Assessing regional competitiveness: analysis of stock indicators and flows variables [1]

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[1] This is a work in progress zero draft. Please do not quote.

1 – Introduction.

The purpose of this paper is the identification and definition of approaches and tools for the assessment and measurement of territorial competitiveness.

Territorial competitiveness can be defined as an area that is able to face up to market competition whilst at the same time ensuring environmental, social and cultural sustainability, based on the dual approach of networking and inter-territorial relationships.

The rationale behind this work is that territorial competitiveness is a concept characterized by a high level of complexity: therefore in order to understand the dynamics and the factors responsible for the competitive development of an area it is necessary to use a combination of tools that can measure both the territorial stock (tangible and intangible assets) and the economic flows between the actors (households and institutions) of a region.

The Territorial Competitiveness Index (TCI) – SAM approach proposed in this paper aims at integrating a Territorial Competitiveness Index, which measures territorial assets, with a Social Accounting Matrix (SAM), that measures the economic flows within a given area, in order to define a composite model that combines sectors' potential resulting from the multipliers based on SAM with the Index. The integration of these "stock and flows" measurement tools will enhance the capacity to identify territorial potential (both expresses and latent) and to assess territorial development scenarios.

The usefulness of this approach resides therefore first and foremost in its capacity to provide the policy makers at local and central level with a simple visualisation of information to better target strategies and policies and to better allocate resources.

By recognizing the importance of interdependencies among actors, sectors and spaces, the tool is also suitable to capture the multi-dimensional nature of territorial competitiveness and to support policy makers in the identification of the most appropriate territorial development policy mix.

2 - The Concept of Regional Competitiveness.

Every country, as a socioeconomic system, consists of several subsystems, such as regions, provinces or a particular territorial system. The economy of the entire nation directly depends on social and economic dynamics of these subsystems, and therefore their ability to be competitive.

The concept of competitiveness has become extremely influential in recent years, and today represents a dominant policy discourse among those concerned with the development of

economies at the whole range of territorial scales (Oughton, 1997; Schoenberger, 1998; Lall, 2001; Bristow, 2005; Wilson James, 2008).

"The concept of competitiveness has in the last decades extended from the micro-level of firms to the macro-level of countries: between the two levels stands the concept of Regional Competitiveness" (Annoni, Kozovska, JRC 2010).

An interesting broad definition of regional competitiveness is the one reported by Meyer-Stamer (2008): "*We can define (systemic) competitiveness of a territory as the ability of a locality or region to generate high and rising incomes and improve livelihoods of the people living there.*"

The territorial competitiveness was also defined by the *Organisation for Economic Co-operation and Development (OECD)* and the *European Union (EU)* as well. The definition of territorial competitiveness commonly accepted sounds as follows: "*the degree to which a country can, under free and fair market conditions, produce goods and services which meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long term*". (OECD, EU).

According to Krugman (1994), the idea of "Regional Competitiveness" may make more sense than "National Competitiveness" because regional economies are more open to trade than national economies and factors of production move more easily in and out of a region than a national economy.

"A region is defined as a composite part of a larger economic social space, which differs from other surrounding territories in economic, social, demographic, cultural, natural, and infrastructure systems connected by material and informational relations" (Bruneckienè, 2008).

For a correct assessment of the competitiveness of a given area it is necessary to develop a model that takes into account all the factors that determine the competitiveness of that region. For this purpose it is fundamental to define *ex ante* the geographical level to which the model refers, so that it is possible to correctly identify the determinants of the model.

Cellini and Soci (2002) first, and later Capuano (2008), distinguish between the macro level (the competitiveness of a country), the micro level (the competitiveness of the individual firm) and the meso level (the competitiveness of local economic systems); the meso level is divided into industrial districts (or clusters) and regions.

A region may be thought of as having absolute competitive advantages when it possesses superior technological, social, infrastructural or institutional assets that are external to but which benefit individual firms in such way that no set of alternative factor prices would induce a geographical redistribution of economic activity. These assets tend to give the

region's firms, overall, a higher productivity than would otherwise be the case (Camagni, 2002, Kitson et al, 2004).

According to Kitson et al. (2004) the definition and explanation of regional competitive advantage need to reach well beyond concern with 'hard' productivity, to consider several other (and softer) dimensions of the regional or urban socio-economy.

This concept is illustrated in the model "the **Basis of Regional Competitive Advantage"** (Kitson M., Martin R., Tyler P. (2004), *Regional Competitiveness: An Elusive yet Key Concept?* Regional Studies, Vol. 38.9, pp. 991-999).

 "The quality and skills of the labour force (human capital), the extent, depth and orientation of social networks and institutional forms (social/institutional capital), the range and quality of cultural facilities and assets (cultural capital), the presence of an innovative and creative class (knowledge/creative capital), and the scale and quality of public infrastructure (infrastructural capital) are all just as important as, and serve to support and underpin, in the form of regional externalities, an efficient productive base to the regional economy (productive capital)" (Kitson et al., 2004).

Another important model for the definition of the theoretical framework of the concept of regional competitiveness is the **Regional Diamond Model** from Bruneckienè (2008). This model is based on Michael Porter's Diamond Model for the Competitive Advantage of Nations, the "Double Diamond" model from Rugman et al., the "Nine Factors" model from Cho, D.S., "Regional Competitiveness hat" model from Cambridge Econometrics and on the "Pyramid Model of regional competitiveness" from Cambridge University.

The Regional Diamond model identifies the factors that determine the competitiveness of a region and connects them within a wider system of competitiveness, both with the highest national level (vertical relationship) and with the competitive systems of other regions (horizontal relationship). In this model, the factors that determine regional competitiveness are grouped into four different subsystems: Factors increasing competitiveness of regional firms, Conditions of demand increasing regional competitiveness, Factors conditioning the development of regional clusters, Factors of conditions for production. Factors that increase the competitiveness of regional firms are divided into regional inner factors and regional outer factors. The first are related to the strengthening of competitive advantages of firms, implementation of effective strategies of competitiveness, maximum fulfilment of consumer's needs, opportune adaptation to changeable conditions and entrepreneurship. The latter concern the takeover of positive experiences and their application in the activities of a firm.

The Factors conditioning production include human resources, physical infrastructure and geographic situation, knowledge resources and capital.

The conditions of demand increasing regional competitiveness are composed by:

- Inner factors: structure and size of the demand and consumers demand for the quality and price of regional product (degree of material wealth, desire for knowledge);

- Outer factors: prominence of a region in international markets; extent, structure, external markets' demand for price and quality of regional products.

Finally, the Factors conditioning the development of regional clusters are: geographic concentrations of economic activity, close cooperation between the research community, businesses and local authorities, an infrastructure system developed and suited to the activity of a cluster and favourable politics of the authorities for clusters.
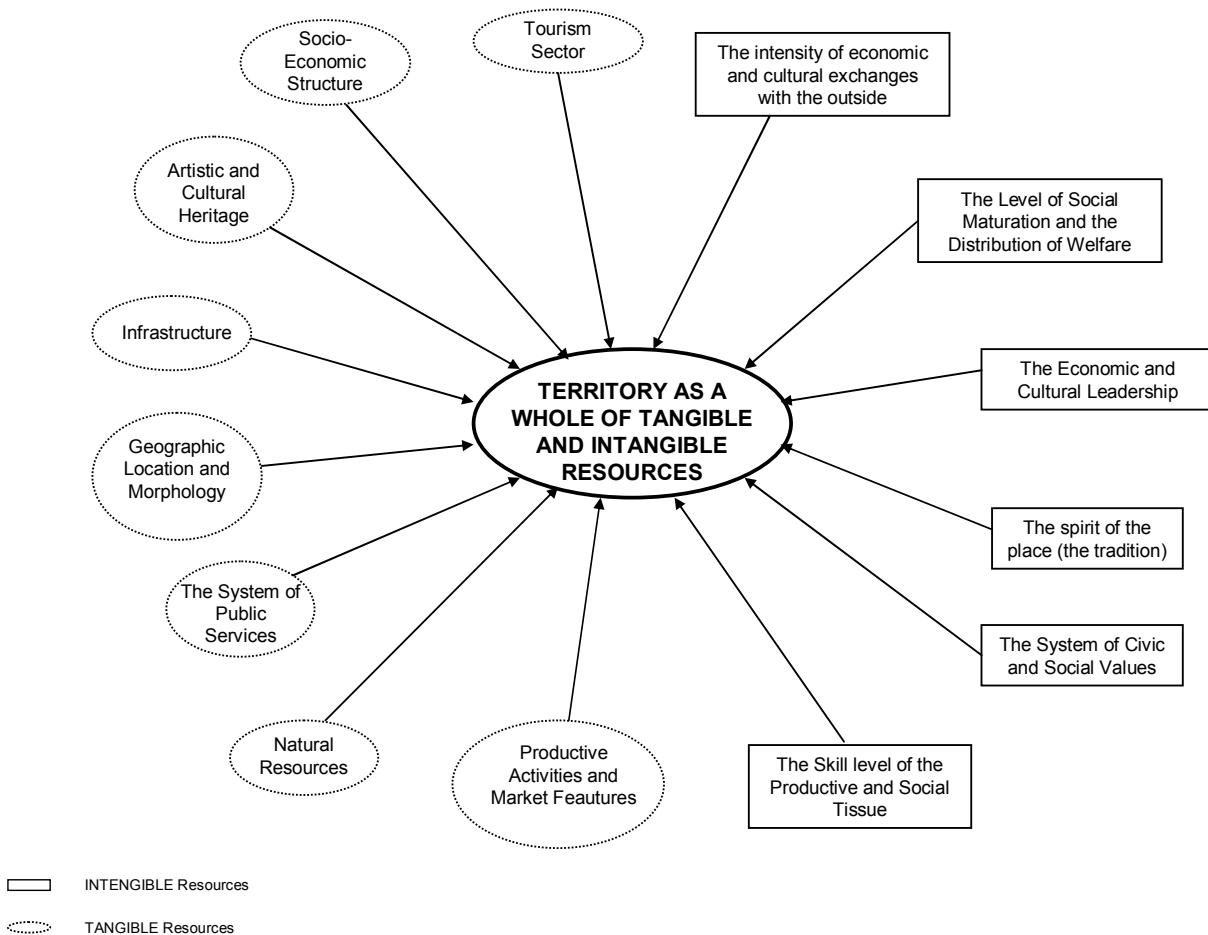

Figure 1: Tangible and Intangible Resources of the Territorial System. **Source:** Caroli, 2006.

Also **Caroli's Model** (figure 1) is useful to define the factors contributing to the competitiveness of a region. Caroli defines territory as a "system" that consists of a set of

actors and resources of material and immaterial nature. Tangible (material) resources concern all "visible" and directly exploitable items characterizing a geographic area; intangible (immaterial) resources are constituted from a set of non-tangible elements that characterize the potential attractiveness of the territory, affecting also the value of material resources.

Tangible resources (T.R.) of a territory may be the result of a specific offer developed by certain stakeholders that operate inside it or may be an "endowment" of the territory that comes from its intrinsic specificity or by the sedimentation over time of various local actors. Tangible resources characterizing a region are: the System of Public Services, Productive Activities and Market Features, Natural Resources, Geographic Location and Morphology, Infrastructure, Artistic and Cultural Heritage, Socio-Economic Structure, Tourism Sector.

The intangible resources (I.R.) result from evolutionary paths crossed from the territorial system and the stakeholders who are or have been part of it during the time. I.R. are characterized by being extremely specific of the geographical area in which they occur and difficult to imitate in other spatial contexts (Caroli, 2006).

The main intangible resources include: the System of Civic and Social Values, the spirit of the place (the tradition), the Skill level of the Productive and Social Tissue, the Economic and Cultural Leadership, the Level of Social Maturation and the Distribution of Welfare, the intensity of economic and cultural exchanges with the external world.

The tangible and intangible resources that characterize the territorial system determine the quality of the assets that it makes available to its users and on which their international competitiveness depends.

In many cases the competitive advantages of a territory derive from the special linkage that exists between certain material elements and some intangible resources of that particular region.

3 - Composite Indexes for the measurement of territorial assets.

The issue of the measurement and assessment of territorial competitiveness is of increasing importance for the determination of development strategies at all geographical levels and especially at regional level.

"Economic indicators – such as GDP per capita and employment – do not fully describe a region's quality of life. Security, health, education and the quality of environment all contribute to a region's "well-being"" (OECD, 2009).

"The analysis of the main problems of regional competitiveness measurement (Simanaviciene, et al., 2007, Kitson et al., 2004, de Vet, et al. 2004, Huggins, 2003, Lengyel, 2003) showed that competitiveness cannot be completely defined by one or several economic and social indicators: thus, complex measurement of competitiveness is a must" (Bruneckienè, 2008).

For these reasons, this paper proposes the use of composite indicators for assessing the territorial competitiveness, in order to obtain a synthesis measurement of all dimensions (both tangible and intangible) of an area.

In fact, according to OECD (2004), a composite indicator measures multi-dimensional concepts (eg. Competitiveness, e-trade or environmental quality) which cannot be captured by a single indicator. Ideally, a composite indicator should be based on a theoretical framework/definition, which allows individual indicators/variables to be selected, combined and weighted in a manner which reflects the dimensions or structures of the phenomena being measured.

According to OECD – JRC (2008), composite indicators which compare country performance are increasingly recognised as a useful tool in policy analysis and public communication.

The justification for a composite indicator lies in its fitness for the intended purpose and in peer acceptance (Rosen, 1991). EC JRC identifies three essential criteria for composite indicators:

1. Salience: the indicators is interesting, useful and relevant for the user (policy relevance);
2. Credibility: scientific validity;
3. Legitimacy: perception of the indicator, consensus around it and the competence of the producer from the point of view of the users/scientific community.

The quality of a composite index as well as the soundness of the messages it conveys depend not only on the methodology used in its constructions but primarily on the quality of the framework and the data used (OECD – JRC, 2008).

For the methodological development of a Territorial Competitiveness Index the following 7 steps has been identified, on the basis mainly of the *OECD and JRC Handbook on Constructing Composite Indicators* (2008), while for the definition of the operational scheme of the TCI reference was made to the Rindex Model (Bruneckienè, 2008).

- **Stage 1:** Determination of factors of regional competitiveness within the country and grouping of the factors of regional competitiveness: on the basis of the theoretical framework and the conceptual model identified.

- **Stage 2:** Definition of the Indicators of the factors of competitiveness and identification of the value of the indicators (imputation of missing data, if necessary): <u>indicators of factors</u> of regional competitiveness.

- **Stage 3:** Normalization and standardization of the value of the indicators: <u>normalized and standardized value</u> of factors of competitiveness.

- **Stage 4:** Weighting of factors of regional competitiveness: PCA (Principal Component Analysis), DEA (Data Envelopment Analysis), regression approach, participatory methods.

- **Stage 5:** Formulation of the function and calculation of the Territorial Competitiveness Index: <u>Index's score</u>.

- **Stage 6:** Robustness and sensitivity analysis of the Index.

- **Stage 7:** Presentation and communication of the Territorial Competitiveness Index.

With regards to the identification of the most relevant indicators (variables) for the definition of regional competitiveness, this paper refers to the set of indicators identified by the WEF for the development of the Global Competitiveness Report 2010-2011 (12 pillars) and then used and adapted to the regional level by the EC JRC for the definition of the EU Regional Competitiveness Index 2010.

The indicators have been grouped by the JRC in 11 pillars (dimensions), which are as follows:

1. Institutions: corruption, fraud, governance indicators (World Bank Worldwide), Ease of doing business (Doing business 2010).

2. Infrastructure: road (motorway index), rail (railway index), air (number of flights accessible with 90' drive).

3. Macroeconomic stability: government deficit (or surplus), saving rate, inflation, long term bond yields.

4. Health: road fatalities, healthy life expectancy, infant mortality, cancer and heart disease death rate, suicide death rates.

5. Quality of Primary and Secondary Education: OECD PISA for reading, maths and science.

These five pillars constitute the first group, called the Basic Pillars, and they represent the key basic drivers of all types of economies.

The following three pillars constitute the group " Efficiency Pillars" and they are considered the factors responsible for increasing the competitiveness of a region from a basic level to a more advanced level:

6. Higher Education, Training and Lifelong Learning: graduates, lifelong learning, early school leavers, accessibility to universities, higher education expenditure.

7. Labour market efficiency: labour productivity, employment rate in industry and services, unemployment rate, long-term unemployment, gender balance employment and gender balance unemployment.

8. Market size: potential market size expressed in GDP, potential market size expressed in population, GDP, compensation of employees, disposable income.

Finally, three pillars determine the group "Innovation Pillars"; the indicators of this group are the key driver for regional competitiveness improvement in a developed regional economy. These pillars are:

9. Technological readiness: household access to broadband or internet; individuals who ordered online for private use; household with access to internet; enterprises use of computers, access to internet, website, intranet, internal networks; persons employed by enterprises with an extranet or intranet access.

10. Business sophistication: employment and GVA in financial and business services (NACE J_K); FDI intensity; aggregate indicators for strength of regional clusters.

11. Innovation: patents; core creative class; knowledge workers; scientific publications; R&D; Human Resources in Science Technology (HRST); high-tech and knowledge-intensive employment; high-tech, ICT and biotechnology inventors.

All these dimensions (pillars) are "hard data", are tangible factors of competitiveness. For the "measurement" of intangible factors ("soft data"), equally important for assessing the competitiveness of a region (see figure 1), it is necessary to use qualitative methodologies and tools.

An example of quanti-qualitative tool is the Sustainable Livelihoods Approach (SLA): this concept is mainly used with regards to rural development, poverty reduction and environmental management. "A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living. A livelihood is sustainable which can cope with and recover from stress and shocks, maintain and enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in short and long term." (Chambers and Conway, 1992).

SLA is composed by five sub-dimensions:

1. creation of working days;

2. poverty reduction;

3. well-being and capabilities;

4. livelihood adaptation, vulnerability and resilience;

5. natural resource base sustainability.

These five dimensions are quite different in scope, with a range from very quantitative assessment to very broad and different indicators requiring more qualitative techniques for the assessment.

4 - Integration with a SAM: the TCI – SAM approach.

The assumption of this paper is that the concept of territorial competitiveness, given its complexity, can not be explained comprehensively by a composite index that measures only the assets/stock (even if both tangible and intangible) of an area.

In fact, in order to obtain a better understanding of the complex dynamics that characterize the competitive development of an area, it is necessary to integrate these composite indices with tools that are able to measure (take into consideration) also the economic flows that occur within a territorial system.

For this purpose, this paper proposes the use of the SAM (Social Accounting Matrix) for the measurement of the flows that take place in a given territory.

The integration of the SAM with the Composite Index - explained in the previous paragraph - constitutes "**the TCI - SAM approach**" for Regional Competitiveness assessment (figure 2).

The figure explains the rationale of the proposed method: the integration of these "stock and flows" measurement tools (Composite Indicators and SAMs) will allow to identify territorial potential (both expressed and latent) and to better define and assess territorial scenarios.

 A SAM is a particular representation of the macro and meso economic accounts of a socio-economic system, which capture the transactions and transfers between all economic agents in the system (Pyatt and Round, 1985; Reinert and Roland-Holst , 1997). "The SAM is a comprehensive, disaggregate, consistent and complete **data system that captures the interdependence that exists within a socio-economic system**" (Thorbecke, 2000).

According to Jeffery Round, a SAM is characterized by three main features:

1. first of all, building a SAM is very useful in order to **aggregate data from a lot of different sources**; this helps to analyze the structural characteristics of an economy (SAM could be also important to highlight data need and identify data gaps);

2. the SAMs are also an excellent tool for displaying information, as they show clearly the **structural interdependence** characterizing an economy at both macro and meso:

the **linkage between the income distribution and economic structure** is explicitly represented in a very simple way in a SAM;

3. SAM is a very useful analytical tool for **the development of models**.
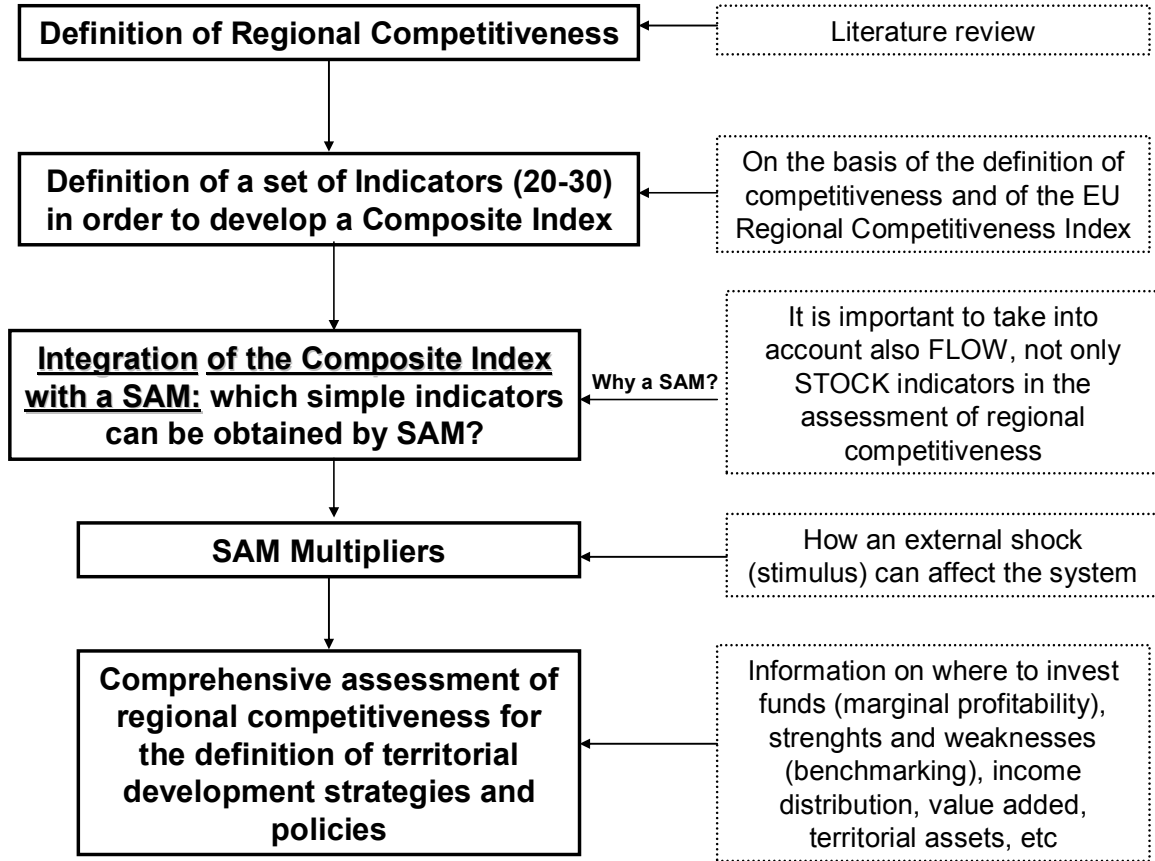
Definition of Regional Competitiveness	Literature review
Definition of a set of Indicators (20-30) in order to develop a Composite Index	On the basis of the definition of competitiveness and of the EU Regional Competitiveness Index
<u>**Integration of the Composite Index with a SAM:**</u> **which simple indicators can be obtained by SAM?** — Why a SAM?	It is important to take into account also FLOW, not only STOCK indicators in the assessment of regional competitiveness
SAM Multipliers	How an external shock (stimulus) can affect the system
Comprehensive assessment of regional competitiveness for the definition of territorial development strategies and policies	Information on where to invest funds (marginal profitability), strenghts and weaknesses (benchmarking), income distribution, value added, territorial assets, etc

Figure 2: the **TCI – SAM approach** for Regional Competitiveness assessment.

The Social Accounting Matrix as a tool for analyzing territorial features.

From a technical point of view, a SAM is a square double entry table that where each row and column represents an account. Each row reports the inflows of the account and each column reports the outflows. All receipts of an account are recorded on a row (i) and the expenses on a column (j). In this way, all monetary flow (s_{ij}) in the matrix' cell corresponds to an expenditure for the column accounts (j) and a receipt for the row accounts (i).Accounts are provided for:

▪ **Commodities and services.** These accounts record the origin of the goods available in the economic system (production and import activities) and their destination (including activities like intermediate consumers and institutions[2]).

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[2] In some SAMs, goods and services accounts are not separated from production activity accounts.

- **Production Activities**. These accounts record, on the rows, the destination of the output of the activities, and on the columns, the way the value of the output of each activity is allocated to intermediate consumption, factor costs and profits.

- **Production factors**: these accounts give record on the rows the origin of factors' remunerations (essentially the production activities) and on the columns, the destination of factor incomes (Institutions, essentially households and firms). In general, work and capital are differentiated, but in certain cases it also includes natural resources such as soil and water.

- **Institutions (economic agents)**: mainly households, private companies and governments. These accounts report on the rows the origin of institutions' income and on the columns their expenditures. The balance of the government account is the government deficit or surplus, which feeds the saving-investment account.

- **Capital formation:** or Savings-Investments (S-I), which records on the row the origin of savings and on the column the allocation of resources for the capital formation, i.e. for the purchase investment commodities and formation of commodity stocks.

- **External transactions**: or Rest Of the World (ROW), which records on the row the income paid by the country to the ROW and on the column the income received by the country from the ROW.

The sequence of the accounts on the rows and those in the columns are exactly the same. In addition, one of the principles of the social accounting matrix is the equality between total receipts and the total expenditures of each account.

Table 1 here below gives a schematic view and content of a SAM[3].

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[3] Reported in: Bellù L.G. (2011): The social accounting Matrix for the analysis of development policies. Concepts and examples. EASYPol series (Forthcoming). www.fao.org/easypol FAO UN.

Table 1: Structure and content of a SAM

	Goods and services (1)	Production Activities (2)	Factors		Resident Institutions			Savings-Investments (5)	Rest of the world (6)	Total
			Labour (3)	Capital Services (3)	Households (4)	Firms (4)	Public sector (4)			
Goods and services (1)		Intermediate consumption			Final cons.hous.		Final cons.of PS	Investment & var.stocks	Exports	Demand of goods
Production Activities (2)	Domestic production						Subsidies to production			Inflows of activities
Factors — Labour (3)		Wages and Salaries							labour inc. from ROW	Labour incomes
Factors — Capital Serv. (3)		Earn.b.taxes (EBT)								Capital incomes
Resident Institutions — Households (4)			Wages and Salaries		Intra-hous. transfers	Distributed profits	Transfers to households		Transfers from ROW	Households incomes
Resident Institutions — Firms (4)				Earn.b.Taxes (EBT)					Transfers from ROW	Firms incomes
Resident Institutions — Public sector (4)	Taxes on goods/serv	Taxes on activities			Taxes/social security	Taxes	Transfers within PS	Budget deficit	Transfers from ROW	PS income
Savings-Investment (5)	Decreases of stocks	Depreciation of capital			Savings of households	Savings of firms	Budget surplus		Deficit bal.of payments	Financial resources
Rest of the world (6)	Imports		Remun.of ext.labour		Transfers to ROW	Transfers to ROW	Transfers to ROW	Surplus bal. of payments		Outlays to ROW
Total	Supply of goods and services	Domestic production	Payments for labour	Payments for capital services	Households expenditure	Use of EBT	Public expenditure	Total investment	Payments of ROW	

Use of a SAM to "read" a territory.

Being representative of the economic system as a whole, a SAM allows analysing the structure of the system as well as the impacts of a change in one part of it on the other parts. For these reasons it constitutes a statistical base to: 1) analyze the space which it refers to; and 2) to build models of the economic system for simulating socioeconomic policy impacts. We will not focus here on the latter point, i.e. on the use of SAMs to calculate accounting multipliers (Pyatt and Round., 1985)[4], (Round, 2003)[5]or on the use of SAMs as a statistical basis for general equilibrium models (e.g. see Lofgren et al , 2002)[6].

Here, we will only highlight how the SAM itself, through simple row and column percentage calculations already conveys a great deal of information regarding the territory it refers to. For example Bellù (2011)[7] presents an "archetypical" SAM for poor oil-dependent countries with little or no mineral or timber resources, which base their inflows of foreign currency mainly on exports of agricultural products, foreign aid and to a minor extent on remittances. Even at its most aggregate level, as in this case, the SAM is useful to highlight the main features of the economy and to complement other qualitative information. The SAM's inflows and outflows and related structure, expressed as percentage of the totals of rows and columns respectively, are reported in table 3.

Some considerations can be inferred from the analysis of the features of the "archetypical" SAM, such as:

1. The output of the aggregate domestic production sector produces is both consumed domestically (96%) and exported (4%).

2. The domestic production is used both for final consumption and as intermediate input in the domestic production process (34% of the total output produced).

3. The final consumers (households, the government and investors -the S-I account-) require the domestically produced commodity, but in addition require also that the commodity be imported. (87% and 13% respectively)

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[4] Pyatt, G., J. Round (eds.), 1985. Social Accounting Matrices: A Basis for Planning, The World Bank, Washington.

[5] Round J. 2003. "Social Accounting Matrices and SAM-Based Multiplier Analysis," Tool Kit for Evaluating the Poverty and Distributional Impact of Economic Policies. World Bank. Washington D.C. .The use of SAM-based multipliers for territorial development will be the object for further work

[6] Lofgren H, Lee Harris R, Robinson S. et al.(2002) A standard Computable General Equilibrium (CGE) model in GAMS. International Food Policy Research Institute, Washington D.C.

[7] Bellù L.G. (2011): Analyzing policy impacts and international price shocks: Alternative Computable General Equilibrium (CGE) models for an aid-dependent less-industrialized country. EASYPol series (forthcoming). www.fao.org/easypol FAO UN -Rome

4. Factor income (labour wages and capital payments) are paid to households who provide services to the industry, as accounted by means of factor accounts.

5. Households are classified as poor (*p*) and non-poor (*n*), on the basis of their consumption expenditure compared with a poverty line[8].

6. Factor income (value added) is very unequally distributed between poor and non poor. 85% of the factor income is paid to non-poor people. As they are around the 50% of the population, on average they receive around five times more income than the poor people.

7. Labour Wages (which include family labour) distribute only 37% of the value added, while the payments for capital services distribute 63 % of it.

8. The government budget significantly depends on external support (high dependency ratio), as 44% of its revenue comes from the Rest of the World (RoW) as "foreign aid". Despite these inflows, government savings are negative, showing a deficit of 22% of the total government inflows and affecting the S-I balance for -30% of the total savings.

9. Foreign aid constitutes 35% of the payments of the RoW to the country in the accounting period, the others being essentially loans (19%), signalling a deficit of the current account balance, payments for exports (33%) and remittances of migrants (13%).

The analysis of the SAM at a more disaggregated level and for subsequent periods (not reported here) allows to see that the weakness of the export sector, associated to the need to import essential goods, including medical appliances, drugs, technology items, in addition to oil and other energy products s well as fertilizers, lead to recurrent annual deficits of the current account balance. Furthermore, due to the high level of poverty and to institutional weaknesses, taxation is kept at very low levels while expenditures to ensure a minimum of social services generate government budget deficits.

The considerations above, derived by a simple analysis of a SAM, constitute an important contribution to identifying the socio-economic features of a territory. Comparing SAMs referring to different territories helps to identify analogies, differences and relative weaknesses and strengths for development.

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[8] In the real-case matrix of Burkina Faso, the classification was done on the basis of the "Survey on the household living standards" in Burkina Faso in 2003, by adopting an absolute poverty line for the period April-July 2003..

Table 2. Structure of an "archetypical" less-industrialized aid-dependent economy

Panel A: Social accounting matrix

| | Activity | Commodity | Factors | | Insitutions | | | Saving-Inv. | Rest of the W. | |
	OUTPUT	COUT	LABOUR	CAPITAL	HOUS. Poor	HOUS. Non-Poor	GOVERNMENT	S-I	RoW	Total
OUTPUT	-	2,822,877					-	-	-	2,822,877
COUT	1,149,125		-		279,296	1,162,520	398,493	279,655	149,849	3,418,938
LABOUR	623,663		-							623,663
CAPITAL	1,046,477		-							1,046,477
HOU. Poor	-	-	129,301	129,173	-	38,581	11,795	-	18,440	327,289
HOU. NP	-		494,362	917,304	2,570	-	34,511	-	42,886	1,491,633
GOVERNMENT	3,611	137,904			5,297	56,048			160,368	363,228
S-I		-			40,126	234,485	- 81,570		86,614	279,655
RoW		458,157								458,157
Total	2,822,877	3,418,938	623,663	1,046,477	327,289	1,491,633	363,228	279,655	458,157	

Panel B: Inflows' Structure

| | Activity | Commodity | Factors | | Insitutions | | | Saving-Inv. | Rest of the W. | |
	OUTPUT	COUT	LABOUR	CAPITAL	HOUS. Poor	HOUS. Non-Poor	GOVERNMENT	S-I	RoW	Total
OUTPUT	-	100	-	-	-	-	-	-	-	100
COUT	34	-	-	-	8	34	12	8	4	100
LABOUR	100	-	-	-	-	-	-	-	-	100
CAPITAL	100	-	-	-	-	-	-	-	-	100
HOU. Poor	-	-	40	39	-	12	4	-	6	100
HOU. NP	-	-	33	61	0	-	2	-	3	100
GOVERNMENT	1	38	-	-	1	15	-	-	44	100
S-I	-	-	-	-	14	84	- 29		31	100
RoW	-	100	-	-	-	-	-	-	-	100

Panel C: Outflows' structure

| | Activity | Commodity | Factors | | Insitutions | | | Saving-Inv. | Rest of the W. |
	OUTPUT	COUT	LABOUR	CAPITAL	HOUS. Poor	HOUS. Non-Poor	GOVERNMENT	S-I	RoW
OUTPUT	-	83	-	-	-	-	-	-	-
COUT	41	-	-	-	85	78	110	100	33
LABOUR	22	-	-	-	-	-	-	-	-
CAPITAL	37	-	-	-	-	-	-	-	-
HOU. Poor	-	-	21	12	-	3	3	-	4
HOU. NP	-	-	79	88	1	-	10	-	9
GOVERNMENT	0	4	-	-	2	4	-	-	35
S-I	-	-	-	-	12	16	- 22	-	19
RoW	-	13	-	-	-	-	-	-	-
Total	100	100	100	100	100	100	100	100	100

5 - Policy making with the TCI - SAM approach.

The introduction of the TCI-SAM approach will raise some important elements in the policy making process:

1. **Analysing the impact of changing policies and shocks**. By recognizing that territories are endowed with a diversity of local assets (natural, human, capital, political), which in turn determines the diversity of response capacity to policy reforms and shocks, the TCI-SAM tool allows policy analysts to isolate the diversities and device targeted measures, hence reducing the risk of policy failures, improving allocation of resources and better monitoring policy performance and impact.

2. **A shift from assistance-led policies to socio-economic efficiency policies**. Very often regional policies have been conceived as a tool to support lagging areas, whatever the criteria to define them (remoteness, food security vulnerability, industrial decline, local assets-poor areas, etc.). While the principle of policy cost-effectiveness may justify in specific situations (notably in developing countries, due to lack of information) this approach, it is however

increasingly recognized that territorial policies strengthen overall policy efficiency as it allows to factor in local policy and market failures, which cannot be reflected in national or supranational policies. Moreover, territorial policies are better suited to exploit "hidden" local economic, natural and human potential and therefore to boost sustainable endogenous development. With this approach, territories cease to be a passive entity characterised by locational advantages and become a lively and dynamic socio-economic entity made of economic and social agents that offer products and services and concur in boosting the competitiveness of their space *vis a vis* other competing areas.

3. **A new rationality in policy making and planning**. Increasing volatility, complexity, uncertainty and rapidity of changes in socio-economic systems as well as of behaviour of actors and decision making (short term versus long term decisions) calls for a new rationality which is able to factor in these elements in long term development planning at global, national and local level. "Formal" and/or "substantive" economic rationality widely used in economic modelling (Max, Weber, The Theory of Social and Economic Organization, Parsons, ed., 1947) may not be enough or adequate to this end. The TCI-SAM approach is a step forward in the direction of a more "procedural" rationality à la Simon, which suggests that policy making consists of that process of thought that is more revealing of the *quality* of human rationality than the *outcome* or product of the thought. By placing the focus on intangible factors (human capital and knowledge), relational factors (co-operation, partnerships, local culture and vocation, etc.), communication networks, etc., and involving the partners and stakeholders in the determining strengths and weaknesses of their space as well as opportunities for development, this approach stresses the importance of negotiation, consensus-building, conflict resolution. In other words, it is able to capture the "thoughts" of the policy process that lead to the decision (outcome). As such it enables the policy makers and the local actors to design the right policies and measures to increase cohesion, co-operation, synergies and a shared vision for the development of the area.

4. **Rethinking policy focus**. Within this framework, the traditional policy goals of optimal allocation of resources, accessibility, income inequalities or countervailing local disadvantages are reformulated to place more focus on sustainability, local competitiveness, connectivity, interconnections and networking, innovation and relational capital, quality of services.

6 – Conclusions.

The main concern of the paper is about the assessment of regional competitiveness and the integration of information stemming out from a SAM in order to make more robust the composite indicators usually used in this area.

There is an increasing interest for new indicators in the measurement of territorial performance capable to give more comprehensive information on competitiveness and quality of life more than on mere information on growth and employment. In paragraphs 2 and 3 a summarized evidence of recent literature contributions has been proposed.

The Social Accounting Matrix is a comprehensive tool recording flows among actors of an economy (at any territorial level). Along with the traditional information on flows among sectors, additional information are available on flows among institutions and among institutions and activities/factors. In paragraph 4 some hints about the relationship between SAM and regional competitiveness indicators are shown with an application to Burkina Faso.

In paragraph 5 some issues about policy implications of the use of the SAM approach to enforce territorial competitiveness evaluation by composite indicators have been risen.

Finally, the contribution to territorial composite indicators stemming out from SAMs can be summarized in the following ones:

- evaluation of the thickness of the production system: the input-output matrix of the SAM allow to give a robust measurement of the productive system in terms of relationships among national production activities;

- evaluation of the degree of openness of the economy, in terms of the weight of import and export on the total national production;

- evaluation of the dependence of internal consumption from internal and external sources (demand side);

- evaluation of the volume of investment per sector, then any potential disaggregation for investment demand among group of sectors classified on the basis of their attitude to innovation might be exploited;

- degree of inequality of income distribution;

- composition of income distribution (labour or capital sources);

- impact of foreign aid on income distribution;

- measurement of poverty.

Some others indicators can be raised by the matrix and additional measurements can be obtained from the multipliers matrix. In that case, the potential coming from the multipliers is very useful in evaluating competitiveness. For example, it might be conceived an indicator

based on multipliers to measure the impact of certain policies in the economic system (ie direct transfers to households or support to rural firms or others…). These indicators must be build up on the basis of the need of the modeller, but a theoretical model might help to generalize them for any kind of country.

Poverty, income distribution, density of the production system, degree of openness and policy impact are the most important dimensions that can be included in any competitiveness evaluation framework by using a SAM. Further research is needed to understand to build up the proposed framework.

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