

Characterization of the Spanish Economy based on Sector linkages: IO, SAM and FSAM Multipliers

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Abstract

This article goes further the traditional analysis of multipliers of Input-Output (IO) models by considering the Social Accounting Matrix (SAM) and Financial Social Accounting Matrix (FSAM) multipliers in order to characterize the Spanish economy based upon its sector linkages. The contribution of this article is therefore to provide the FSAM multipliers for the Spanish economy and compare them with the IO and SAM multipliers. This would allow to trace better the real-financial interconnectedness of the economy. We find that regardless the model, half of the activities (37) remain in their characterization. For the rest of the 37 economics activities, the classification change across models. We provide a detailed analysis on such behaviors.

Keywords: IO, SAM, FSAM, Accounting Multipliers Models, Spain.

JEL Classification: C67, D57, E16.

1. Introduction

The results of the decisions of institutional sectors are shown in the SNA, which provides a complete system of integrated accounts for all economic activities. However, this system is not enough to understand the complex interconnections between sectors. Moreover, its formal representation is not adequate to evaluate the impact of exogenous shock or policy changes on the economy. In order to overcome that, the input-output (IO) model of Leontief (1936) aimed at collecting the intra-industrial links, was the first attempt to use the macro data coming from the SNA to analyze the impact of changes of final demand on economic production. However, this approach is limited to the production and demand of goods and services. Stone (1962) proposed a Social Accounting Matrix (SAM) and extend the input-output model at considering all real economic transactions taking place within an economy and adding information about the institutional sectors and income distribution. Thus, a major advantage of the SAM OI model is the improved modeling of linkage between income generation and the distribution of income. Although the SAM is a very useful instrument for economic analysis and evaluation, it is an incomplete tool since that it is limited to the real economy at not including financial ties across sectors, that is, details on the financial institutions and transactions of the agents through its financial assets and liabilities.

The financial sector interacts with all other sectors of the economy, being its main task to provide the necessary financial resources for the productive sector, the IO and SAM approach do not consider the financial transaction while that is considered in a financial social accounting matrix (FSAM) which are beginning to be built as pointed out in Aray *et al.* (2016),

The links and interaction of the real and financial areas of the economy have important consequences on the aggregate performance of the whole economy as reflected in traditional indicators such as the GDP growth. The importance of the financial sector lies precisely in its role of financial intermediation at serving as a connector for the entire productive sector of the economy. Therefore, the impacts of exogenous shocks to the economy are thought to affect not only the real transactions of the economy but also the financial transactions with consequences on traditional on real and financial indicator as the GDP or the financial stability.

Thus, this article goes further the traditional analysis of multipliers of Input-Output models by considering the Social Accounting Matrix (SAM) and Financial

Social Accounting Matrix (FSAM) multipliers in order to characterize the Spanish economy based upon its sector linkages. The contribution of this article is therefore to provide the FSAM multipliers for the Spanish economy and compare them with the IO and SAM multipliers. This would allow to trace better the real-financial interconnectedness of the economy which is in line with Shrestha *et al.* (2012) who argued that the Financial Stability Board (FSB) and the International Monetary Fund (IMF) have identified as one of the vulnerabilities of the last crisis, the absence of more detailed economic statistics which is fairly overcome by the FSAM by allowing to identify which are the sectors that lend or borrow to a particular sector and which are the instruments positions respect to such sectors since that each financial transaction of a sector is mirrored by a financial transaction in other sector. Thus, we are able to capture the real-financial linkages and to assess the strength of these linkages in the Spanish economy.

Following Leung and Secieru (2012), we assess the strength of real-financial linkages by calculating and comparing multipliers with and without endogenous financial flows using the FSAM of 2009 provided by Aray *et al.* (2016) which nests the SAM and the IO. Moreover, we classify the economic activities based upon their linkages in each model and identify which are the economic activities that remain in their classification across models. Half of the activities (37) remain in their characterization while for the remaining 37 economics activities, the classification change across models. We provide a detailed analysis on such behaviors.

Finally, we particularly pay attention to the Financial Services Activity what allowed us to deep in the analysis of this productive sector by characterizing it in terms of their linkages. We found that the classification of this sector as a based economic activity is robust across the three models. This result somehow suggests that the financial stability can be related with the bottleneck characteristic of the financial sector which affects all the economic activities as well as the final consumption and investment in the economy.

2. Circular Economic flow

It is important in the multiplier models to have a clear understanding of the circular flows of income. Figure 1 shows a diagram with the Circular Economic Flow from the Financial Social Accounting Framework. The structure of the diagram contains the accounts and the variables that are consider endogenous in each of the three

multiplier models (IO, SAM and FSAM) and are located similarly than in the real structure of the FSAM. It is also shown the three main areas of the FSAM.

The IO Multiplier Model (IOMM) only considers the interaction between the Production and the Intermediate Consumption Accounts. These accounts are considered endogenous in the model and Arrows 1 and 2 and the blue box shows the flows that come from an increase of production and the demand of intermediate input needed to satisfy that production as well as the impact in the rest of the production activities to satisfy the intermediate demand of all sectors. This model is considered an open model because only considers the interrelation among the economic activities, in this case the private and public final consumption, the investment and the exports of the economy are exogenous variables.

On the other hand, the SAM Accounting Multiplier Model (SAMAMM) is a more complete model in the sense that is considered a closed model. In the diagram, the endogenous variables of this model are represented by the arrows that go from 1 to 7 and the green box in which the IOMM is implicit on it. This is the traditional model that contains the circular flow of income. On it is included the relationship among the economic activities (1 and 2) but it includes the payments that the economic activities made to the labor and capital factors once the production is affected (3) and it includes the additional income from the property income (4) and other variables (...) in order to get the total income available for each institutional sectors. From there, the households use the increase/decrease of income in order to increase/decrease their consumption expenditures (5) which are determined by the final consumption basket of the households (6) and these new demand of goods and services have to be satisfied also by the economic activities (7). In this model the public consumption, the investment and the export are considered exogenous variables to the model.

The circular flow of income is completed when agents transfer their savings to the financial market driving to new flow of investment and funding. However, in the SAM, these financial flows are not detailed. Therefore, the difference of the SAM and the FSAM is the Capital Account (CC). In a SAM framework the CC records the saving of the agents which equals the investment in gross fixed capital formation. In the FSAM, the CC provides details of the assets they hold (fixed and financial). The Financial Account (FC) shows how the agents use their assets and liabilities and how the savings could not be driven to invest in fixed assets, but to invest in financial assets from the

surplus agents. The role of the financial sector is precisely to receive the financial investment and transforms it into fixed assets through loans to deficit agents.

Thus, the last model, the FSAM Accounting Multiplier Model (FSAMAMM) is even more complete and complex. This is also a closed model and the endogenous variables are represented in the diagram by the arrows that go from 1 to 14 and the red box in which the IOMM and the SAMAMM are implicit on it. This model includes as endogenous additional variables the saving, investment, capital transfer and financial assets and liabilities by instruments and sectors. After the sectors know what their total income are (4), part of that goes to final consumption expenditures (5), in the case of households, and the rest of income goes to saving (6). The saving should be one of the main sources to finance the investment of the sectors (9) together with capital transfer (9) and financial liabilities (9). On the other hand, part of the saving will go to get financial assets (10). Once the sector determines the level of investment, they will demand the investment goods and services by products (11) that should be produced by the economic activities (12) in order to satisfy that demands. Additionally, there are effects in property income that come from the inflows of the acquisition of the financial assets (13) and the outflows of the disposal of the financial liabilities (14). Here the final public consumption and the export are the only exogenous variables to the model. In this case the multiplier of this model will has on it the effects related with the interrelationship among the economic activities plus the effects from the income, plus the effects from the demand of final consumption by the households, plus the effects from the demand of investment by the sectors and the effects from the financial assets and liabilities.

3. Multipliers Models

Following the literature, we take the government and the rest of the world (their current and capital accounts, as well as their main financial liabilities-official reserves, government bonds, government short-term paper and foreign investments) as exogenous.

The FSAM structure allows us to derive different models of multipliers within the same analogy of the development of classical input-output multipliers model developed by Leontief (1936) and extended within the framework of the SAM by Pyatt and Thorbecke (1976). The main difference in using the framework and structure of the SAM to derive input-output multipliers is that it can have a number of different products

and activities, that represents a rectangular matrix that would not be possible to invest in the classical model, but when it is considered jointly the area of products and activities of the SAM it is possible to have a square matrix to calculate the inverse matrix, subject only to the absence of linear dependency.

On the other hand the multiplier models in the framework of the SAM and FSAM require defining the variables of rows and columns that are considered endogenous and exogenous within the matrix in each case. Thus it is considered to include as endogenous variables those contained in the following accounts:

For Input-Output multiplier model (IOMM): "I. Goods and services or Commodities (CM)", "I. Production (PA)";

For the SAM accounting multiplier model (SAMAMM), additional to the previous: "II.1.1. Operating Account or Gross Value Added (GVA)", " II.1.2. Allocation of primary income and II.2. Secondary distribution of income (I&DI)", and "II.4. Use of income account (UI)";

For the FSAM accounting multiplier model (FSAMAMM), additional to the two previous: "III. Capital Account (KA)", "IV. Financial Account (FA)".

Government Accounts (Gov) and the Current Account for the Rest of the World (RW) are considered exogenous accounts. It is clear that for the IOMM the rest of the variables defined in SAMAMM and FSAMAMM are considered as exogenous variable for IOMM, and for the SAMAMM the rest of variables defined in FSAMAMM are also considered exogenous variables for SAMAMM.

Table 1 shows the endogenous and exogenous variables for the three models. The endogenous accounts (rows and columns) transactions are represented by $T_{i, j}$. Moreover, the exogenous accounts (rows) into endogenous accounts (columns) are the leaks represented by $L_{i, j}$, while the endogenous accounts (rows) into exogenous accounts (columns) are the injections represented by $X_{i, j}$, and the exogenous accounts (rows) into exogenous accounts (columns) are the residuals represented by $R_{i, j}$. The structure of the Table 1 for the FSAM is the same that the one represented in Figure 1.

From the identities in Table 1 can be derived the economic models of equation (1.1) in which are represented the three models. The Input –Output Model is represented by Y_1 and Y_2 , while SAM Accounting Multiplier Model is represented from Y_1 to Y_5 and for the FSAM Accounting Multiplier Model is represented from Y_1 to Y_7 .

Input-Output Multiplier, SAM and FSAM Accounting Multiplier Models

$$(1.1) \quad \begin{bmatrix} Y_1 \\ Y_2 \\ Y_3 \\ Y_4 \\ Y_5 \\ Y_6 \\ Y_7 \end{bmatrix} = \begin{bmatrix} 0 & A_{12} & 0 & 0 & A_{15} & A_{16} & 0 \\ A_{21} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & A_{32} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & A_{43} & A_{44} & 0 & 0 & 0 \\ 0 & 0 & 0 & A_{54} & 0 & 0 & 0 \\ 0 & 0 & 0 & A_{64} & 0 & A_{66} & A_{67} \\ 0 & 0 & 0 & 0 & 0 & A_{76} & 0 \end{bmatrix} \begin{bmatrix} Y_1 \\ Y_2 \\ Y_3 \\ Y_4 \\ Y_5 \\ Y_6 \\ Y_7 \end{bmatrix} + \begin{bmatrix} X_1 \\ X_2 \\ X_3 \\ X_4 \\ X_5 \\ X_6 \\ X_7 \end{bmatrix}$$

Having the structure of the three models we can generate Multipliers Model. We proceed in an analogously form to the IO model. On the basis of the equation: $Y_i = \sum_{j=1}^n Y_{ij} + X_i$ that expresses the gross value of production as the sum of intermediate demand and final demand. Where it has a matrix of technical coefficients equal to $a_{ij} = \frac{Y_{ij}}{Y_j}$, and can be expressed in matrix form as $[a_{ij}] = A$, It is derived $Y_i = A Y_i + X_i$ where A is the matrix of technical coefficients or input–output technology matrix and plus the household consumption shares for the SAM and plus the investment and financial shares for the FSAM. If it is solved for Y_i , it is obtained: $(I-A)^{-1} X_i = Y_i$ or $MaX_i = Y_i$. In this sense, $(I - A)^{-1}$ or Ma is the coefficient matrix of total requirements, direct and indirect, which are called input output multiplier matrix or SAM of FSAM accounting multipliers. In the first case the equation determines the total equilibrium of production to a change in Y, in the second case, for the SAM, the equation determines the total equilibrium of production, income and final consumption to a change in Y and in the third case, for the FSAM, includes also saving, investment and financial assets and liabilities. On the other hand, the analysis of the results of multipliers models presented here considers the assumptions and limitations of these models in the literature.

Backward and forward linkages are used to indicate the interconnection of a particular activity with those activities from which they purchase inputs or to which they sell their output respectively. Once the multipliers are obtained it is estimated the partial linkages of each account, backward and forward to later make the linkages analysis by activity.

These indicators measure linkages power activities of an economy. Indicators backward linkages (U_j) determine the power demand of a sector with respect to other

activities. On the other hand, indicators of forward linkages (U_i) the power supply of an activity seen by the other activity of the economy. They are calculated as follows

In terms of interpretation, for those activities $U_j > 1$ indicates that they are above the average for the economy in terms of final demand. If there are activities with $U_i > 1$ indicate those which have a strong linkage of their products (proxy of supply) and they are above the average for the economy.

The activities with both greater than one ($U_j > 1$ and $U_i > 1$) indicators are considered **key** activities. In turn those having high backward linkages, and low forward linkages ($U_j > 1$ and $U_i < 1$) are considered dependent on interindustry supply or **supply dependent**, while the opposite case ($U_j < 1$ and $U_i > 1$) are considered dependent on interindustry demand and it can be call as **base** activities of the economy, finally those with low cases in both chains ($U_j < 1$ and $U_i < 1$) are considered **independent** activities.

4. Analysis of the results

The results of the multipliers of the three models allow analyzing the characterization of the economic activities based on their backward and forward linkages. It is intuitive that the classification is different for the three models depending on the endogenous variables that are considered in each model. After calculating all the backward and forward linkages for each model separately, the three models are compared a classification that combine the three results is provided. In order to combine the results of the three models, the activities which get the same classification in the three models were separated from those that get different classifications in any of the three models. Surprisingly, half of the activities keep their classification in the three models and 37 activities have different classification across the three models.

The economic activities that keep their classification as key activities are shown in Table 2. Six economic activities are classified as key and represent 24,0% of the total output and the 20,8% of the value added of the economy. They also represent 74,1% of the total investment. On the other hand, the average of the aggregate demand of these six activities goes 49,4% to the intermediate consumption, 8,4 to the final private consumption and 34,8% to investment. The output of the activities 1 and 7 are mainly demanded by intermediate consumption (51,7% and 48,8% respectively) with an important weight for the demand of final private consumption (22,7% and 29,9% respectively). For instance, the output of the activities 22 and 34 have an important weight for the demand of the investment with a 14,8% and 56,6% each. While the

output of the activities 40 and 43 are demanded mainly for intermediate consumption with a 66,0% and 80,4% respectively.

Both backward and forward linkages for all cases are above the average of the all multipliers. All the six activities are the most interconnected in the economy not only among the different activities through the intermediate consumption but also with the final consumption and investment. All of them have important requirements from their inputs (intermediate consumption) and their production is demanded by many different activities. Additionally, the two first activities are also involved as important activities in the final consumption of households as well as the third and fourth activities are involved in the demand of investment. These are reasons from which they have very high multipliers in the three models. For the last two activities, they are also very interconnected among the all activities and also are involved in the final consumption of households and in the demand of investments in the sense that these are two kind of services from which the rest of the products require to be distributed.

Additionally, it is important to remark that these activities also are labor intensive in which they pay a significant amount of compensation of employees related with the level of employees. This fact has an important impact in the SAM and FSAM multiplier because this is the sources on income of the households that also demand goods and services as final demand.

It is remarkable the forward multiplier of the construction activity in the FSAM model (35,1) due to the importance of this activity in the final demand of the investment which is the most important destiny of the investment variable with 71,0% of the total investment.

The economic activities that keep their classification as supply dependent activities are shown in Table 3.

These group of 13 activities represent 5,4% of the total output and 3,5% of the value added. The demand of the goods and services that these activities offer goes mainly to the intermediate consumption (45,0% in average) and to the final private consumption (32,8%). It is also relevant that 31,0% on the investment demand of products comes from activity 28.

Even though, these activities have a low weight over the total output and value added of the economy, they have higher backward multiplier and lower forward multiplier than the average of all multipliers. These mean that these activities require

many different types of inputs in their production activities affecting a variety of other activities through their demands. However, the demand of their products is more concentrated in few activities. Additionally, most of these activities produce for final consumption of the households that influence their demand when their income is affected. These effects are also involved in the FSAM multiplier.

The economic activities that keep their classification as base activities are in Table 4. They are four and concentrate 8,5% of the total production and the 10,1% of the value added. They are demanded mainly by intermediate consumption (74,0%) and for final Private Consumption (19,7%).

This group of activities is mostly interconnected with the whole economy in the sense that their production is needed by most of the activities. It is the reason why they can be considered bottlenecks. These activities should have enough installed capacity to satisfy the demand from the rest of the economy. For that reason these activities have higher forward linkage and lower backward linkage than the average.

In this classification falls the Financial Services which shows the importance of this activity. Not only because all the activities require input services from it, but also because the financial stability of the system is connected with the evolution of the rest of activities. Therefore, the health of the financial system depends on either for how diversified is the Financial system through all the activities or how focus on just few activities. The multiplier gives us a measure of the integration of the financial sector with the rest of the economy and then the multiplier models can be a good instrument to work with the factors that can influence the financial stability.

The economic activities that keep their classification as independent activities are shown in Table 5

All these activities are the ones that for all the multipliers are considered independent with a lower interconnection among the activities or the circular economic flow. They have in both cases multipliers below the average of the economy. Their requirement of input and the demand of their production are less disaggregated than the rest of the activities.

The last group is the economic activities that have changed their classification on any of the three models being difficult to define clearly their classification are shown in Table 6.

This last classification involves the rest of the activities that change their characterization based on their linkages because the strong of their backward and forward linkages change depending mainly on the relationship among the different variables involved such as intermediate consumption, income, final consumption or investment.

Figure 3 shows this heterogeneous group. The activities that are considered key activities in the FSAM accounting multiplier model change their classification in the IO and SAM multiplier models which could be explained by the fact that they are fairly linked with activities involved in the investment demand, for instance activities 20, 36, 37, and mainly 50 and 57 which these two have 9,5% of weight of the total investment of the economy and 45,9% and 35,8% of the demand of investment, respectively.

Considering the key activities from the IO multipliers there are ten activities that have good backward and forward interrelationship among all the intermediate consumption through the activities. The production of three of them goes in more than 80,0% to the intermediate consumption and in average 67,0% for the eleven activities.

The group of activities that can be considered as base group in the three models which are represented by the letter B in the Figure 3. In general, 12 activities change the classification (7 in the IO Model, 8 in the SAM Model and just 2 in the FSAM model): 36, 50, 37, 49, 46, 61, 35, 55, 17, 64, 67 and 19. The importance of this identification is that in any of the cases they have strong forward linkage that imply that are demanded by an important number of other activities or by the final consumption or investment. They can also consider bottleneck in which they have to satisfy the demand of other activities in order to their production not be affected.

Having these five group of activities classified by the characterization based on their linkages allow to have a clear understanding of the importance of the relationship that each activities has with the rest of economic activities and with the income, the final consumption and the investment of the economy.

From the financial stability perspective, there are two main findings in this characterization of the economic activities. On the one hand, the classification of the Financial Services Activity in order to know how important this activity is and the key role that plays in the economy. It was found that this activity is classified as a base activity in the three models since it has very strong forward linkage because it is connected with all the rest of the activities by their demands as well as final

consumption and investment. This is an important fact of the interdependence between the financial sector and the rest of the economy.

The other finding is that knowing the characterization of the rest of the economic activities also allows to understand that the relationship between the financial sector and the rest of the economy is not independent to which activities the financial sector is more connected. This means that the vulnerability of the Financial Sector and the vulnerability of the economy depend on to what extent is the relationship between the Financial Sector and the rest of the economic activities. The characteristic of the activities in which the Financial Sector is involved is very important to know better the possible effects on the financial stability of that sector and the stability of the economy.

5. Conclusions

The paper presents derives the FSAM at both macro and meso level of disaggregation that were permitted by the statistics provided by official sources. We also proceeded to the derivation of the multiplier models input-output derivative of the structure of a SAM for rectangular sub-matrixes with a larger number of products than of activities as well as the model of accounting multipliers of the SAM and FSAM where it was defined a set of endogenous and exogenous accounts.

The objective of deriving the multipliers of the three models is the characterization of the economics activities based on their linkages in each model. This allowed us to identify which are the economic activities that remain constant in their classification across the three multipliers. We found that just half of the activities, 37, remain constant in their characterization. For the rest of the 37 economics activities, their classification change across models. Some relevant remarks about such behavior are provided.

Finally, the study also allowed us to deep in the analysis of the productive sector under study, Financial Services Activity, through their characterization in terms of their linkages, finding how strong is its classification as a based economic activity and how the financial stability can be related with its bottleneck characteristic among the relationship through all the economic activities, final consumption and investment in the economy.

Table1.

Input-Output (IO), Social Accounting Matrix (SAM) and Financial SAM (FSAM) for Spain.

IO		1	2	3	4	5	6	7	8	9	10	IO
		CM	PA	GVA	I&DI	UI	KA	FA	Gov	RW	Total	
1	CM	T_{12}				X_{15}	X_{16}		X_{Gov18}	X_{19}	Y_1	End. Exogenous
2	PA	T_{21}									Y_2	
3	GVA		L_{32}								Y_3	
4	I&DI			R_{43}	R_{44}				R_{Gov48}	R_{49}	Y_4	
5	UI				R_{54}						Y_5	
6	KA				R_{64}		R_{66}	R_{67}	R_{Gov68}	R_{69}	Y_6	
7	FA						R_{76}			R_{79}	Y_7	
8	Gov	L_{Gov81}	L_{Gov82}		R_{Gov84}		R_{Gov86}				Y_8	
9	RW		L_{92}		R_{94}		R_{96}	R_{97}			Y_9	
10	Total	E_1	E_2	E_3	E_4	E_5	E_6	E_7	E_8	E_9		
IO		Endogenous			Exogenous							

Source: Own Design for FSAM Spain. Following Pyatt and Round terminology.

SAM		1	2	3	4	5	6	7	8	9	10	IO	SAM
		CM	PA	GVA	I&DI	UI	KA	FA	Gov	RW	Total		
1	CM	T_{12}				T_{15}	X_{16}		X_{Gov18}	X_{19}	Y_1	End. Exogenous Exog.	
2	PA	T_{21}									Y_2		
3	GVA		T_{32}								Y_3		
4	I&DI			T_{43}	T_{44}				X_{Gov48}	X_{49}	Y_4		
5	UI				T_{54}						Y_5		
6	KA				L_{64}		R_{66}	R_{67}	R_{Gov68}	R_{69}	Y_6		
7	FA						R_{76}			R_{79}	Y_7		
8	Gov	L_{Gov81}	L_{Gov82}		L_{Gov84}		R_{Gov86}				Y_8		
9	RW		L_{92}		L_{94}		R_{96}	R_{97}			Y_9		
10	Total	E_1	E_2	E_3	E_4	E_5	E_6	E_7	E_8	E_9			
IO		Endogenous			Exogenous								
SAM		Endogenous			Exogenous								

Source: Own Design for FSAM Spain. Following Pyatt and Round terminology.

FSAM		1	2	3	4	5	6	7	8	9	10	IO	SAM	FSAM
		CM	PA	GVA	I&DI	UI	KA	FA	Gov	RW	Total			
1	CM	T_{12}				T_{15}	T_{16}		X_{Gov18}	X_{19}	Y_1	End. Exogenous Exog. Endogenous Exog.		
2	PA	T_{21}									Y_2			
3	GVA		T_{32}								Y_3			
4	I&DI			T_{43}	T_{44}				X_{Gov48}	X_{49}	Y_4			
5	UI				T_{54}						Y_5			
6	KA				T_{64}		T_{66}	T_{67}	X_{Gov68}	X_{69}	Y_6			
7	FA						T_{76}			X_{79}	Y_7			
8	Gov	L_{Gov81}	L_{Gov82}		L_{Gov84}		L_{Gov86}				Y_8			
9	RW		L_{92}		L_{94}		L_{96}	L_{97}			Y_9			
10	Total	E_1	E_2	E_3	E_4	E_5	E_6	E_7	E_8	E_9				
IO		Endogenous			Exogenous									
SAM		Endogenous			Exogenous									
FSAM		Endogenous			Exogenous									

Source: Own Design for FSAM Spain. Following Pyatt and Round terminology.

Table 2. Activities classified as key activities.

Num.	Activity Cod.	Description	Input-Output Multiplier		SAM Multiplier		FSAM Multiplier	
			Backward	Forward	Backward	Forward	Backward	Forward
Average			1,716	1,716	2,409	2,409	3,407	3,407
1	1	Agriculture, hunting and related services	1,757	2,397	2,494	3,758	3,826	4,619
2	7	Other food industries	2,073	2,384	2,673	4,197	3,581	5,220
3	22	Fabricated metal products, except maq. and eq.	1,861	2,602	2,519	2,970	3,435	4,687
4	34	Construction	1,918	4,028	2,649	6,328	3,776	36,115
5	40	Transport of goods by road and removal services	1,834	2,890	2,517	3,936	3,526	4,986
6	43	Warehousing and support activities for transportation	2,021	3,816	2,750	4,671	3,807	5,571

Source: Own Calculations.

Important Economic Variables (Weight in percentage with respect to the total of the variable)									
Activity Cod.	FSAM						Investment	Exogenous variables	
	IO		SAM		Final			Final Public Consumption	Exports
	Output	Intermediate Consumption	Gross Value Added	Compensation of Employees	Operating Surplus + Mix Income	Private Consumption			
	23,98	29,40	20,83	16,91	26,09	7,37	74,10	1,06	14,62
1	1,96	2,44	2,08	0,66	5,04	1,58	0,63	0,04	3,69
7	2,55	2,89	1,16	1,19	1,27	2,60	0,25	-	4,27
22	1,74	2,62	1,32	1,68	0,95	0,05	2,04	-	2,30
34	13,88	14,16	13,01	10,33	15,70	1,53	71,04	0,08	0,00
40	1,91	3,12	1,78	1,50	1,74	1,30	0,15	0,33	2,11
43	1,94	4,16	1,49	1,55	1,39	0,31	-	0,61	2,25

Important Economic Variables (Weight in percentage with respect to the total demand)							
Activity Cod.	FSAM			Investment	Exogenous variables		
	IO		Final Private Consumption		Final Public Consumption	Exports	
	TOTAL DEMAND	Intermediate Consumption	Final Private Consumption				
	100,00	49,38	8,42	34,83	0,50	6,88	
1	100,00	51,56	22,65	3,72	0,25	21,82	
7	100,00	48,80	29,88	1,16	-	20,15	
22	100,00	67,73	0,87	14,76	-	16,65	
34	100,00	40,34	2,96	56,63	0,06	0,00	
40	100,00	66,01	18,68	0,87	1,95	12,49	
43	100,00	80,44	4,06	-	3,31	12,19	

Table 3. Activities classified as supply dependent activities.

Num.	Activity Cod.	Description	Input-Output Multiplier		SAM Multiplier		FSAM Multiplier	
			Backward	Forward	Backward	Forward	Backward	Forward
Average			1,716	1,716	2,409	2,409	3,407	3,407
1	3	Fisheries and aquaculture	1,909	1,051	2,641	1,174	3,697	1,226
2	4	Mining and quarrying	1,880	1,325	2,556	1,411	3,531	1,692
3	5	Processing and preserving of meat and meat products	2,372	1,347	3,075	2,264	4,198	2,672
4	6	Manufacture of dairy products	2,254	1,118	2,912	1,612	3,950	1,831
5	8	Manufacture of beverages	2,082	1,336	2,739	2,027	3,744	2,385
6	11	Manufacture of clothing	1,936	1,230	2,601	1,291	3,516	1,359
7	12	Manufacture of leather and footwear	1,920	1,172	2,597	1,288	3,560	1,346
8	13	Manufacture of wood and cork	1,915	1,609	2,590	1,763	3,528	2,098
9	28	Manufacture of furniture	1,843	1,324	2,573	1,529	3,581	2,076
10	38	Rail transport	1,984	1,093	2,723	1,213	3,778	1,281
11	41	Maritime transport and inland waterways	2,002	1,095	2,589	1,145	3,489	1,191
12	44	Postal and courier activities	1,749	1,403	2,585	1,552	3,652	1,732
13	47	Edition	1,882	1,698	2,596	2,055	3,618	2,379

Source: Own Calculations.

Important Economic Variables (Weight in percentage with respect to the total of the variable)										
Activity Cod.	FSAM							Exogenous variables		
	SAM						Investment	Final Public Consumption	Exports	
	IO		Gross Value Added	Compensation of Employees	Operating Surplus + Mix Income	Final Private Consumption				
	Output	Intermediate Consumption								
	5,37	5,84	3,45	3,98	3,01	6,25	1,64	0,21	8,44	
3	0,15	0,09	0,12	0,14	0,12	0,23	-	-	0,23	
4	0,31	0,63	0,25	0,27	0,21	0,01	0,04	0,00	0,41	
5	1,01	0,85	0,38	0,45	0,37	2,38	0,04	-	1,46	
6	0,49	0,15	0,20	0,19	0,23	1,25	0,01	-	0,26	
8	0,81	1,20	0,48	0,39	0,62	0,58	0,15	-	1,17	
11	0,34	0,24	0,21	0,28	0,12	0,04	0,03	-	1,93	
12	0,25	0,09	0,17	0,20	0,14	0,29	0,01	-	1,03	
13	0,40	0,75	0,26	0,34	0,17	0,04	0,00	-	0,51	
28	0,49	0,41	0,43	0,54	0,31	0,35	1,26	-	0,50	
38	0,14	0,11	0,12	0,14	0,11	0,34	0,00	0,13	0,04	
41	0,14	0,13	0,07	0,06	0,10	0,07	0,01	0,03	0,50	
44	0,26	0,55	0,27	0,44	0,07	0,08	-	-	0,04	
47	0,60	0,65	0,49	0,54	0,45	0,61	0,16	0,05	0,35	

Important Economic Variables (Weight in percentage with respect to the total demand)						
Activity Cod.	FSAM				Exogenous variables	
	SAM			Investment	Final Public Consumption	Exports
	IO		Final Private Consumption			
	TOTAL DEMAND	Intermediate Consumption				
	100,00	45,02	32,77	3,54	0,45	18,22
3	100,00	28,68	50,28	-	-	21,04
4	100,00	85,36	0,68	1,59	0,12	15,43
5	100,00	29,51	55,89	0,42	-	14,18
6	100,00	13,75	79,12	0,24	-	6,88
8	100,00	61,16	20,01	2,14	-	16,69
11	100,00	29,51	3,43	1,15	-	65,92
12	100,00	15,61	34,48	0,24	-	49,66
13	100,00	81,46	2,77	0,11	-	15,66
28	100,00	35,90	20,72	30,99	-	12,39
38	100,00	28,37	59,68	0,30	9,02	2,64
41	100,00	39,52	13,79	1,09	2,44	43,16
44	100,00	89,57	8,52	-	-	1,92
47	100,00	52,87	34,18	3,73	1,15	8,07

Table 4. Activities classified as base activities.

Num.	Activity Cod.	Description	Input-Output Multiplier		SAM Multiplier		FSAM Multiplier	
			Backward	Forward	Backward	Forward	Backward	Forward
		Average	1,716	1,716	2,409	2,409	3,407	3,407
1	31	Supply of electricity, gas, steam and air conditioning	1,656	4,151	2,141	5,950	3,003	7,466
2	51	Financial services except insurance and pension funding	1,263	3,493	1,910	5,802	2,940	7,568
3	54	Real estate activities	1,553	1,845	2,236	2,826	3,395	3,547
4	56	Legal and accounting activities; consulting activities	1,446	2,680	2,198	3,389	3,300	4,665

Source: Own Calculations.

Important Economic Variables (Weight in percentage with respect to the total of the variable)									
Activity Cod.	FSAM							Exogenous variables	
	SAM						Investment	Final Public Consumption	Exports
	IO		Gross Value Added	Compensation of Employees	Operating Surplus + Mix Income	Final Private Consumption			
	Output	Intermediate Consumption							
	8,49	16,94	10,14	6,77	13,99	6,63	1,55	0,61	3,00
31	2,74	5,24	1,98	0,57	3,68	2,19	- 0,02	-	0,23
51	3,02	5,68	4,72	3,60	5,98	1,27	-	0,01	1,55
54	1,20	2,99	1,53	0,65	2,41	2,89	0,16	0,19	0,02
56	1,54	3,03	1,90	1,95	1,92	0,27	1,40	0,42	1,20

Important Economic Variables (Weight in percentage with respect to the total demand)							
Activity Cod.	FSAM				Investment	Exogenous variables	
	SAM			Final Private Consumption		Final Public Consumption	Exports
	IO		TOTAL DEMAND				
	TOTAL DEMAND	Intermediate Consumption					
	100,00	74,00	19,69	1,89	0,75	3,66	
31	100,00	77,19	21,96	-	0,08	0,94	
51	100,00	81,37	12,39	-	0,03	6,21	
54	100,00	59,10	38,85	0,90	1,05	0,10	
56	100,00	74,60	4,53	9,68	2,90	8,30	

Table 5. Activities classified as independent activities.

Num.	Activity Cod.	Description	Input-Output Multiplier		SAM Multiplier		FSAM Multiplier	
			Backward	Forward	Backward	Forward	Backward	Forward
		Average	1,716	1,716	2,409	2,409	3,407	3,407
1	2	Forestry and logging	1,214	1,109	1,934	1,138	3,202	1,179
2	9	Industry snuff	1,645	1,039	2,330	1,085	3,406	1,103
3	16	Manufacture of coke and refined petroleum products	1,172	1,504	1,274	2,302	1,420	2,675
4	23	Manufacture of computer, electronic and optical products	1,634	1,154	2,236	1,220	3,076	1,417
5	29	Other manufacturing	1,658	1,086	2,348	1,183	3,343	1,285
6	32	Collection, purification and distribution of water	1,687	1,415	2,356	1,738	3,389	1,957
7	39	Other land passenger transport	1,543	1,544	2,326	1,848	3,399	2,150
8	52	Insurance, reinsurance and pension funding, ex. compulsory social security	1,702	1,357	2,347	2,222	3,390	2,729
9	62	Activities related to employment	1,228	1,295	2,225	1,391	3,374	1,509
10	65	Public administration and defense; compulsory social security	1,431	1,598	2,292	1,891	3,398	2,292
11	66	Education	1,194	1,317	2,132	2,076	3,285	2,461
12	68	Social work activities	1,530	1,018	2,338	1,536	3,383	1,750
13	72	Repair of computers and household goods	1,550	1,106	2,280	1,216	3,321	1,283
14	74	Activities of households; domestic staff;	1,000	1,000	2,062	1,483	3,228	1,677

Source: Own Calculations.

Important Economic Variables (Weight in percentage with respect to the total of the variable)										
Activity Cod.	FSAM							Exogenous variables		
	IO			SAM		Investment	Final Public Consumption	Exports		
	Output	Intermediate Consumption	Gross Value Added	Compensation of Employees	Operating Surplus + Mix Income				Final Private Consumption	
	13,36	4,15	17,05	24,37	8,08	11,30	0,51	62,36	7,99	
2	0,06	0,09	0,10	0,05	0,17	0,05	0,08	0,02	0,04	
9	0,05	0,00	0,04	0,04	0,06	0,13	0,00	-	0,06	
16	1,27	0,45	0,14	0,11	0,08	2,23	0,05	-	4,27	
23	0,33	0,09	0,24	0,29	0,20	0,04	0,30	0,00	1,56	
29	0,23	0,16	0,21	0,23	0,21	0,29	0,14	0,01	0,77	
32	0,41	0,53	0,41	0,31	0,52	0,56	0,00	0,10	-	
39	0,55	0,91	0,70	0,85	0,47	0,38	0,04	0,10	0,62	
52	0,93	0,67	0,83	0,53	1,15	2,06	-	-	0,46	
62	0,17	0,44	0,29	0,53	0,02	0,00	-	0,01	-	
65	4,71	0,11	6,63	9,70	2,78	0,10	-	36,04	0,16	
66	3,04	0,49	5,21	8,19	1,77	2,01	-	20,86	-	
68	1,05	0,01	1,28	1,85	0,52	1,58	-	5,23	-	
72	0,14	0,19	0,15	0,17	0,14	0,35	-	-	0,06	
74	0,41	-	0,81	1,52	-	1,53	-	-	-	

Important Economic Variables (Weight in percentage with respect to the total demand)							
Activity Cod.	FSAM				Investment	Exogenous variables	
	IO		SAM			Final Public Consumption	Exports
	TOTAL DEMAND	Intermediate Consumption	Final Private Consumption				
	100,00	13,03	24,16	0,45	55,34	7,03	
2	100,00	56,38	20,72	13,18	2,92	6,80	
9	100,00	3,75	82,02	0,71	-	14,94	
16	100,00	14,21	48,28	0,44	-	37,95	
23	100,00	14,44	4,14	13,33	0,00	68,09	
29	100,00	25,63	32,12	6,37	0,65	35,23	
32	100,00	56,85	40,27	0,01	2,89	-	
39	100,00	66,01	18,68	0,87	1,95	12,49	
52	100,00	30,43	63,72	-	-	5,85	
62	100,00	99,44	0,10	-	0,47	-	
65	100,00	1,05	0,65	-	97,88	0,42	
66	100,00	6,34	17,63	-	76,03	-	
68	100,00	0,37	41,93	-	57,70	-	
72	100,00	42,08	53,85	-	-	4,07	
74	100,00	-	100,00	-	-	-	

Table 6. Activities classified in each model.

Num.	Activity Cod.	Description	Input-Output Multiplier			SAM Multiplier			FSAM Multiplier		
			Backward	Forward	Type	Backward	Forward	Type	Backward	Forward	Type
Average			1,716	1,716		2,409	2,409		3,407	3,407	
1	36	Wholesale and commission trade	1,699	4,308	3	2,458	7,119	1	3,542	10,372	1
2	20	Manufacture of other non-metallic mineral products	1,976	1,766	1	2,655	2,045	2	3,625	3,729	1
3	57	Technical architecture and engineering and technical analysis	1,788	2,081	1	2,554	2,344	2	3,645	4,372	1
4	50	Computer programming, consultancy and information services	1,642	1,719	3	2,419	1,911	2	3,449	3,589	1
5	37	Retail trade	1,500	2,066	3	2,302	5,757	3	3,448	7,879	1
6	49	Telecommunications	1,711	2,583	3	2,344	4,114	3	3,431	5,168	1
7	46	Food and beverage services	1,620	1,216	4	2,323	6,631	3	3,502	8,841	1
8	45	Hosting Services	1,613	1,528	4	2,411	2,629	1	3,539	3,169	2
9	33	Sanitation activities, waste management and decontamination	2,045	1,772	1	2,713	2,036	2	3,660	2,310	2
10	48	Motion picture, radio, television, sound and music publishing	1,969	1,743	1	2,703	2,080	2	3,752	2,533	2
11	59	Advertising and market research	1,982	1,852	1	2,762	2,164	2	3,849	2,464	2
12	30	Repair and installation of machinery and equipment	1,700	1,543	4	2,450	1,671	2	3,501	2,140	2
13	69	Creative, artistic, libraries, archives, museums and other	1,654	1,128	4	2,410	1,765	2	3,487	2,048	2
14	70	Sports, recreational and entertainment activities	1,687	1,411	4	2,511	2,015	2	3,567	2,303	2
15	71	Associated activities	1,692	1,172	4	2,506	1,454	2	3,551	1,611	2
16	61	Rental activities	1,692	1,770	3	2,378	2,111	4	3,516	2,511	2
17	53	Activities auxiliary to financial services and insurance	1,704	1,452	4	2,377	1,794	4	3,446	1,975	2
18	58	Investigation and development	1,510	1,087	4	2,370	1,104	4	3,461	1,146	2
19	60	Other professional, scientific and technical activities	1,637	1,456	4	2,388	1,638	4	3,497	1,880	2
20	73	Other personal services	1,577	1,063	4	2,361	1,530	4	3,506	1,729	2
21	35	Sale and repair of motor vehicles and motorcycles	1,561	1,520	4	2,266	2,676	3	3,261	3,529	3
22	55	of which: imputed rents estate	1,488	1,000	4	2,088	5,321	3	3,270	7,055	3
23	15	Printing and reproduction of recorded media	1,741	1,927	1	2,421	2,140	2	3,375	2,445	4
24	21	Metallurgy; manufacture of iron, steel and ferroalloys	1,903	2,198	1	2,411	2,388	2	3,150	3,113	4
25	27	Manufacture of other transport equipment	1,985	1,749	1	2,557	1,871	2	3,356	2,516	4
26	10	Textile industry	1,809	1,282	2	2,441	1,393	2	3,331	1,486	4
27	25	Manufacture of machinery and equipment n.c.o.p.	1,784	1,556	2	2,418	1,723	2	3,306	2,502	4
28	17	Chemical industry	1,761	2,288	1	2,258	2,748	3	2,990	3,331	4
29	64	Security and investigation activities; building service; and auxiliary	1,416	2,307	3	2,280	2,800	3	3,347	3,291	4
30	67	Health activities	1,407	1,340	4	2,241	2,448	3	3,297	2,953	4
31	14	Paper Industry	1,798	1,777	1	2,351	2,017	4	3,158	2,235	4
32	18	Pharmaceutical Manufacturing	1,720	1,277	2	2,250	1,423	4	3,025	1,569	4
33	24	Manufacture of electrical equipment	1,809	1,508	2	2,343	1,709	4	3,095	2,434	4
34	26	Manufacture of motor vehicles, trailers and semitrailers	1,833	1,431	2	2,280	1,863	4	2,893	2,580	4
35	42	Air transport	1,764	1,451	2	2,273	1,629	4	2,963	1,772	4
36	63	Activities of travel agencies, tour operators, booking	1,815	1,134	2	2,404	1,600	4	3,227	1,818	4
37	19	Manufacture of rubber and plastic	1,669	1,867	3	2,225	2,103	4	3,022	2,505	4

Type: 1.- Key Activity. 2.- Supply Dependent Activity. 3.- Base Activity. 4.- Independent activity.
Source: Own Calculations.

Important Economic Variables (Weight in percentage with respect to the total of the variable)									
Activity Cod.	FSAM						Exogenous variables		
	SAM					Investment	Final Public Consumption	Exports	
	IO		Gross Value Added	Compensation of Employees	Operating Surplus + Mix Income				Final Private Consumption
	Output	Intermediate Consumption							
	48,80	43,67	48,53	47,97	48,83	68,45	22,20	35,77	65,96
36	4,78	6,67	5,00	5,64	4,29	4,81	3,06	1,24	6,17
20	1,26	2,37	0,88	1,02	0,72	0,03	0,10	-	1,88
57	1,51	2,14	1,43	1,59	1,29	0,05	4,49	0,06	2,06
50	1,24	1,06	1,24	1,77	0,71	0,00	4,99	0,14	1,96
37	3,95	1,45	5,16	5,92	4,40	10,22	0,63	1,71	1,02
49	1,98	3,07	1,91	0,73	3,30	3,00	0,29	1,18	0,66
46	4,74	0,31	5,97	3,10	9,33	17,21	-	0,14	-
45	1,07	0,65	1,32	1,53	1,05	2,30	-	-	-
33	0,72	0,99	0,50	0,54	0,40	0,40	0,01	1,43	0,38
48	0,70	0,33	0,54	0,61	0,47	0,21	0,24	0,01	0,04
59	0,59	1,92	0,49	0,62	0,35	0,01	-	0,00	0,96
30	0,43	1,65	0,45	0,54	0,39	0,04	1,82	-	0,20
69	0,89	0,21	0,97	1,03	0,88	1,90	0,05	2,54	0,63
70	0,78	0,66	0,82	1,27	0,25	1,46	-	1,36	0,03
71	0,33	0,25	0,35	0,55	0,09	0,65	-	0,01	-
61	0,61	1,13	0,66	0,35	1,04	0,50	-	-	0,57
53	0,39	1,01	0,37	0,26	0,47	0,64	-	0,02	0,47
58	0,08	0,83	0,09	0,15	0,03	0,01	-	0,99	0,41
60	0,31	1,39	0,35	0,34	0,37	0,14	0,15	0,06	0,00
73	0,42	0,10	0,52	0,54	0,52	1,59	-	0,02	-
35	1,41	0,95	1,48	1,69	1,23	3,12	0,98	0,00	1,26
55	3,69	-	4,85	-	9,69	13,67	-	-	-
15	0,47	1,19	0,39	0,47	0,32	0,00	0,01	-	0,00
21	1,27	1,96	0,53	0,58	0,50	0,00	0,04	-	4,31
27	0,74	0,53	0,36	0,45	0,29	0,06	1,38	0,01	2,32
10	0,30	0,24	0,19	0,26	0,13	0,15	0,02	0,00	0,95
25	0,96	0,42	0,74	0,89	0,59	0,13	1,87	-	4,83
17	1,59	1,74	0,81	0,82	0,81	0,39	0,21	-	6,18
64	1,45	2,59	1,89	3,11	0,56	0,12	-	0,03	3,83
67	3,90	1,09	5,16	7,73	2,05	2,88	-	24,06	-
14	0,56	0,87	0,32	0,36	0,27	0,21	0,02	0,00	1,45
18	0,73	0,31	0,42	0,43	0,43	0,05	0,02	0,30	3,25
24	0,88	0,67	0,47	0,57	0,37	0,02	0,70	-	2,71
26	2,28	0,92	0,80	1,15	0,41	0,81	1,08	-	12,95
42	0,54	0,44	0,26	0,41	0,13	0,15	-	0,16	2,16
63	0,46	0,20	0,25	0,30	0,20	1,47	-	0,30	-
19	0,83	1,39	0,57	0,65	0,48	0,06	0,05	-	2,29

Important Economic Variables (Weight in percentage with respect to the total demand)						
Activity Cod.	FSAM			Exogenous variables		
	SAM		Investment	Final		Exports
	IO	Final		Public	Consumption	
	TOTAL DEMAND	Intermediate Consumption	Private Consumption			
	100,00	34,92	37,25	4,97	8,08	14,78
36	100,00	51,80	25,41	6,64	2,73	13,42
20	100,00	80,44	0,70	0,96	-	17,90
57	100,00	53,18	0,77	31,25	0,43	14,37
50	100,00	34,80	0,02	45,87	1,28	18,04
37	100,00	15,51	74,38	1,88	5,16	3,06
49	100,00	53,73	35,74	1,44	5,85	3,24
46	100,00	2,58	97,08	-	0,33	-
45	100,00	29,20	70,80	-	-	-
33	100,00	55,85	15,49	0,09	22,72	6,03
48	100,00	59,88	26,26	12,53	0,53	1,86
59	100,00	87,50	0,19	-	0,04	12,27
30	100,00	73,51	1,26	22,71	-	2,52
69	100,00	8,83	53,58	0,61	29,70	7,28
70	100,00	32,35	48,53	-	18,74	0,38
71	100,00	35,75	63,96	-	0,28	-
61	100,00	69,20	20,99	-	-	9,81
53	100,00	63,65	27,51	-	0,43	8,41
58	100,00	67,29	0,49	-	22,79	9,43
60	100,00	89,80	6,20	2,78	1,17	0,06
73	100,00	8,45	91,16	-	0,39	-
35	100,00	25,68	57,33	7,43	0,02	9,54
55	100,00	-	100,00	-	-	-
15	100,00	99,71	0,04	0,17	-	0,08
21	100,00	61,65	0,02	0,37	-	37,96
27	100,00	32,94	2,47	23,98	0,10	40,52
10	100,00	38,67	16,76	0,92	0,02	43,64
25	100,00	17,62	3,75	21,98	-	56,65
17	100,00	45,85	6,98	1,53	-	45,64
64	100,00	68,96	2,24	-	0,25	28,56
67	100,00	11,12	19,89	-	68,99	-
14	100,00	61,12	9,91	0,40	0,06	28,52
18	100,00	23,07	2,33	0,50	6,36	67,74
24	100,00	40,88	0,78	11,91	-	46,42
26	100,00	17,09	10,24	5,59	-	67,08
42	100,00	36,90	8,33	-	3,88	50,90
63	100,00	15,44	77,84	-	6,71	-
19	100,00	66,42	2,09	0,70	-	30,79

Figure 1

Circular Flow from the Financial Social Accounting Framework

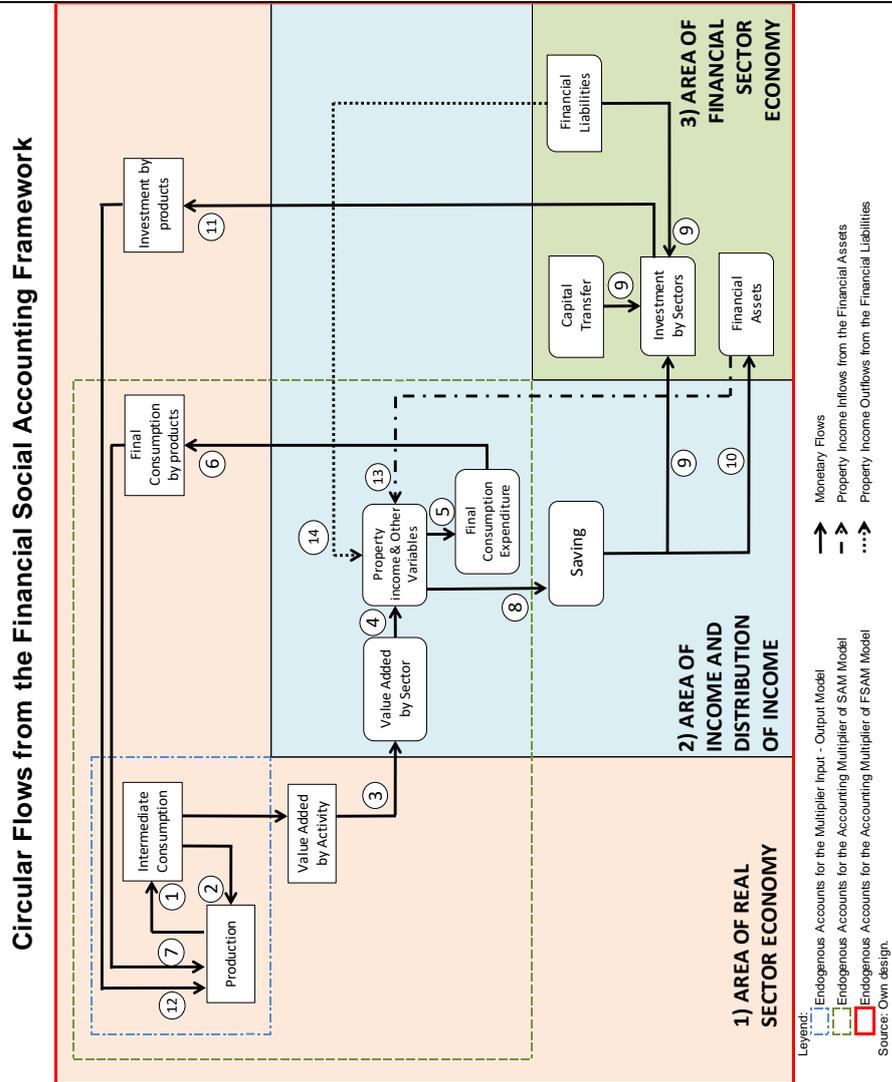
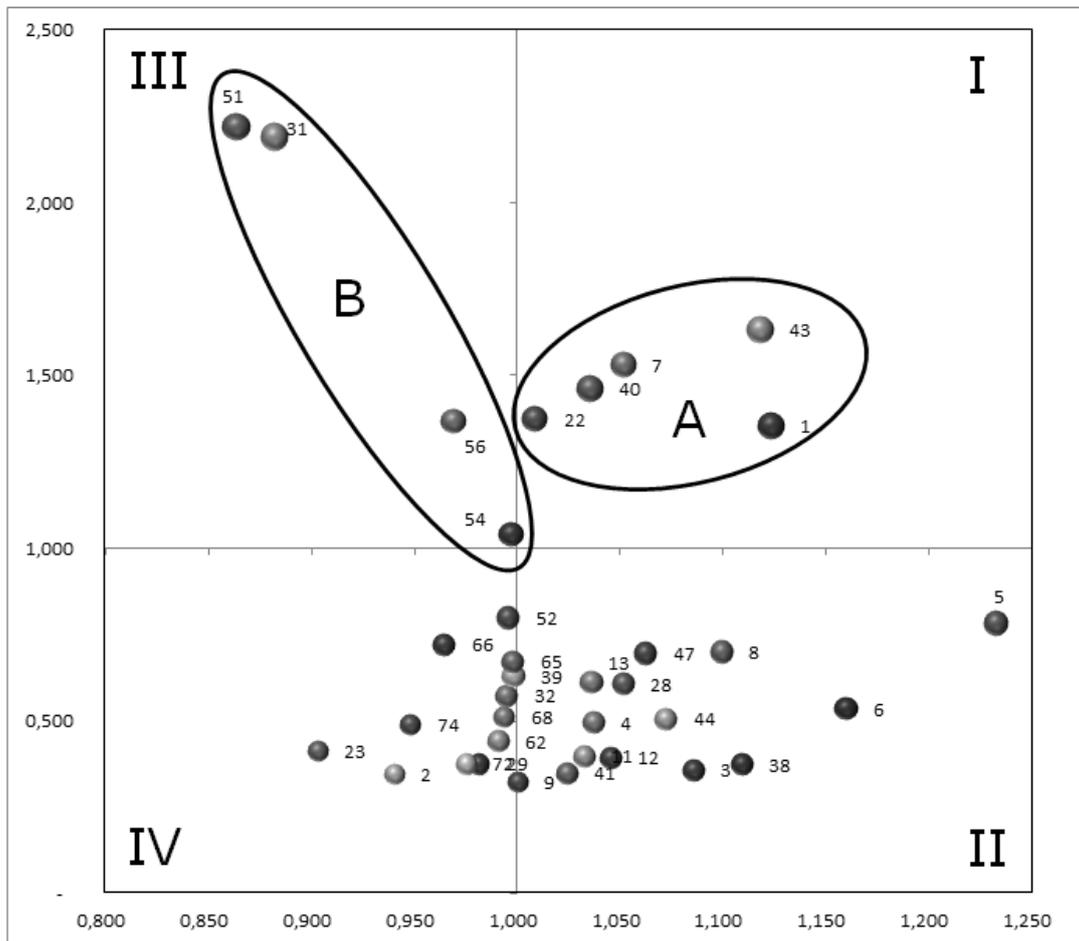


Figure 2. Characterization of the economic activities based on their linkages. The 37 activities that keep their classification in each of the models.

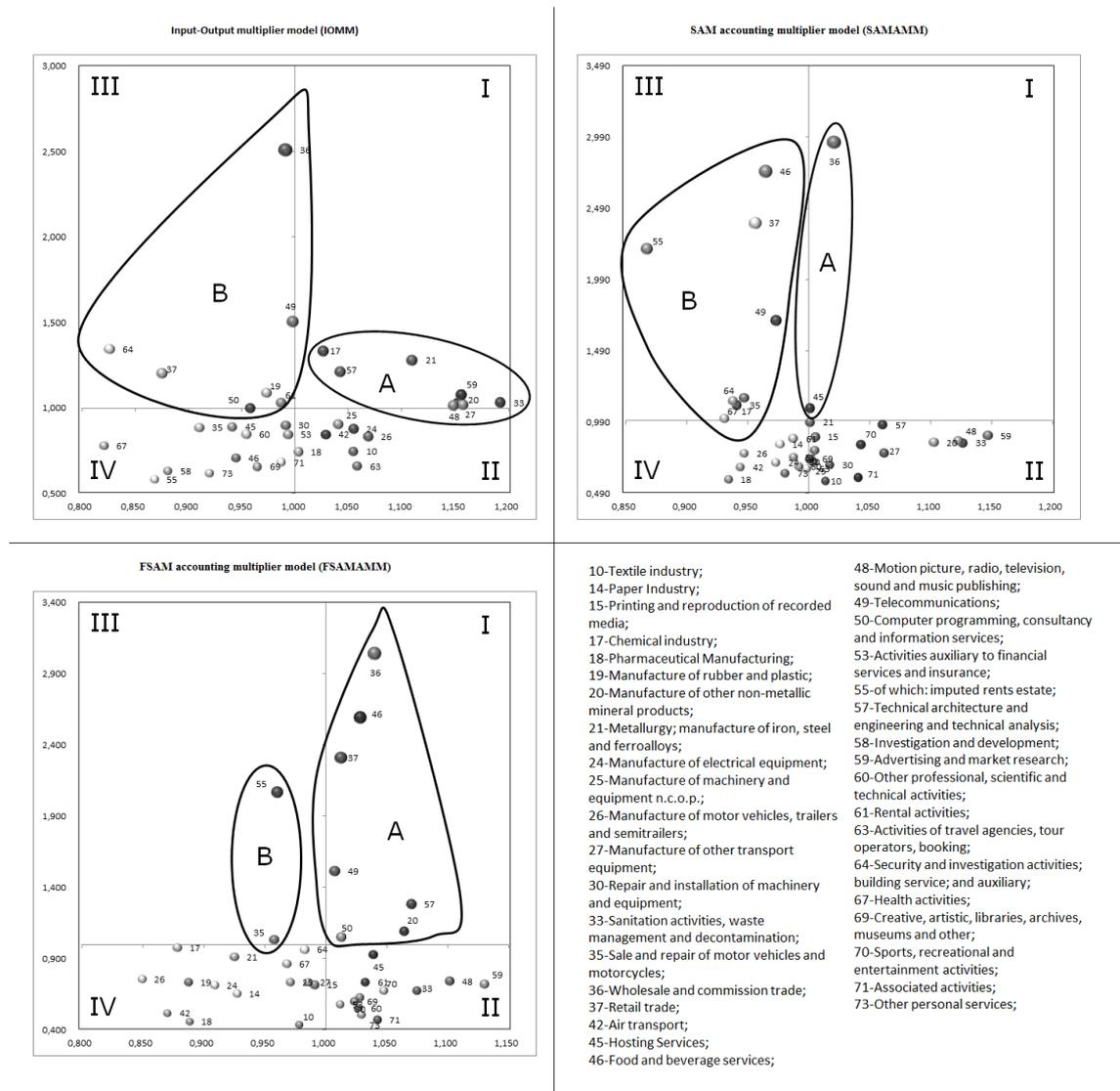


- I.- Key Activities (A):** 1-Agriculture, hunting and related services; 7-Other food industries; 22-Fabricated metal products, except maq. and eq.; 34-Construction 1/; 40-Transport of goods by road and removal services; 43-Warehousing and support activities for transportation;
- II.- Supply Dependent Activities:** 3-Fisheries and aquaculture; 4-Mining and quarrying; 5-Processing and preserving of meat and meat products; 6-Manufacture of dairy products; 8-Manufacture of beverages; 11-Manufacture of clothing; 12-Manufacture of leather and footwear; 13-Manufacture of wood and cork; 28-Manufacture of furniture; 38-Rail transport; 41-Maritime transport and inland waterways; 44-Postal and courier activities; 47-Edition;
- III.- Base Activities (B):** 31-Supply of electricity, gas, steam and air conditioning; 51-Financial services except insurance and pension funding; 54-Real estate activities; 56-Legal and accounting activities; consulting activities;
- IV.- Independent Activities:** 2-Forestry and logging; 9-Industry snuff; 16-Manufacture of coke and refined petroleum products; 23-Manufacture of computer, electronic and optical products; 29-Other manufacturing; 32-Collection, purification and distribution of water; 39-Other land passenger transport; 52-Insurance, reinsurance and pension funding, ex. compulsory social security; 62-Activities related to employment; 65-Public administration and defense; compulsory social security; 66-Education; 68-Social work activities; 72-Repair of computers and household goods; 74-Activities of households; domestic staff.

1/ It is not shown in the graph because its value is out of the range.

Source: Own calculation.

Figure 3. Activities classified in each model.



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