the following: selling or buying real estate, renting real estate, providing other real estate services such as appraising real estate or acting as real estate escrow agents. Activities in this section may be carried out on own or leased property and may be done on a fee or contract basis. Also included is the building of structures, combined with maintaining ownership or leasing of such structures and real estate property. This section includes real estate property managers”.

From the empirical evidence on the activity of a country, as provided by the numerical version of a SAM which has been organised as explained above, in our case study it is also possible to specify the functional distribution of the income generated by industries, as shown in Table 11. Thus, the specificities associated to the role of “real estate activities” can be complemented with the fact that they contributed with 12% of the generated income, being 97% of that contribution compensation of employers and own-account workers and capital - almost the double of the domestic average (49%). In sum, the sector under analysis in our case study represents a group of activities in which the compensation of employees has an insignificant position.

Additional statistical sources and information on the methods underlying all the worked data would lead to obtaining a better knowledge of the specificities identified above and also help avoid possible biases of the analysis carried out. In truth, a large part of published data, both of national accounts and other sources of information, is only indirectly measured. Therefore, the knowledge of the methods used for the estimation or imputation of the data being processed plays a relevant, if not a decisive role.

On the other hand, the identification of possible categories of information which are not measured by the statistical sources being used should act as a motivation to both search other statistical sources and identify the potential evidence of a hidden economy³. This would make all the difference, both in this and in any other study.

³ Which is understood to be undeclared and unobserved by the statistical system, although it is associated with legal and productive activities. These activities are associated with the so-called underground production, which is not officially declared in order to avoid payment of taxes and other contributions, in compliance with certain legal requirements and administrative procedures.

Table 11. Functional distribution of generated income - distribution of gross added value (GAV) among factors of production in Portugal, in 2017

<div> <div>factors of production</div> <div>activities (industries)</div> </div>		generated income, or gross added value, or gross domestic income (million euros)			structure of activities by factors (%)			structure of factors by activity (%)		
		labour (employees)	other (employers and own-account workers; capital)	total	labour (employees)	other (employers and own-account workers; capital)	total	labour (employees)	other (employers and own-account workers; capital)	total
		(f)l	(f)o		(f)l	(f)o		(f)l	(f)o	
Agriculture, forestry, and fishing	a01	1 210	3 649	4 859	1	4	3	25	75	100
Industry, energy, water supply and sewerage	a02	14 256	15 947	30 203	17	19	18	47	53	100
Construction	a03	4 372	2 429	6 801	5	3	4	64	36	100
Wholesale and retail trade, repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service activities	a04	21 141	20 296	41 437	25	25	25	51	49	100
Information and communication	a05	3 045	2 795	5 840	4	3	3	52	48	100
Financial and insurance activities	a06	3 829	4 239	8 068	4	5	5	47	53	100
Real estate activities	a07	653	19 636	20 289	1	24	12	3	97	100
Professional, scientific, and technical activities; administrative and support service activities	a08	8 485	4 440	12 925	10	5	8	66	34	100
Public administration and defense; compulsory social security; education; human health and social work activities	a09	25 759	7 409	33 168	30	9	20	78	22	100
Arts; entertainment; repair of household goods and other services	a10	3 347	1 820	5 167	4	2	3	65	35	100
total		86 097	82 658	168 756	100	100	100	51	49	100

Source: Table A.7 (in Appendix).

Note: generated income at factors costs.

3. Multiplier macro-effects of a change in the net taxes on the production of the real estate activities

3.1. A theoretical approach to the economic activity of a country

In the previous chapter, a numerical version of the SAM was constructed from the national accounts. It was shown that all the flows representing transactions measured by the national accounts were part of this version, which was presented first in a basic form, and then disaggregated, with the aim of illustrating how the proposed methodology can be used in the study of the real estate market and its specificities. From this disaggregated version, it was possible to adopt an empirical approach to the economic activity of the reality under study – Portugal in 2017. In this approach, the real estate activities and services that were identified within the activities and products (SAM) accounts and the net taxes on production were the object of our focus for experimenting a change, representative of one or several policy measures.

Having adopted the SAM-based approach, the next step is to construct an algebraic version that makes it possible to quantify the macroeconomic effects of the above-mentioned change. Supported by an accounting multiplier model, this version is systematised below, in conjunction with the corresponding theoretical description of the economic activity of the reality under study.

a) The four main assumptions.

- a.1) Structural features of the numerical version are the relevant and do not change.
- a.2) Resources' endowment is provided and there is no full employment.
- a.3) Production technology is provided.
- a.4) The relevant transactions are those that are measured by the national accounts, as defined by the underlying system.

b) Static analysis, at current prices.

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

- c.1) Endogenous, if defined in the modelling process.
- c.2) Exogenous, if defined outside the modelling process and if exerts an influence on the endogenous group.

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

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

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

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

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

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

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

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

$$i' \cdot x = i' \cdot l,$$

with i' = unitary (row) vector.

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

$$y_n = n + x.$$

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

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

$$y_x = l + r.$$

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

d-8) Average use propensities of endogenous accounts:

- in endogenous accounts: $A_n = N \cdot \hat{y}_n^{-1}$;

- in exogenous accounts: $A_l = L \cdot \hat{y}_n^{-1}$;

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

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

$$N = A_n \cdot \hat{y}_n;$$

$$L = A_l \cdot \hat{y}_n;$$

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

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

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

with M_a = accounting multiplier matrix. This matrix represents the global effects in the endogenous account's resources of each monetary unit of a change defined in d-3), with the assumptions described in a).

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

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

3.2. The macro-effects of specific changes on the activity of a country. The case of a change of taxation on real estate activities.

From the empirical approach applied to specific aspects of the economic activity of our case study – Portugal in 2017, in Section 2.2 the “real estate activities” (a07) were identified as being the focus of interest. This decision was due to the fact that, among the ten groups of activities under study, real estate activities is the group that pays 33% of “other taxes on production”, which despite being the highest percentage, only account for the receipt of 2% of the corresponding subsidies and just contribute 12% of the income generated. Accordingly, through the use of the methodology presented in the previous section, fiscal policy measures are assumed that annul the value of other taxes on production paid by real estate activities, net of the other subsidies to production received by the same, which is brought about by changes in taxes and/or subsidies. The base values used are 944 and 37 million euros, respectively, as presented in Table 9. In the numerical version of the SAM, which is shown in Table A.7 (in Appendix) and in Table 7, these values (944 -37 \approx 906 million euros) are recorded in cells (g, a07), or (25,9), as resources of the general government’s current account and as uses of real estate activities = 2032 million euros; and (rw, a07), or (37,9), as resources of the rest of world and uses of real estate activities = -1126 million euros. In the case of the latter, as the amount is negative, it can be read as representing uses of the rest of the world – the European Union Institutions in our case, and the resources of real estate activities. By changing the above-mentioned values, in effect not only are the uses of the “real estate activities” being directly affected, but also the resources of the general government and of the rest of the world.

For the algebraic version of the SAM, the account of the “real estate activities” (a07) is considered to be exogenous, and all the others to be endogenous. Accordingly, by following the above-mentioned systematised procedures, the average use propensities of endogenous accounts matrices (A_n and A_l) were calculated, followed by the accounting multipliers matrix (M_a), has shown, respectively, in Tables A.8 and A.9 (in Appendix). Next, in matrix X, which, in this case, is also the vector x, the above-mentioned cells of (g, a07) and (rw, a07) were annulled, and the new y_n (total resources of the endogenous accounts) was calculated, as described in d-10). New N and L matrices were calculated from this new vector and the previously calculated A_n and A_l matrices, following d-9), enabling the completion of an “adjusted” SAM. Following the description in Section 2.1, the “adjusted” gross macroeconomic aggregates and balancing items were calculated, as well as the differences between them and the initial values (before changes) presented in Table 6, which are shown in Table 12.

Table 12. Macroeconomic adjustments of fiscal policy measures on real estate activities

gross macroeconomic aggregates and balancing items	million euros		%
	b(e)ore)	a(f)ter)	a/b -1
Domestic Product	195 947	188 618	-3,74
National Income	191 348	183 096	-4,31
Disposable Income	195 931	187 684	-4,21
Saving	35 717	34 557	-3,25
Net lending (+) /borrowing (-)	3 601	3 498	-2,86

Source: Table 6; own calculations, from the “adjusted” SAM.

Therefore, on the understanding that the percentage differences presented in Table 12 are the macro-effects or macroeconomic adjustments of possible fiscal policies measures which annulled the net taxes on the production of the real estate activities, it is thus possible to conclude that when the “real estate activities” uses are directly affected, together with the corresponding resources of the general government and of the rest of the world, the multiplier effects, spread throughout the matrix versions underlying our approach, resulted in a significant negative impact.

On the other hand, the initial functional distribution of the generated income, as shown in Table 11, revealed “adjusted” positions after this experiment, in which the income generated by the real estate activities increased by 0,41 percentage points. This increase is only relative, since the total has decreased and a part of the real estate activities suffered no change, as it is exogenous.

The above-mentioned results, together with any others that could come to light after running our model, would certainly be conditioned by the corresponding assumptions. In fact, the first defined assumption (a-1) – which supports that the structural features of the numerical version are the relevant and do not change – is limitative, and casts doubt on how it can bias the reading of the results. On the other hand, in an analysis similar to that carried out in our study, in which the empirical approach was static, and the simulation made in the theoretical approach was comparatively static, the second (a-2) and third (a-3) assumptions seem reasonable, however the fourth (a-4) may come into question when bearing in mind the description proffered at the end of Section 2.2. Potential doubts can also be reinforced regarding the way that the endogenous and exogenous accounts were organised, since uses and resources of the latter are not affected by the multiplier effects.

4. Summary and concluding remarks

Supported by the national accounts and the underlying system, a SAM-based approach is adopted for the study the real estate market and its specificities.

By adopting a top-down method, a basic structure is firstly designed with all the transactions being defined and measured by the national accounts. This structure is the used to construct numerical versions of a basic and disaggregated SAM for Portugal, in 2017 – which constitutes our illustrative application, or case study. An empirical approach to the country’s activity is then explored, both in terms of specific aspects to which possible fiscal policy measures can be associated, and also of macroeconomic functioning – mainly through the corresponding aggregates and balancing items. Taxes and subsidies on the production of the real estate activities are thus identified as the source of policy measures and the corresponding macroeconomic effects, quantified through the use of an accounting multipliers model.

Since “(other) taxes on production” are recorded net of subsidies, the annulation of their value, such as in the case of our experiment, corresponds to admitting fiscal policy measures that can either affect taxes, or subsidies, or both. Furthermore, the uses of the real estate activities are affected, as well as the resources of the general government’s current account and that of the rest of the world – which in our case study are the European Union Institutions. All these changes run through the network of linkages underlying our SAM-based approach, with the corresponding multiplier effects being reflected in all the endogenous part of our matrix, which resulted in significant negative

macroeconomic adjustments which are summarised at the level of certain macroeconomic aggregates and balancing items. Other results could be derived from replicated SAM, depending on the analysis that is intended.

To conclude, it needs to be mentioned that both potential and limitations can be identified regarding the SAM-based approach that is adopted for this study.

Thus, the adoption of the national accounts – both system and data – as the base source for the design and construction of SAMs enables access to a large range of users, who can benefit from the availability of (more or less) complete quantitative information, whose regularity of publication, flexibility, and consistency, provides the possibility to compile time series of matrices. Additional sources of information, such as business, financial, monetary, public, and international statistics, can complement this compilation. Thus, it becomes possible to speak in terms of past, present, and future; ex-ante and ex-post analysis; static, comparative static and dynamic analysis. The range of the possibilities of econometric and other types of modelling can therefore be extended. On the other hand, as shown in this study, the results obtained after running the adopted models for any kind of simulation can be expressed in terms of the commonly-used macroeconomic aggregates and items that are disseminated by information agencies and other means of communication with which the public is familiarised.

Nevertheless, the limitations inherent in all these aspects cannot be ignored. Indeed, too much research has been carried out based on national accounts in terms of organisation, methods of compilation, record, estimation/imputation, sources of data, and nomenclatures, etc. Accordingly, the national accounts have been improved and (from the author's point of view) represent the best source of information available to study the economic activity of countries. Nevertheless, deficiencies continue to persist and should be present in studies supported by national accounts, even when complemented by other statistical sources. Therefore, the sources and the methods underlying the data being used should not be neglected in order to avoid biases in their reading and in the interpretation of the results obtained from the modelling phase. Finally, the limitations associated with the assumptions adopted could also play a considerable role and should not be ignored.

It is also important to at least possess an idea regarding which parts of our study are not measured by the adopted statistical sources, as these could potentially be of interest – especially with regards potential “contributions” to the hidden economy.

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APPENDIX

Table A.1a. Integrated Economic Accounts of Portugal in 2017 – uses and changes in assets

Unit: million 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	Transactions and balancing items
										Code
I. Production / external account of goods and services	81 739	81 739								P.7 Imports of goods and services
	83 717		83 717							P.6 Exports of goods and services
	347 793	347 793								P.1 Output of goods and services
	178 151			178 151	2 437	8 345	10 572	5 744	151 053	P.2 Intermediate consumption
	26 305	26 305								D.21-D.31 Net taxes on products
	169 642			169 642	3 792	36 319	26 384	8 390	94 757	B.1g Gross added value
	195 947			195 947						B.1*g Gross domestic product
	33 853			33 853	601	11 064	5 236	927	16 025	P.51c Consumption of fixed capital
	135 789			135 789	3 191	25 255	21 147	7 464	78 732	B.1n Value added, net
	162 094			162 094						B.1*n Net domestic product
	- 1 978		- 1 978							B.11 External balance of goods and services
II.1.1. Generation of income account	86 530		433	86 097	3 408	2 925	21 386	3 816	54 563	D.1 Compensation of employees
	887			887	- 217	370	- 301	431	604	D.2-D.3 Net taxes on production and imports
	2 836			2 836	8	958		436	1 435	D.2 Taxes on Production and Imports
	- 1 949			- 1 949	- 225	- 588	- 301	- 5	- 831	D.3 Subsidies
	82 658			82 658	601	33 024	5 299	4 144	39 590	B.2g+B3g Gross operating surplus and Gross mixed income
	62 316			62 316	601	12 681	5 299	4 144	39 590	B.2g Gross operating surplus
	20 343			20 343		20 343				B.3g Gross mixed income
	32 020			32 020	601	9 230	5 236	927	16 025	P.51c1 Consumption of fixed capital on gross operating surplus
	1 834			1 834		1 834				P.51c2 Consumption of fixed capital on gross mixed income
	30 296			30 296		3 451	63	3 217	23 565	B.2n Net operating surplus
II.1.2. Allocation of primary income account	18 509			18 509		18 509				B.3n Net mixed income
	46 120		6 298	39 821	- 11	302	7 415	10 486	21 631	D.4 Property income
	191 348			191 348	840	130 659	27 469	5 416	26 963	B.5g Gross national income/ Gross balance of primary incomes
	157 494			157 494	239	119 595	22 233	4 489	10 938	B.5n Net national income/ Net balance of primary incomes
II.2. Secondary distribution income account	19 622		363	19 259	9	12 900	58	1 094	5 200	D.5 Current taxes on income, wealth, etc
	26 831		62	26 769		26 769				D.61 Social contributions
	38 063		1 615	36 448	318	26	32 468	2 053	1 583	D.62 Social benefits other than social transfers in kind
	22 374		6 495	15 879	150	5 820	4 105	4 170	1 634	D.7 Other current transfers
	195 931			195 931	3 935	131 562	35 689	4 153	20 593	B.6g Gross disposable income
II.3. Redistribution of income in kind account	162 078			162 078	3 334	120 498	30 452	3 226	4 567	B.6n Net disposable income
	22 249			22 249	3 985		18 265			D.63 Social transfers in kind
	195 931			195 931	- 50	153 812	17 424	4 153	20 593	B.7g Gross adjusted disposable income
II.4. Use of income account	162 078			162 078	- 651	142 748	12 188	3 226	4 567	B.7n Net adjusted disposable income
	195 931			195 931	3 935	131 562	35 689	4 153	20 593	B.6g Gross disposable income
	162 078			162 078	3 334	120 498	30 452	3 226	4 567	B.6n Net disposable income
	160 214			160 214		144 806	15 408			P.4 Actual Final Consumption
	160 214			160 214	3 985	122 556	33 673			P.3 Final consumption expenditure
	- 65			- 65				- 65		D.8 Adjustment for the change in the net equity of
	35 717			35 717	- 50	8 941	2 016	4 218	20 593	B.8g Gross saving
	1 864			1 864	- 651	- 2 123	- 3 221	3 291	4 567	B.8n Net saving
	- 1 962		- 1 962							B.12 Current external balance
Accumulation accounts										
Changes in Assets										
III.1.1. Change in net worth due to saving and capital transfers account										B.8n Net saving
										B.12 Current external balance
										D.9r Capital transfers, receivable
	- 98		- 3 510	3 412	- 322	- 1 899	- 7 551	7 271	5 913	D.9p Capital transfers, payable (-)
III.1.2. Acquisitions of non-financial assets account	32 888			32 888	616	6 229	3 496	242	22 305	B.10.1 Changes in net worth due to saving and capital transfers
	- 33 853			- 33 853	- 601	- 11 064	- 5 236	- 927	- 16 025	P.51g Gross fixed capital formation
	733			733	21	78	- 6		640	P.51c Consumption of fixed capital (-)
	135			135	2	76	5		51	P.52 Changes in inventories
	0		91	- 91	- 8	- 1 290	- 11	- 51	1 269	P.53 Acquisitions less disposals of valuables
	0		- 3 601	3 601	- 352	4 072	- 5 799	8 006	- 2 327	NP Acquisitions less disposals of non-produced non-financial assets
										B.9 Net lending (+) / borrowing (-)
III.2 Financial account	40 540		9 528	31 012		4 001	- 361	19 201	8 171	Net acquisition of financial assets\
										Net incurrence of liabilities
	4		1	2				2		F.1 Monetary gold and SDRs
	20 606		3 510	17 095		2 525	833	8 778	4 959	F.2 Currency and deposits
	19 146		10 560	8 586	- 9		- 578	8 786	387	F.3 Debt securities
	- 15 826		- 9 027	- 6 799		102	- 131	- 3 520	- 3 250	F.4 Loans
	14 512		3 304	11 208		2 295	- 293	5 098	4 107	F.5 Equity and investment fund shares or units
	- 1 177		20	- 1 197		- 473	3	- 831	103	F.6 Insurance, pension and standardised guarantee schemes
	- 245			- 245		- 60	- 248	- 53	116	F.7 Financial derivatives and employee stock options
	3 521		1 160	2 361		- 380	53	940	1 748	F.8 Other accounts receivable/payable
										B.9 F Net lending (+) / borrowing (-)
										Statistical discrepancy

Sources: Statistics Portugal (INE); Portuguese Central Bank (Banco de Portugal)

Table A.1b. Integrated Economic Accounts of Portugal in 2017 – resources and changes in liabilities and net worth

Unit: million euros

		Current accounts								Resources	
Transactions and balancing items		S.11	S.12	S.13	S.14	S.15	S.1	S.2	Goods and Services Account (Uses)	Total	Accounts
Code		Non-Financial Corporations	Financial Corporations	General Government	Households	NPISHs	Total of the Economy	Rest of the World Account			
P.7	Imports of goods and services							81 739		81 739	I. Production / external account of goods and services
P.6	Exports of goods and services								83 717	83 717	
P.1	Output of goods and services	245 810	14 134	36 956	44 665	6 229	347 793			347 793	
P.2	Intermediate consumption								178 151	178 151	
D.21-D.31	Net taxes on products						26 305			26 305	
B.1g	Gross added value						8 390			8 390	II.1.1. Generation of income account
B.1*g	Gross domestic product										
P.51c	Consumption of fixed capital										
B.1n	Value added, net			ue added, net	B.1n	78 732	78 732			78 732	
B.1*n	Net domestic product										
B.11	External balance of goods and services										
D.1	Compensation of employees				86 341		86 341	189		86 530	II.1.2. Allocation of primary income account
D.2-D.3	Net taxes on production and imports			28 332			28 332	- 1 140		27 191	
D.2	Taxes on Production and Imports			29 155			29 155	317		29 472	
D.3	Subsidies			- 823			- 823	- 1 457		- 2 280	
B.2g+B3g	Gross operating surplus and Gross mixed income	39 590	4 144	5 299	33 024	601	82 658			82 658	
B.2g	Gross operating surplus	39 590	4 144	5 299	12 681	601	62 316			62 316	II.2. Secondary distribution income account
B.3g	Gross mixed income				20 343		20 343			20 343	
P.51c1	Consumption of fixed capital on gross operating surplus	16 025	927	5 236	9 230	601	32 020			32 020	
P.51c2	Consumption of fixed capital on gross mixed income				1 834		1 834			1 834	
B.2n	Net operating surplus	23 565	3 217	63	3 451		30 296			30 296	
B.3n	Net mixed income				18 509		18 509			18 509	II.3. Redistribution of income in kind
D.4	Property income	9 004	11 758	1 254	11 596	228	33 838	12 281		46 120	
B.5g	Gross national income/ Gross balance of primary incomes	26 963	5 416	27 469	130 659	840	191 348			191 348	
B.5n	Net national income/ Net balance of primary incomes	10 938	4 489	22 233	119 595	239	157 494			157 494	
D.5	Current taxes on income, wealth, etc			19 414			19 414	208		19 622	
D.61	Social contributions	1 583	1 987	22 693	26	390	26 680	151		26 831	II.4. Use of income account
D.62	Social benefits other than social transfers in kind				37 838		37 838	225		38 063	
D.7	Other current transfers	463	4 066	2 744	8 553	3 182	19 007	3 367		22 374	
B.6g	Gross disposable income	20 593	4 153	35 689	131 562	3 935	195 931			195 931	
B.6n	Net disposable income	4 567	3 226	30 452	120 498	3 334	162 078			162 078	
D.63	Social transfers in kind			22 249			22 249			22 249	III.1.1. Change in net worth due to saving and capital transfers
B.7g	Gross adjusted disposable income	20 593	4 153	17 424	153 812	- 50	195 931			195 931	
B.7n	Net adjusted disposable income	4 567	3 226	12 188	142 748	- 651	162 078			162 078	
B.6g	Gross disposable income	20 593	4 153	35 689	131 562	3 935	195 931			195 931	
B.6n	Net disposable income	4 567	3 226	30 452	120 498	3 334	162 078			162 078	
P.4	Actual Final Consumption								160 214	160 214	III.1.2. Acquisitions of non-financial assets account
P.3	Final consumption expenditure								160 214	160 214	
D.8	Adjustment for the change in the net equity of				- 65		- 65			- 65	
B.8g	Gross saving										
B.8n	Net saving										
B.12	Current external balance										
Changes in liabilities and net worth											
B.8n	Net saving	4 567	3 291	- 3 221	- 2 123	- 651	1 864			1 864	III.1.1. Change in net worth due to saving and capital transfers
B.12	Current external balance							- 1 962		- 1 962	
D.9r	Capital transfers, receivable	1 507	4 107	718	229	332	6 893	135		7 028	
D.9p	Capital transfers, payable (-)	- 162	- 127	- 5 048	- 5	- 4	- 5 345	- 1 683		- 7 028	
B.10.1	Changes in net worth due to saving and capital transfers	5 913	7 271	- 7 551	- 1 899	- 322	3 412	- 3 510		- 98	
P.51g	Gross fixed capital formation								32 888	32 888	III.2. Acquisitions of non-financial assets account
P.51c	Consumption of fixed capital (-)										
P.52	Changes in inventories								733	733	
P.53	Acquisitions less disposals of valuables								135	135	
NP	Acquisitions less disposals of non-produced non-financial assets										
B.9	Net lending (+) /borrowing (-)										
III.2. Financial account											
		S.11	S.12	S.13	S.14 + S.15	S.1	S.2				
F.1	Net acquisition of financial assets\	10 324	10 915	5 439	280	0	26 957	13 583		40 540	III.2. Financial account
F.1	Net incurrence of liabilities										
F.2	Monetary gold and SDRs		1				1	2		4	
F.2	Currency and deposits		16215	6 103			22 318	- 1 712		20 606	
F.3	Debt securities	2 183	-5674	10 325	0		6 835	12 311		19 146	
F.4	Loans	- 585	-4835	- 10 711	828		- 15 302	- 524		- 15 826	III.2. Financial account
F.5	Equity and investment fund shares or units	5 537	2990	- 23	4		8 507	6 004		14 512	
F.6	Insurance, pension and standardised guarantee schemes	- 1 311	137		-2		- 1 176	- 1		- 1 177	
F.7	Financial derivatives and employee stock options	- 31	-25	- 225	0		- 281	36		- 245	
F.8	Other accounts receivable/payable	4 530	2106	- 30	-550		6 055	- 2 534		3 521	
B.9 F	Net lending (+) /borrowing (-)	- 2 153	8 286	- 5 799	3 721		4 055	- 4 055		0	
	Statistical discrepancy	174	280	0	0		454	- 454		0	

Sources: Statistics Portugal (INE); Portuguese Central Bank (Banco de Portugal)

Table A.2. Sequence of the (T-) Economic Accounts of Portugal in 2017

Unit: million euros

0. Goods and services account			
Resources		Uses	
Trade and transport margins	0	Trade and transport margins	0
Output	347 793	Intermediate consumption	178 151
Net taxes on products	26 305	Final consumption	160 214
Imports	81 739	Gross capital formation	33 755
		Exports	83 717
Total	455 837	Total	455 837
I. Production account			
Uses		Resources	
Intermediate consumption	178 151	Output of goods and services	347 793
<i>Gross Domestic Product (GDP)</i>	195 947	Net taxes on products	26 305
Total	374 098	Total	374 098
II.1. Primary distribution of income account			
Uses		Resources	
Property income paid to domestic institutions	27 540	<i>Gross Domestic Product (GDP)</i>	195 947
<i>Gross National Income (GNI)</i>	191 348	Property income received from domestic institutions	27 540
Primary income paid to the rest of the world	11 331	Primary income received from the rest of the world	6 731
Total	230 218	Total	230 218
II.2&3. Secondary distribution of income and redistribution of income in kind accounts			
Uses		Resources	
Current transfers within domestic institutions	94 403	<i>Gross National Income (GNI)</i>	191 348
Current transfers sent to the rest of the world	3 952	Current transfers within domestic institutions	94 403
<i>Gross Disposable Income (GDI)</i>	195 931	Current transfers received from the rest of the world	8 535
Total	294 286	Total	294 286
II.4. Use of income account			
Uses		Resources	
Final consumption	160 214	<i>Gross Disposable Income (GDI)</i>	195 931
Adjustment for the change in the net equity of households in pension funds reserves	- 65	Adjustment for the change in the net equity of households in pension funds reserves	- 65
<i>Gross saving (GS)</i>	35 717		
Total	195 866	Total	195 866
III.1. Capital account			
Changes in (non-financial) Assets		Changes in Liabilities and Net Worth	
Gross capital formation	33 755	<i>Gross saving (GS)</i>	35 717
Capital transfers within domestic institutions	5 210	Capital transfers within domestic institutions	5 210
Capital transfers sent to the rest of the world and acquisitions less disposals of non-produced non-financial assets	44	Capital transfers received from the rest of the world	1 683
<i>Net lending (+) / borrowing (-) (NL)</i>	3 601		
Total	42 610	Total	42 610
III.2. Financial account			
Changes in (financial) Assets		Changes in Liabilities and Net Worth	
Financial transactions within domestic institutions	17 429	Financial transactions within domestic institutions	17 429
Financial transactions to the rest of the world	13 583	Financial transactions from the rest of the world (corrected by statistical discrepancy)	9 982
		<i>Net lending (+) / borrowing (-) (NL)</i>	3 601
Total	31 012	Total	31 012
V. Rest of the world account			
Resources		Uses	
Imports	81 739	Exports	83 717
Primary income	11 331	Primary income	6 731
Current transfers	3 952	Current transfers	8 535
Capital transfers and acquisitions less disposals of non-produced non-financial assets	44	Capital transfers	1 683
Financial transactions	13 583	Financial transactions (corrected by statistical discrepancy)	9 982
Total	110 648	Total	110 648

Source: Own construction from the Integrated Economic Accounts – Table A.1.

Table A.3. Correspondence and differences between accounts of the basic SAM and NAM for Portugal in 2017

SAM			NAM			SAM-NAM	
Account	index	row-column total (million euros)	Account	index	row-column total (million euros)	row-column totals difference (million euros)	Description of difference
products	p	455 837	goods and services	0	455 837	0	-
activities	a	347 793	production	I	374 098	- 26 305	net taxes on products(total)
factors of production	f	175 487	primary distribution of income	II.1	230 218	- 54 731	net indirect taxes + net property income
current account of (domestic) institutions	dic	294 221	secondary distribution of income, redistribution of income in kind account	II.2&3	294 286	- 195 931	gross disposable income
			use of income	II.4	195 866		
capital account of (domestic) institutions	dik	42 610	capital	III.1	42 610	0	-
financial account of (domestic) institutions	dif	31 012	financial	III.2	31 012	0	-
rest of the world	rw	110 648	rest of the world	V	110 648	0	-

Sources: Own construction, from Tables 2, 4 and 5.

Note: To facilitate the understanding of the NAM-SAM comparison, the II.2&3 and II.4 NAM's accounts were organized by considering the SAM's respective form of organization.

Table A.4. Correspondence and differences between the cells of the basic SAM and NAM for Portugal in 2017

Cells		Amounts (million euros)		
SAM	NAM	SAM	NAM	SAM-NAM
T(p,a)	T(0,I)	178 151	178 151	0
T(a,p)	T(I,0)	347 793	374 098	
T(dic,p)		26 344		
T(rw,p) (part)		- 39		0
T(p,dic)	T(0,II.4)	160 214	0	160 214
T(p,dik)	T(0,III.1)	33 755	33 755	0
T(p,rw)	T(0,V)	83 717	83 717	0
T(rw,p) (part)	T(V,0)	81 739	81 739	0
T(dic,dic)	T(II.2&3,II.2&3)	94 338	94 403	
	T(II.4,II.4)		- 65	0
T(rw,dic)	T(V, II.2&3)	3 952	3 952	0
T(dic,rw)	T(II.2&3,V)	8 535	8 535	0
T(dik,dik)	T(III.1,III.1)	5 210	5 210	0
T(rw,dik)	T(V,III.1)	44	44	0
T(dik,rw)	T(III.1,V)	1 683	1 683	0
T(dif,dif)	T(III.2,III.2)	17 429	17 429	0
T(rw,dif)	T(V,III.2)	13 583	13 583	0
T(dif,rw)	T(III.2,V)	9 982	9 982	0
T(dif,dik)	T(III.2,III.1)	3 601	3 601	0
T(dik,dic)	T(III.1,II.4)	35 717	35 717	0
T(f,a)	T(II.1,I)	168 756	195 947	
T(dic,a)		1 988		
T(rw,a)		-1 101		
T(dic,p)		26 344		
T(rw,p) (part)		- 39		0
T(f,rw)	T(II.1,V)	6 731	6 731	0
T(dic,f)	T(II.2&3, II.1)	163 016	191 348	
T(dic,a)		1 988		
T(dic,p)		26 344		0
T(rw,f)	T(V,II.1)	12 471	11 331	
T(rw,p) (part)		- 39		
T(rw,a)		-1 101		0

Sources: Own construction, from Tables 3, 4 and 5

Table A.5. Supply table of Portugal in 2017

Unit: million euros

Supply of goods and services (or products)	Output (P1)											Imports (P7)	Trade and transport margins	Taxes less subsidies on Products (D.21-D.31)	Total Supply at purchasers' price
	a01	a02	a03	a04	a05	a06	a07	a08	a09	a10	total by product				
p01	8 331	3	0	14	0	0	0	0	9	0	8 358	3 627	3 498	150	15 632
p02	357	108 109	128	2 000	129	0	0	50	64	0	110 837	65 848	27 885	16 614	221 184
p03	15	351	18 374	274	40	0	403	38	192	14	19 700	129	0	575	20 404
p04	169	1 582	59	72 063	176	0	269	313	170	68	74 869	3 336	- 31 791	2 565	48 978
p05	0	7	0	394	11 993	103	0	113	136	1	12 748	1 532	407	960	15 647
p06	0	0	0	48	0	13 637	0	0	0	0	13 685	716	0	1 138	15 539
p07	0	4	117	164	6	553	23 572	11	204	9	24 639	11	0	13	24 663
p08	79	1 495	92	3 426	351	131	134	23 479	2 393	210	31 790	3 538	0	2 492	37 820
p09	0	5	1	40	0	124	1	5	42 533	3	42 713	54	0	13	42 780
p10	0	73	0	542	0	0	0	0	25	7 815	8 455	72	1	1 784	10 311
total by industry	8 952	111 628	18 770	78 966	12 697	14 548	24 379	24 009	45 726	8 120	347 793	78 862	0	26 305	452 960
Direct purchases abroad by residents	---	---	---	---	---	---	---	---	---	---	---	3 171	---	---	3 171
Cif/fob adjustments on imports	---	---	---	---	---	---	---	---	---	---	---	- 294	---	---	- 294
Total	8 952	111 628	18 770	78 966	12 697	14 548	24 379	24 009	45 726	8 120	347 793	81 739	0	26 305	455 837

Source: Own construction from Supply-Use and Input-Output Tables, provided by Statistics Portugal (*INE*).

Note: see below the description of industries (a) and products (p), in Part B.1).

Table A.6. Use table of Portugal in 2017

Unit: million euros

Use of goods and services (or products)	Intermediate Consumption (P2)											Final Consumption (P3)				Gross Capital Formation (P5)				Exports (P6)	Total Use at purchasers' price
	a01	a02	a03	a04	a05	a06	a07	a08	a09	a10	total by product	Households (S14)	NPISH (S15)	Government (S13)	total	GFCF (P51g)	Changes in inventories (P52)	ADV (P53)	total		
p01	1 152	6 344	1	541	3	0	1	45	94	35	8 216	5 342	0	0	5 343	533	122	0	655	1 419	15 632
p02	2 725	63 886	6 249	13 976	1 215	161	538	1 448	5 390	822	96 410	58 791	0	1 429	60 220	10 848	578	80	11 506	53 048	221 184
p03	121	453	4 096	873	82	79	497	109	637	70	7 017	117	0	151	268	12 309	33	0	12 342	777	20 404
p04	270	3 032	186	9 341	237	204	55	733	1 279	262	15 599	23 420	2	1 973	25 395	25	0	0	25	7 959	48 978
p05	64	695	87	1 061	2 417	580	63	1 417	728	192	7 304	3 864	12	189	4 064	2 591	0	0	2 591	1 689	15 647
p06	150	1 183	414	1 567	115	3 286	959	1 027	410	119	9 230	5 588	0	193	5 782	0	0	0	0	527	15 539
p07	8	546	86	1 513	206	274	357	235	376	103	3 705	18 202	0	69	18 271	2 661	0	0	2 661	27	24 663
p08	313	4 679	741	7 905	2 215	1 274	691	5 787	2 826	1 001	27 430	2 477	144	230	2 851	3 881	0	0	3 881	3 659	37 820
p09	13	79	23	143	131	96	10	122	1 103	35	1 755	8 982	2 796	29 119	40 897	0	0	0	0	128	42 780
p10	29	135	23	224	135	83	14	126	187	530	1 485	7 245	1 032	320	8 596	40	0	55	95	135	10 311
total by industry	4 845	81 032	11 905	37 144	6 755	6 038	3 184	11 048	13 031	3 169	178 151	134 029	3 985	33 673	171 686	32 888	733	135	33 755	69 368	452 960
Direct purchases abroad by residents (+)	---	---	---	---	---	---	---	---	---	---	---	3 171	---	---	3 171	---	---	---	---	---	3 171
Purchases on the domestic territory by non-residents (-)	---	---	---	---	---	---	---	---	---	---	---	- 14 643	---	---	- 14 643	---	---	---	---	14 643	0
Ciffoab adjustments on imports	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	- 294	- 294
Total	4 845	81 032	11 905	37 144	6 755	6 038	3 184	11 048	13 031	3 169	178 151	122 556	3 985	33 673	160 214	32 888	733	135	33 755	83 717	455 837
Gross Added Value (GDP)	4 107	30 595	6 864	41 822	5 941	8 510	21 195	12 962	32 695	4 951	169 642										
Compensation of Employees (D1)	1 210	14 256	4 372	21 141	3 045	3 829	653	8 485	25 759	3 347	86 097										
Other taxes less subsidies on production (D29-D39)	- 752	393	64	385	102	441	906	37	- 473	- 216	887										
Gross Operating Surplus and Gross Mixed Income	3 649	15 947	2 429	20 296	2 795	4 239	19 636	4 440	7 409	1 820	82 658										
Total Output (P1)	8 952	111 628	18 770	78 966	12 697	14 548	24 379	24 009	45 726	8 120	347 793										

Source: Own construction from Supply-Use Table and other data of National Accounts provided by Statistics Portugal (*INE*).

Note: see below the description of industries (a) and products (p), in part B.1).

Table A.7. A disaggregated SAM for Portugal in 2017

Unit: million euros

			f			a											p		
			1	o	total	a01	a02	a03	a04	a05	a06	a07	a08	a09	a10	total	p01	p02	p03
			1	2		3	4	5	6	7	8	9	10	11	12		13	14	15
f	l	1	0	0	0	1 210	14 256	4 372	21 141	3 045	3 829	653	8 485	25 759	3 347	86 097	0	0	0
	o	2	0	0	0	3 649	15 947	2 429	20 296	2 795	4 239	19 636	4 440	7 409	1 820	82 658	0	0	0
	total		0	0	0	4 859	30 203	6 801	41 437	5 840	8 068	20 289	12 925	33 168	5 167	168 756	0	0	0
a	a01	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8 331	357	15
	a02	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	108 109	351
	a03	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	128	18 374
	a04	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14	2 000	274
	a05	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	129	40
	a06	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	a07	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	403
	a08	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	38
	a09	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	64	192
	a10	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
	total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	8 358	110 837	19 700
p	p01	13	0	0	0	1 152	6 344	1	541	3	0	1	45	94	35	8 216	3 498	0	0
	p02	14	0	0	0	2 725	63 886	6 249	13 976	1 215	161	538	1 448	5 390	822	96 410	0	27 885	0
	p03	15	0	0	0	121	453	4 096	873	82	79	497	109	637	70	7 017	0	0	0
	p04	16	0	0	0	270	3 032	186	9 341	237	204	55	733	1 279	262	15 599	0	0	0
	p05	17	0	0	0	64	695	87	1 061	2 417	580	63	1 417	728	192	7 304	0	0	0
	p06	18	0	0	0	150	1 183	414	1 567	115	3 286	959	1 027	410	119	9 230	0	0	0
	p07	19	0	0	0	8	546	86	1 513	206	274	357	235	376	103	3 705	0	0	0
	p08	20	0	0	0	313	4 679	741	7 905	2 215	1 274	691	5 787	2 826	1 001	27 430	0	0	0
	p09	21	0	0	0	13	79	23	143	131	96	10	122	1 103	35	1 755	0	0	0
	p10	22	0	0	0	29	135	23	224	135	83	14	126	187	530	1 485	0	0	0
	total		0	0	0	4 845	81 032	11 905	37 144	6 755	6 038	3 184	11 048	13 031	3 169	178 151	3 498	27 885	0
dic	nfc	23	0	26 963	26 963	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	fc	24	0	5 416	5 416	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	g	25	0	- 862	- 862	- 1 686	881	143	863	228	990	2 032	83	- 1 060	- 484	1 988	150	16 639	576
	h	26	86 341	44 318	130 659	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	npi	27	0	840	840	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	total		86 341	76 675	163 016	- 1 686	881	143	863	228	990	2 032	83	- 1 060	- 484	1 988	150	16 639	576
dik	nfc	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	fc	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	g	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	h	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	npi	32	0	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
dif	nfc	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	fc	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	g	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	h&npi	36	0	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
rw	37		189	12 281	12 471	934	- 488	- 79	- 478	- 126	- 548	- 1 126	- 46	588	268	- 1 101	3 626	65 823	128
Total			86 530	88 957	175 487	8 952	111 628	18 770	78 966	12 697	14 548	24 379	24 009	45 726	8 120	347 793	15 632	221 184	20 404

(to be continued)

Table A.7 (continuation). A disaggregated SAM for Portugal in 2017

Unit: million euros

			p								dic						dik		
			p04	p05	p06	p07	p08	p09	p10	total	nfc	fc	g	h	npi	total	nfc	fc	g
			16	17	18	19	20	21	22		23	24	25	26	27		28	29	30
f	l	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	o	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
a	total		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	a01	3	169	0	0	0	79	0	0	8 952	0	0	0	0	0	0	0	0	0
	a02	4	1 582	7	0	4	1 495	5	73	111 628	0	0	0	0	0	0	0	0	0
	a03	5	59	0	0	117	92	1	0	18 770	0	0	0	0	0	0	0	0	0
	a04	6	72 063	394	48	164	3 426	40	542	78 966	0	0	0	0	0	0	0	0	0
	a05	7	176	11 993	0	6	351	0	0	12 697	0	0	0	0	0	0	0	0	0
	a06	8	0	103	13 637	553	131	124	0	14 548	0	0	0	0	0	0	0	0	0
	a07	9	269	0	0	23 572	134	1	0	24 379	0	0	0	0	0	0	0	0	0
	a08	10	313	113	0	11	23 479	5	0	24 009	0	0	0	0	0	0	0	0	0
	a09	11	170	136	0	204	2 393	42 533	25	45 726	0	0	0	0	0	0	0	0	0
	a10	12	68	1	0	9	210	3	7 815	8 120	0	0	0	0	0	0	0	0	0
total		74 869	12 748	13 685	24 639	31 790	42 713	8 455	347 793	0	0	0	0	0	0	0	0	0	
p	p01	13	- 3 498	0	0	0	0	0	0	0	0	0	5 342	0	5 343	468	4	56	
	p02	14	- 27 885	0	0	0	0	0	0	0	0	0	1 429	58 791	0	60 220	7 893	80	1 152
	p03	15	0	0	0	0	0	0	0	0	0	0	151	117	0	268	8 377	90	1 308
	p04	16	0	0	0	0	0	0	0	0	0	0	1 973	11 948	2	13 923	17	0	3
	p05	17	- 407	407	0	0	0	0	0	0	0	0	189	3 864	12	4 064	1 757	19	275
	p06	18	0	0	0	0	0	0	0	0	0	0	193	5 588	0	5 782	0	0	0
	p07	19	0	0	0	0	0	0	0	0	0	0	69	18 202	0	18 271	1 805	20	283
	p08	20	0	0	0	0	0	0	0	0	0	0	230	2 477	144	2 851	2 632	29	413
	p09	21	0	0	0	0	0	0	0	0	0	0	29 119	8 982	2 796	40 897	0	0	0
	p10	22	- 1	0	0	0	0	0	1	0	0	0	320	7 245	1 032	8 596	48	0	6
	total		- 31 791	407	0	0	0	0	1	0	0	0	33 673	122 556	3 985	160 214	22 996	242	3 496
dic	nfc	23	0	0	0	0	0	0	0	0	0	367	19	1 583	0	1 970	0	0	0
	fc	24	0	0	0	0	0	0	0	0	778	1 813	35	2 881	34	5 541	0	0	0
	g	25	2 569	962	1 140	13	2 496	13	1 787	26 344	5 630	1 019	58	37 193	75	43 974	0	0	0
	h	26	0	0	0	0	0	0	0	0	1 583	3 312	32 493	1 714	318	39 420	0	0	0
	npi	27	0	0	0	0	0	0	0	0	176	56	2 233	944	24	3 434	0	0	0
	total		2 569	962	1 140	13	2 496	13	1 787	26 344	8 167	6 567	34 839	44 315	450	94 338	0	0	0
dik	nfc	28	0	0	0	0	0	0	0	0	20 593	0	0	0	0	20 593	0	4	458
	fc	29	0	0	0	0	0	0	0	0	0	4 218	0	0	0	4 218	0	0	4 110
	g	30	0	0	0	0	0	0	0	0	0	0	2 016	0	0	2 016	141	73	0
	h	31	0	0	0	0	0	0	0	0	0	0	8 941	0	8 941	0	50	66	
	npi	32	0	0	0	0	0	0	0	0	0	0	0	0	- 50	- 50	0	0	300
	total		0	0	0	0	0	0	0	0	20 593	4 218	2 016	8 941	- 50	35 717	141	127	4 934
dif	nfc	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	- 2 327		
	fc	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0		8 006	
	g	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0			- 5 799
	h&npi	36	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	- 2 327	8 006	- 5 799
rw	37	6 209	1 530	714	11	3 534	54	69	81 700	250	683	1 793	1 199	27	3 952	1 290	- 51	102	
Total			51 855	15 647	15 539	24 663	37 820	42 780	10 311	455 837	29 009	11 469	72 320	177 011	4 412	294 221	22 100	8 325	2 733

(to be continued)

Table A.7 (continuation). A disaggregated SAM for Portugal in 2017

Unit: million euros

			dik			dif					rw	Total
			h	npi	total	nfc	fc	g	h&npi	total		
			31	32		33	34	35	36		37	
f	l	1	0	0	0	0	0	0	0	0	433	86 530
	o	2	0	0	0	0	0	0	0	0	6 298	88 957
	total		0	0	0	0	0	0	0	0	6 731	175 487
a	a01	3	0	0	0	0	0	0	0	0	0	8 952
	a02	4	0	0	0	0	0	0	0	0	0	111 628
	a03	5	0	0	0	0	0	0	0	0	0	18 770
	a04	6	0	0	0	0	0	0	0	0	0	78 966
	a05	7	0	0	0	0	0	0	0	0	0	12 697
	a06	8	0	0	0	0	0	0	0	0	0	14 548
	a07	9	0	0	0	0	0	0	0	0	0	24 379
	a08	10	0	0	0	0	0	0	0	0	0	24 009
	a09	11	0	0	0	0	0	0	0	0	0	45 726
	a10	12	0	0	0	0	0	0	0	0	0	8 120
	total		0	0	0	0	0	0	0	0	0	347 793
p	p01	13	114	13	655	0	0	0	0	0	1 419	15 632
	p02	14	2 161	221	11 506	0	0	0	0	0	53 048	221 184
	p03	15	2 335	232	12 342	0	0	0	0	0	777	20 404
	p04	16	5	0	25	0	0	0	0	0	22 309	51 855
	p05	17	491	49	2 591	0	0	0	0	0	1 689	15 647
	p06	18	0	0	0	0	0	0	0	0	527	15 539
	p07	19	504	50	2 661	0	0	0	0	0	27	24 663
	p08	20	735	73	3 881	0	0	0	0	0	3 659	37 820
	p09	21	0	0	0	0	0	0	0	0	128	42 780
	p10	22	39	2	95	0	0	0	0	0	135	10 311
	total		6 383	639	33 755	0	0	0	0	0	83 717	455 837
dic	nfc	23	0	0	0	0	0	0	0	0	77	29 009
	fc	24	0	0	0	0	0	0	0	0	512	11 469
	g	25	0	0	0	0	0	0	0	0	877	72 320
	h	26	0	0	0	0	0	0	0	0	6 931	177 011
	npi	27	0	0	0	0	0	0	0	0	138	4 412
	total		0	0	0	0	0	0	0	0	8 535	294 221
dik	nfc	28	0	0	462	0	0	0	0	0	1 045	22 100
	fc	29	0	0	4 110	0	0	0	0	0	- 3	8 325
	g	30	5	4	222	0	0	0	0	0	496	2 733
	h	31	0	0	117	0	0	0	0	0	113	9 170
	npi	32	0	0	300	0	0	0	0	0	32	283
	total		5	4	5 210	0	0	0	0	0	1 683	42 610
dif	nfc	33			- 2 327	2 956	259	325	866	4 407	6 091	8 171
	fc	34			8 006	6 143	2 054	- 6 316	- 2 622	- 742	11 936	19 201
	g	35			- 5 799	- 162	7 590	2 789	3 359	13 577	- 8 138	- 361
	h&npi	36	4 072	- 352	3 721	- 499	- 1 449	2 072	64	188	92	4 001
	total		4 072	- 352	3 601	8 438	8 454	- 1 130	1 667	17 429	9 982	31 012
rw		37	- 1 290	- 8	44	- 267	10 747	769	2 334	13 583	0	110 648
Total			9 170	283	42 610	8 171	19 201	- 361	4 001	31 012	110 648	0

Sources: Own construction, from: Integrated Economic Accounts, Supply Table and Use Table of Portugal – Tables A.1, A.5, and A.6; from-whom-to-whom matrices for current and capital transfers, provided by Statistics Portugal (*INE*); from-whom-to-whom matrices for financial transactions, estimated from data on financial national accounts, provided by Portuguese Central Bank (*Banco de Portugal*).

Note: see below the descriptions of the accounts, in Part B).

Table A.8. Average use propensities of the endogenous accounts in the SAM of Portugal in 2017
[structure of uses, or direct effects, of each additional monetary unit of the endogenous account's resources (with exogenous origin)]

A _n = N, ŷ _{n-1}																																					
	fl	fo	a01	a02	a03	a04	a05	a06	a08	a09	a10	p01	p02	p03	p04	p05	p06	p07	p08	p09	p10	dic-nfc	dic-fc	dic-g	dic-h	dic-npi	dik-nfc	dik-fc	dik-g	dik-h	dik-npi	dif-nfc	dif-fc	dif-g	dif-h&npi	rw	
fl	0,0	0,0	0,1	0,1	0,2	0,3	0,2	0,3	0,4	0,6	0,4	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
fo	0,0	0,0	0,4	0,1	0,1	0,3	0,2	0,3	0,2	0,2	0,2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	
a01	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,5	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
a02	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,5	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
a03	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,9	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
a04	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1,4	0,0	0,0	0,0	0,1	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
a05	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,8	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
a06	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,9	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
a08	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,6	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
a09	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	1,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
a10	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,8	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
p01	0,0	0,0	0,1	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,2	0,0	0,0	-0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
p02	0,0	0,0	0,3	0,6	0,3	0,2	0,1	0,0	0,1	0,1	0,1	0,0	0,1	0,0	-0,5	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,3	0,0	0,4	0,0	0,4	0,2	0,8	0,0	0,0	0,0	0,0	0,5	
p03	0,0	0,0	0,0	0,0	0,2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,4	0,0	0,5	0,3	0,8	0,0	0,0	0,0	0,0	0,0		
p04	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,2		
p05	0,0	0,0	0,0	0,0	0,0	0,0	0,2	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,1	0,1	0,2	0,0	0,0	0,0	0,0	0,0		
p06	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0		
p07	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,1	0,0	0,1	0,1	0,2	0,0	0,0	0,0	0,0	0,0		
p08	0,0	0,0	0,0	0,0	0,0	0,1	0,2	0,1	0,2	0,1	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,1	0,0	0,2	0,1	0,3	0,0	0,0	0,0		
p09	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,4	0,1	0,6	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0		
p10	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0		
dic-nfc	0,0	0,3	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0		
dic-fc	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0		
dic-g	0,0	0,0	-0,2	0,0	0,0	0,0	0,0	0,1	0,0	0,0	-0,1	0,0	0,1	0,0	0,0	0,1	0,1	0,0	0,1	0,0	0,2	0,2	0,1	0,0	0,2	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0		
dic-h	1,0	0,5	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,3	0,4	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1		
dic-npi	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0		
dik-nfc	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,7	0,0	0,0	0,0	0,0	0,0	0,0	0,2	0,0	0,0	0,0	0,0	0,0	0,0		
dik-fc	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,4	0,0	0,0	0,0	0,0	0,0	0,0	1,5	0,0	0,0	0,0	0,0	0,0	0,0		
dik-g	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0		
dik-h	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0		
dik-npi	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0		
dif-nfc	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	-0,1	0,0	0,0	0,0	0,4	0,0	-0,9	0,2	0,1		
dif-fc	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	1,0	0,0	0,0	0,8	0,1	17,5	-0,7	0,1		
dif-g	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	-2,1	0,0	0,0	0,4	-7,7	0,8	-0,1		
dif-h&npi	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,4	-1,2	-0,1	-0,1	-5,7	0,0	0,0		
rw	0,0	0,1	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,2	0,3	0,0	0,1	0,1	0,0	0,0	0,1	0,0	0,0	0,0	0,1	0,0	0,0	0,1	0,0	0,0	-0,1	0,0	0,0	0,6	-2,1	0,6	0,0		
A ₁ = L, ŷ _{n-1}																																					
a07	0,0																																				

Source: Own construction from Table A.7.

Table A.9. Accounting multipliers in the SAM of Portugal in 2017
[global effects of each additional monetary unit in the endogenous account's resources (with exogenous origin)]

Ma = (I-An) ⁻¹																																					
	fl	fo	a01	a02	a03	a04	a05	a06	a08	a09	a10	p01	p02	p03	p04	p05	p06	p07	p08	p09	p10	dic-nfc	dic-fc	dic-g	dic-h	dic-npi	dik-nfc	dik-fc	dik-g	dik-h	dik-npi	dif-nfc	dif-fc	dif-g	dif-h&npi	rw	
fl	4,43	3,53	3,78	3,83	3,91	3,85	3,87	3,84	3,97	4,10	3,98	3,78	3,80	3,82	3,84	3,85	3,83	0,17	3,91	4,10	3,93	3,57	3,64	3,74	3,42	4,00	3,53	3,76	3,35	3,61	3,25	3,77	3,77	3,77	3,77	3,77	
fo	2,77	3,87	3,46	3,20	3,12	3,16	3,15	3,18	3,10	3,02	3,12	3,36	3,16	3,05	3,12	3,13	3,16	0,14	3,09	3,02	3,08	2,87	2,98	2,91	2,77	3,03	2,86	3,14	2,64	2,96	2,52	3,16	3,16	3,16	3,16	3,16	
a01	0,37	0,37	1,48	0,44	0,38	0,37	0,37	0,36	0,37	0,37	0,37	1,14	0,42	0,38	0,30	0,37	0,36	0,02	0,37	0,37	0,37	0,37	0,38	0,37	0,37	0,37	0,38	0,39	0,36	0,38	0,36	0,39	0,39	0,39	0,39	0,39	
a02	4,50	4,65	5,02	6,19	4,97	4,65	4,64	4,49	4,61	4,64	4,64	5,03	5,64	4,87	4,16	4,68	4,52	0,20	4,70	4,64	4,65	4,69	4,79	4,59	4,50	4,64	4,72	5,04	4,45	4,83	4,33	5,06	5,06	5,06	5,06	5,06	
a03	0,66	0,77	0,76	0,73	1,95	0,72	0,71	0,71	0,70	0,71	0,71	0,75	0,73	1,81	0,71	0,71	0,71	0,04	0,71	0,71	0,71	0,97	0,72	0,71	0,66	0,70	1,08	0,75	1,34	0,97	1,49	0,74	0,74	0,74	0,74	0,74	
a04	3,19	3,30	3,50	3,49	3,38	4,45	3,32	3,23	3,34	3,31	3,34	3,58	3,58	3,33	4,78	3,39	3,26	0,15	3,47	3,31	3,39	3,21	3,49	3,30	3,19	3,34	3,16	3,75	2,72	3,37	2,45	3,78	3,78	3,78	3,78	3,78	
a05	0,50	0,53	0,54	0,54	0,53	0,53	1,70	0,56	0,58	0,53	0,54	0,54	0,54	0,52	0,52	1,45	0,55	0,02	0,57	0,53	0,54	0,55	0,53	0,52	0,50	0,53	0,57	0,55	0,58	0,56	0,59	0,55	0,55	0,55	0,55	0,55	
a06	0,56	0,56	0,59	0,59	0,60	0,58	0,58	1,80	0,61	0,57	0,58	0,59	0,58	0,58	0,58	0,59	1,65	0,05	0,60	0,57	0,58	0,55	0,57	0,57	0,56	0,58	0,54	0,58	0,51	0,56	0,49	0,58	0,58	0,58	0,58	0,58	
a08	0,93	0,98	1,04	1,04	1,02	1,04	1,11	1,03	2,15	1,00	1,06	1,04	1,04	1,00	1,05	1,10	1,03	0,05	1,72	1,00	1,04	1,01	1,00	0,98	0,93	1,03	1,03	1,05	1,01	1,04	1,00	1,05	1,05	1,05	1,05	1,05	
a09	1,84	1,86	1,81	1,89	1,88	1,85	1,88	1,88	1,87	2,87	1,83	1,84	1,93	1,86	1,83	1,91	1,91	0,09	1,96	2,86	1,91	1,87	1,92	2,27	1,84	2,52	1,75	1,89	1,65	1,80	1,59	1,89	1,89	1,89	1,89	1,89	
a10	0,34	0,34	0,34	0,34	0,34	0,33	0,34	0,34	0,34	0,34	1,39	0,34	0,34	0,33	0,33	0,34	0,34	0,02	0,35	0,34	1,13	0,32	0,34	0,35	0,34	0,53	0,31	0,34	0,29	0,32	0,28	0,34	0,34	0,34	0,34	0,34	
p01	0,64	0,65	0,86	0,77	0,67	0,64	0,64	0,63	0,64	0,65	0,65	2,09	0,72	0,66	0,51	0,65	0,63	0,03	0,65	0,65	0,65	0,66	0,64	0,64	0,64	0,65	0,66	0,68	0,63	0,66	0,64	0,68	0,68	0,68	0,68	0,68	
p02	8,92	9,22	9,96	10,30	9,85	9,20	9,17	8,89	9,11	9,20	9,19	9,97	11,23	9,62	8,13	9,25	8,95	0,40	9,23	9,20	9,19	9,28	9,50	9,09	8,92	9,19	9,35	9,99	8,80	9,57	8,57	10,03	10,03	10,03	10,03	10,03	
p03	0,72	0,84	0,82	0,79	1,04	0,78	0,77	0,77	0,76	0,77	0,77	0,81	0,79	2,00	0,77	0,77	0,77	0,04	0,77	0,77	0,77	1,06	0,79	0,77	0,72	0,75	1,19	0,82	1,47	1,06	1,63	0,80	0,80	0,80	0,80	0,80	
p04	2,10	2,17	2,31	2,30	2,22	2,27	2,17	2,11	2,18	2,17	2,19	2,36	2,35	2,18	3,23	2,20	2,14	0,10	2,21	2,17	2,19	2,10	2,30	2,17	2,10	2,18	2,06	2,48	1,74	2,21	1,56	2,50	2,50	2,50	2,50	2,50	
p05	0,62	0,65	0,66	0,66	0,65	0,65	0,87	0,69	0,72	0,65	0,67	0,67	0,66	0,64	0,63	1,85	0,68	0,03	0,69	0,65	0,66	0,68	0,65	0,64	0,62	0,65	0,70	0,67	0,72	0,69	0,73	0,67	0,67	0,67	0,67	0,67	
p06	0,59	0,59	0,63	0,63	0,64	0,62	0,61	0,87	0,66	0,61	0,62	0,63	0,62	0,62	0,62	0,61	1,84	0,03	0,64	0,61	0,61	0,58	0,61	0,60	0,59	0,61	0,58	0,62	0,54	0,59	0,52	0,62	0,62	0,62	0,62	0,62	
p07	1,01	1,01	1,01	1,01	1,01	1,01	1,01	1,01	1,01	1,01	1,01	1,01	1,01	0,99	1,01	1,01	1,01	1,04	1,01	1,01	1,01	1,01	1,01	1,01	1,01	1,01	1,00	1,01	1,00	1,01	1,00	1,01	1,01	1,01	1,01	1,01	
p08	1,47	1,54	1,63	1,64	1,61	1,65	1,75	1,62	1,81	1,58	1,67	1,64	1,64	1,57	1,64	1,73	1,62	0,07	2,73	1,58	1,64	1,60	1,58	1,54	1,47	1,63	1,62	1,66	1,60	1,63	1,58	1,66	1,66	1,66	1,66	1,66	
p09	1,73	1,74	1,68	1,77	1,75	1,72	1,74	1,75	1,74	1,74	1,71	1,71	1,80	1,73	1,70	1,77	1,78	0,08	1,76	2,74	1,79	1,74	1,79	2,15	1,73	2,40	1,62	1,76	1,52	1,67	1,46	1,77	1,77	1,77	1,77	1,77	
p10	0,43	0,43	0,43	0,43	0,43	0,42	0,44	0,43	0,43	0,43	0,49	0,43	0,43	0,42	0,42	0,43	0,43	0,02	0,43	0,43	1,48	0,41	0,43	0,44	0,43	0,68	0,39	0,43	0,37	0,41	0,36	0,43	0,43	0,43	0,43	0,43	
dic-nfc	0,92	1,26	1,13	1,05	1,03	1,04	1,04	1,05	1,02	1,00	1,03	1,10	1,04	1,01	1,03	1,03	1,04	0,05	1,02	1,00	1,02	1,95	1,03	0,96	0,92	1,00	0,94	1,04	0,87	0,98	0,83	1,04	1,04	1,04	1,04	1,04	
dic-fc	0,40	0,49	0,46	0,44	0,43	0,43	0,43	0,43	0,43	0,42	0,43	0,45	0,44	0,42	0,42	0,43	0,43	0,02	0,43	0,42	0,43	0,43	1,61	0,41	0,40	0,43	0,39	0,44	0,36	0,41	0,34	0,44	0,44	0,44	0,44	0,44	
dic-g	2,88	2,92	2,78	2,99	2,96	2,89	2,92	2,95	2,91	2,87	2,84	2,85	3,06	2,92	2,85	2,98	3,02	0,13	2,97	2,87	3,02	2,98	3,03	3,87	2,88	2,93	2,75	2,97	2,57	2,82	2,48	2,98	2,98	2,98	2,98	2,98	
dic-h	7,62	7,35	7,34	7,34	7,34	7,26	7,29	7,28	7,36	7,43	7,35	7,33	7,34	7,20	7,20	7,30	7,29	0,32	7,33	7,43	7,37	6,93	7,41	7,46	7,62	7,44	6,70	7,28	6,25	6,91	6,00	7,31	7,31	7,31	7,31	7,31	
dic-npi	0,17	0,18	0,17	0,18	0,18	0,17	0,17	0,17	0,17	0,17	0,17	0,18	0,18	0,17	0,17	0,18	0,18	0,01	0,17	0,17	0,18	0,18	0,20	0,17	1,18	0,16	0,18	0,15	0,17	0,14	0,18	0,18	0,18	0,18	0,18		
dik-nfc	0,72	0,96	0,87	0,81	0,79	0,80	0,80	0,80	0,79	0,77	0,79	0,85	0,81	0,78	0,79	0,80	0,80	0,04	0,79	0,77	0,79	1,45	0,80	0,75	0,72	0,77	1,73	0,81	0,84	0,76	0,63	0,82	0,82	0,82	0,82	0,82	
dik-fc	0,31	0,35	0,33	0,33	0,33	0,32	0,32	0,32	0,32	0,32	0,32	0,33	0,34	0,32	0,32	0,33	0,33	0,01	0,32	0,32	0,33	0,33	0,77	0,36	0,31	0,32	0,31	1,35	1,80	0,31	0,28	0,34	0,34	0,34	0,34	0,34	
dik-g	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,11	0,12	0,11	0,11	0,11	0,11	0,00	0,11	0,11	0,11	0,12	0,12	0,14	0,11	0,11	0,11	0,13	1,11	0,11	0,10	0,12	0,12	0,12	0,12	0,12	
dik-h	0,39	0,38	0,38	0,38	0,38	0,38	0,38	0,38	0,38	0,38	0,38	0,38	0,38	0,37	0,37	0,38	0,38	0,02	0,38	0,38	0,38	0,36	0,39	0,39	0,39	0,39	0,35	0,39	0,36	1,36	0,31	0,38	0,38	0,38	0,38		
dik-npi	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01																													

Part B) Description of disaggregated SAM accounts

Three main groups of accounts can be identified in both the aggregated version of the SAM in Table 4, and also the disaggregated version in Table A.7, namely: production accounts, the institutions' accounts, and the rest of the world account. In this study the latter is a singular group which corresponds to the code S2, in the SNA and in the ESA, which represents all the transactions made between resident and non-resident institutions in the economic territory – which is Portugal in our illustrative case. The other two groups are described below.

B.1) Production accounts

In this group of accounts, three subgroups are identified: factors of production, activities, and products.

As the name suggests, in the factors of production accounts a so-called account “labour” can be identified, which is associated with the subgroup that relates to employees, and also a so-called “others” account, which is associated with the subgroup related with employers and self-employed workers, and capital. In fact, as described in Table 2, this subgroup of accounts corresponds to the primary distribution of income national account, which distributes the generated income among institutions and activities. In this distribution, national accounts only identify the following: compensation of employees, by institution and by activities; gross mixed income (the compensation of employers and self-employed workers), by institution; gross operating surplus (the compensation of capital), by institution; and of the total of the last two (gross mixed income and gross operating surplus), by activity. Therefore, as institutions and activities should be treated in the same way at this level, the possible treatment is that mentioned above, namely: labour (employees), and others (employers, own-account workers, and capital).

International nomenclatures were adopted in the case of the activities and products accounts.

As the application used to illustrate the methodology presented is for a European country, the European adaptations to the nomenclatures associated with the SNA 2008 were adopted.

Accordingly, the activities accounts were defined from the Statistical Classification of Economic Activities in the European Community (NACE), revision 2, which is the adaptation for Europe of the International Standard Industrial Classification of All Economic Activities (ISIC), revision 4.

In turn, the products accounts were defined from the Statistical Classification of Products by Activity (CPA), version 2.1, which is the adaptation for Europe of the Central Product Classification (CPC), version 2.1., in which products are organised in the same way as activities, as the name implies.

In accordance with these nomenclatures, products are organised in the same way as activities, and have been identified as ten distinct groups in each case, as shown below.

Table B.1. Disaggregation of products (or goods and services) and activities (or industries) accounts

SAM accounts		national accounts	
products of activity... (p)	activities (a)	description	NACE rev.2 division
p01	a01	agriculture, forestry, and fishing	01-03
p02	a02	industry, energy, water supply and sewerage	05-39
p03	a03	construction	41-43
p04	a04	wholesale and retail trade, repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service activities	45-56
p05	a05	information and communication	58-63
p06	a06	financial and insurance activities	64-66
p07	a07	real estate activities	68
p08	a08	professional, scientific, and technical activities; administrative and support service	69-82
p09	a09	public administration and defence; compulsory social security; education; human health and social work	84-88
p10	a10	arts; entertainment; repair of household goods and other services	90-99

Source: Own construction, following Santos (2018)

B.2) Institutions accounts

SNA specifies five main domestic institutional sectors and the rest of the world. The institutions' accounts of the SAMs presented represent the first five sectors, which justifies the adoption of the description of "domestic" for these accounts – which is sometimes applied in brackets.

As described in Table 2, current, capital, and financial accounts are the three main subgroups of the disaggregation of (domestic) institutions accounts. As described below, the first two subgroups are disaggregated for the above-mentioned five institutional sectors, whereas the other subgroup (financial) aggregates the last two of the sectors, and thus they are disaggregated into four sectors.

Table B.2. Disaggregation of domestic institutions accounts

SAM accounts			description	SNA (and ESA) codes
(domestic) institutions (di)				
current (c)	capital (k)	financial (f)		
nfc			non-financial corporations	S11
fc			financial corporations	S12
g			general government	S13
h			households	S14
npi			non-profit institutions serving households	S15

Source: Own construction, following Santos (2018)