NEW APPROACHES TO COSTING MODELS IN ROMANIA: THE RECOGNITION OF EXTERNALITIES

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Abstract:
A set of recent international studies reveal the scarcity of coherent entity-level estimation systems able to lead to an adequate identification and valuation of social and environmental performance, despite the large number of entities claiming their concern for the environmental impact of their business activities. The status quo is mainly caused by the lack of domain-specific accounting regulation, alongside a general "information gap" in the field of the potential benefits that the financial recognition of externalities may generate.
The paper presents the possibility of extending the conventional costing model, to a point where it is able to generate costs compatible with sustainable development objectives. The recognition of externalities is used to illustrate the flexible side of accounting practices.

Key words: *externalities, full cost accounting, sustainable cost accounting, higher education, normative research*

JEL classification: *M41, Q51, Q56, F18*

1. Theoretical and methodological framework of the research

Social and environmental reporting is a very broad subject and it is characterized by a permanent reconciliation between the information needs of different stakeholder groups and the real possibilities of incorporating issues that are mainly qualitative into a communication system that is mainly quantitative, such as financial reporting. Putting social and environmental impacts in terms of appropriate financial reporting involves complex measurement processes, carried out under scientific uncertainty conditions. The research in this field is meant to highlight the convergences between the two approaches that emerge as the advances the scientific world reveal new identification and quantification methods for such impacts. Therefore, the focus of the research conducted to date in this field is to identify and measure the impacts, so as to provide reliable information.

In 1992, The European Commission has launched a call to the accounting profession, stressing the need for a new approach in terms of recognizing social and environmental impacts: "*redefinition of accounting concepts, rules, conventions and methodology so an ensure that the consumption and use of environmental resources are accounted for as part of the full costs of production and reflected in market prices*" (Fifth Action Programme: Towards Sustainability, p. 71). The response from the accounting profession was considered as almost non-existent (Bebbington et al., 2001). However, where accounting practices are concerned, there are a number of experimental models that meet the need for a full costing system. These are included in the family of Full Cost Accounting (FCA) systems. Along with Triple Bottom Line reporting and sustainability accounting, the FCA costing systems are the main experimental accounting solutions proposed to meet the objectives of sustainability. FCA methods are characterized by the attempt to provide exclusively financial information for both

conventional costs and social and environmental impacts associated with an entity (Antheaume, 2004). This paper tackles the issue of FCA costing models.

The international research in the field "*is approaching its (metaphoric) teenage years*" (Frame and Cavanagh, 2009) and consist mainly of experimental studies, aimed at implementing FCA costing models in different industries (for a detailed account of published experimental researches so far see Bebbington, 2001 a.b., Bebbington et al., 2007, Davies, 2009, and Jones, 2010). The result is a more accurate estimation of production costs, and consequently a transfer of social and environmental risks on the market place, through pricing mechanisms. It also provides the opportunity to assess an entity's level of sustainability in quantitative terms that are easily assimilated into decision mechanisms by different stakeholder groups.

In Romania, FCA costing models have not yet been implemented, which indicates an information void regarding the potential benefits of such models. Therefore, promoting FCA models in the Romanian professional and business environments has become a necessity, given the limited and insufficient information regarding the feasibility and benefits that arise from implementing such costing models.

This study brings the necessary arguments to support real debate and cooperation between the academic environment, the accounting profession and the business environment in Romania regarding the implementation of FCA costing models. The foundation of this goal is the underlying conviction that accounting inertia manifested as the lack of regulation in the field of recognizing social and environmental impacts as part of full costs of production can be overcome, if there is a strong enough stimulus. This paper is part of a series of normative studies that propose models for the accounting recognition of an entity's social and environmental impacts. We hope that such an approach will add to the impetus of the environmental crisis, creating the proper conditions to support the development of national standards in the field.

The two core ideas of the research emerge from the theoretical foundations of the proposed approach: the stakeholder theory and the theory of modern reflexivity.

(1) *The entity's responsibility before all its stakeholders*. We join the idea that reporting models must consider the interests of all legitimate stakeholder groups (*stakeholder theory*, see Donaldson and Preston, 1995). In this respect, the model proposed and discussed in the paper aims at integrating the three reporting dimensions – economic, social, and environmental – so as to generate costs compatible with sustainability objectives.

(2) *The need to support the development of FCA regulations through normative research, which in turn will allow accounting to maintain a competitive advantage compared to other expert reporting systems*. We believe that regulation in the field of social and environmental reporting (and implicitly regulation of FCA costing models) is likely to send signals to an entity's stakeholders that reduce the perceived level of risk associated with the entity (social perception of risk) through the mechanisms of reflexivity (*theory of modern reflexivity*, see Giddens, 1990). This leads to a higher level of confidence, translated into demand, competitive advantage and ultimately economic (and overall) performance.

In support of this idea, Guşe et al. (2009) argued that stakeholders' social and environmental objectives are compatible with owners' and managers' economic objectives. Accepting the absence of a real conflict of fundamental and long-term interests, the proposed approach is participatory, involving decision makers alongside other stakeholder groups and technical experts in the process of constructing the information reported.

The main objective of this research is to initiate and support the dialogue between stakeholder groups of Romanian economic entities regarding FCA costing models. The envisaged stakeholder groups are the academic environment, the social

environment, the accounting profession, the suppliers of accounting information (the business environment) and public institutions (with regulatory attributions).the motivation of the research stems from the author's personal conviction, based on the experience as professional accountants and members of the academic community, that the main issues in social and environmental reporting are the immaturity of existing models and the lack of domain-specific regulations. The present research contributes to the development of innovative models for the accounting recognition of social and environmental impacts, both for internal decision-making and for reporting purposes.

To achieve this objective, the following secondary objectives were defined: *(1)* providing a uniform terminology to reflect the social and environmental impacts of economic activities; (2) systematic analysis of the international experience with of FCA costing models, and (3) proposing a FCA costing model adapted to the Romanian environment, to highlight the actual national experience in the field. The secondary objectives are addressed through three distinct sections of the paper and generate a positioning of the paper in relation with the arguments presented in the literature.

2. Specific concepts in the field of social and environmental impacts

The terminology specific to the studies in the field of social and environmental impacts is fairly extensive, the focus being the economic concept of external effect: all phenomena associated with an economic entity and for which the entity is not accountable in financial terms.

The causes behind the lack of an association between an external effect and a particular entity may include the inability of the market to reflect external effects through market prices, the difficulties in measurement or the risk of multiple accountabilities for the same effect, increasing with the distance (in space and time) between the external effect and the generating entity. Another cause contributing to the difficulty in associating external effects with economic entities is that the temporal distance between the effect and the generating entity results in a time interval where the entity acted, but the effects do not yet manifest.

Starting from the neoclassical approach of the economic concept of external effect, we have identified in the literature a vast array of concepts that address different aspects of the external effects arising from an entity's economic activities and affecting the economic, natural and social environment. The terminology is specific to the international literature regarding the FCA experimental studies, the focus being the entity generating the external effect. *Table 1* provides a list and clarifies the relationships between these concepts.

Table1. Social and environmental impacts of economic activities

Concept	**Definition**
Environmental impact	The effect of an activity or substance on the environment (EPA, www.epa.gov).
Social impact	The effect of an organization's actions on the surrounding community
External effect	A phenomenon that occurs within or outside the market, but is distant in time and space from the source of impact *(synonym: externality).*
External cost	Negative external effect. Costs incurred by individuals, society as a whole and the environment, for which companies are not accountable
External benefit	Positive external effect *(synonym: external use).*
Private/internal cost	Cost incurred by a producer or supplier of goods and services; includes internal costs incurred for inputs, labor, rent, and depreciation but excludes external costs (unless the producer or supplier is liable to pay for them) (www.businessdictionary.com) EPA (1995b) identifies the following categories of environmental costs as part of internal costs:

	• Conventional costs (costs of capital equipment, raw materials and supplies). • Hidden costs (environmental costs that are assigned to overhead pools) • Contingent costs (environmental costs that are not certain to occur in the future but depend on uncertain future events) • Image and relationship costs (costs incurred to affect subjective perceptions: costs of annual environmental reports and community relations activities and costs expended voluntarily for environmental activities)
Externalities	Benefits and costs which **arise** when the social or economic activities of one group of people have an impact on another, and when the first group fails to fully account for their impacts (European Commission, 1994). Depending on the type of impact described, there are *social* externalities and *environmental* externalities.
Positive externalities	Benefits, not transmitted through prices, **incurred** by a party who did not agree to the action causing the benefits *(synonym: external benefits).*
Negative externalities	Costs, not transmitted through prices, **incurred** by a party who did not agree to the action causing the costs *(synonym: external costs).*
Internalization	Recognizing or charging an externality to an economic entity.

On the basis of this classification, the model proposed in the present paper uses the following terms interchangeably: social and environmental externalities, positive externalities (external benefits), negative externalities (costs).

Currently, the market does not recognize the costs and benefits in the form of externalities as part of the cost of a product or service, which means that they are kept on a notional level, not being part of real measurements. However, we find that externalities can be included in accounting models, because they describe actual impacts which have not yet been assigned to the generating entity.

This paper aims to present an accounting model for the recognition of social and environmental externalities as part of the cost of goods and services.

3. Models for the accounting recognition of externalities in international practices

An FCA model is, according to the definition given by its originators, "*a system which allows current accounting and economic numbers to incorporate all potential/actual costs and benefits into the equation including environmental (and, perhaps, social) externalities to «get the prices right»*" (Bebbington et al., 2001:8). Experimental studies in the field of FCA have been carried out in different industries and have had very different scopes. *Table 2* provides a synthetic, but not exhaustive picture of FCA experiments to date, the impacts considered, measurement methods and the information delivered and it is based on the international experience.

Table2. Experimental costing methods providing cost information – FCA

Method	**Scope**	**Industry**	**Measurement techniques**	**Results/ Outputs**
Full Cost Accounting – FCA (Bebbington et al., 2001)	Environment	Research center Energy Transport	Mix of avoidance costs and restoration costs Damage costs where damages cannot be avoided	Costs
Full Cost	Environment	Forestry	Damage costs	Costs and

Environmental Accounting – FCEA (Herbohn, 2005)		Agriculture		benefits
Environmental Engineering Group environmental costing model – EEGECOST (de Beer and Friend, 2006)	Environment	Tobacco	Mix of avoidance costs, restoration costs and damage costs	Costs and benefits
Sustainability Assessment Model – SAM (Bebbington 2001a, Baxter et al., 2004, Frame and Cavanagh, 2009, Xing et al, 2009, Davies, 2009)	Economic Natural resources Social Environment	Oil and gas Infrastructure Construction and urban development Higher education	Damage costs	Economic benefits Social costs and benefits Environmental costs

The measurement of externalities has been the most difficult problem to settle and it has usually limited the scope of the analysis. Davies (2009) and Jones (2010) have provided a systematic analysis of the conceptual approaches used in measuring social and environmental impacts, identifying three measurement techniques that are appropriate in the case of externalities:

- The *avoidance* approach, considering the costs of taking preventive action against a certain impact.
- The *damage cost approach*, considering the costs that reflect the actual damages caused by certain impacts.
- The *restorative* approach, considering the cost of eliminating the effects of a certain impact (restoring the environment to its pre-impact state).

The method used to measure externalities in monetary terms is closely correlated with the specific features of the industry where the experimental research was conducted. The approaches based on the cost of damages are appropriate for intensive natural resource industries such as the energy industry and allow comparisons between investments alternatives on the base of the cost of damages induced on the natural environment.

In the case of a mix between different measurement techniques for comparative purposes, the avoidance method and the restorative method have usually generated higher values than the damage cost method. The difference could be an indication of "the amount of damages that society allows firms to cause without them supporting the cost of this damage (or the cost of avoiding it) ". It also indicates that entities only pay to remediate or to avoid part of the damages caused. For a more detailed analysis of each method, see Antheaume (2004).

A tendency is observed to reduce the diversity of methods, as the impacts included in the scope of analysis are diversified, in favor of damage costs. This if founded on the economic theory cited by Antheaume (2004) that the cost of avoiding an impact increases as the intensity of the impact is higher. Given that in the current economic environment the "polluter pays" principle is not properly enforced, any

economic agent will have a tendency to defer costs until an impact is produced, even if avoidance costs would have been lower.

Another feature of the models analyzed in this paper refers to the type of information that are measured and reported. In its original form, FCA only considered negative externalities in the form of environmental costs. Later, with the inclusion of the social dimension and the broadening of the scope of analysis, the recognition of positive externalities in the form of social and environmental benefits (in forestry, agriculture, or education) was necessary.

The implementation environment for FCA experimental models consists of important economic entities, based in The United Kingdom, Australia, New Zealand, etc., where there is a strong interconnectedness between the academic environment and the accounting profession. This idea is also supported by the structuring of the expert teams who have conducted the experimental research.

4. Model for the accounting recognition of externalities in Romania

Based on the above considerations, we propose the Sustainable Cost Accounting – SCA model. The SCA model is presented as a four-step FCA costing model having the integration of externalities into the conventional costing model as a main objective. As a next step of the research, a more detailed SCA model will be provided as soon as suitable partners for implementation are identified. The specifications of the model should be defined in conjunction with the current state of regulations in management accounting and corporate responsibility, and the legal provisions on environmental protection in the field of implementation.

Table3. The Sustainable Cost Accounting Model – SCA

STAGES	SPECIFIC ACTIVITIES
1. Setting the costing object or the area of interest for determining costs	Identification of a product, production process, a part of the entity, the entity as a whole, an entire industry, etc., as a general objective of determining the sustainable cost. Conventional costs are attached.
2. Defining the purpose and/or the limits of calculation	Identification of all possible negative and/or positive effects. Selection of those relevant to the subject or area of interest set above. Identification of measures to avoid damage and/or environmental restoration, which generate externalities and are related to the costing object.
3. Measuring relevant external impacts	Monetary measurements of externalities relevant to the object or area of interest for sustainable costing.
4. Establishing sustainable cost	Building sustainable cost, including externalities as the support for market pricing.

Unlike other costing models mentioned above, SCA correlates conventional costs with externalities, presenting a sustainable cost of the cost object as the final stage of the model. This is based on the assumption that market prices will be determined starting from sustainable costs, including externalities.

The selection of externalities relevant to the cost object implies that both *(i)* the double recognition of some external effects (in the sustainable cost of different entities) and *(ii)* the non-recognition by all entities of others on the basis of the relevance criteria should be avoided.

Similar models have been discussed previously in academia (Dascălu et al., 2009) and the accounting profession in Romania (Guşe et al., 2009). In its current form, the SCA model brings a number of conceptual clarifications and details, as shown in *Table 4*.

FCA models have not yet been implemented in Romanian entities. Given that management accounting remains a deregulated environment, accounting professionals benefit from favorable conditions to use professional reasoning in costing activities. This is the main reason why the focus of present paper has been costing instead of reporting.

Table4. Features of the SCA model

Issue	Solution
Scope	Economic Social Environment
Industry	Higher Education (economic)
Measurement techniques	Mix, with definite selection criteria for multiple-choice measurements
Results/Outputs	Costs and benefits

Regarding the implementation field that was proposed by the model – higher Education (economic) as opposed to any other entity – some unique conditions must be underlined as the main selection criteria. Higher Education in Romania is an environment where accounting professionals act as academia, bringing together two of the main stakeholder groups involved in the experiment proposed.

The solution seems even more appropriate if a lower level of communication between the overall academic and the professional environment in Romania is taken into account. Thus, the issue is eliminated. Also, given the early stage of national research, the field of implementation proposed provides dissemination tools that cover both stakeholder groups, helping to initiate the debate and to promote the method.

As to the type of measured and reported information, both negative externalities (costs) and positive externalities (benefits) are included in the model, taking into account the capacity higher education institutions have to generate positive (social) externalities.

The scope of the SCA may include natural resources, but in this particular case it was not considered to be a relevant dimension for analysis, given the selected field of implementation.

Regarding the measurement techniques, we find that even if it is more convenient in terms of effort, the damage cost method favors negative attitudes toward the policies to reduce negative externalities. Therefore, where possible, the use of all measurement techniques is encouraged.

5. Discussions and conclusions

The implementation of a FCA model in the Romanian environment can only be achieved with the support of all stakeholder groups: the government, the accounting profession, the academia, the business environment and the non-governmental organizations. At this stage of the research, a theoretical model was proposed and a number of implementation possibilities were identified. Covering the next steps requires the involvement of all the other actors.

It is justified, primarily, as a prudent approach from managers and especially the accounting profession, which is expected to provide a specific response to the severe social and environmental problems ahead. Economic entities, in turn, must recognize and assume responsibility for their social and environmental impacts. Non-governmental organizations have an important role in supporting and stimulating the debate. Governmental institutions, by their respective regulatory attributions, are meant to develop a legal framework for the recognition and measurement of externalities, addressing the issue of omitted impacts and multiple allocations. By increasing the visibility of the research topic in the academic, professional, and business environment, the premises for combined efforts of stakeholder groups are created in order to implement FCA methods.

The complexity of the issue limits the possibilities of incorporating externalities into a costing system. Therefore, considering all the benefits in terms of information arising from a model such as the proposed SCA, it is unable to cover the information needs of all stakeholders. A number of issues that cannot be measured in monetary terms are borne by non-financial reporting.

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