Project N°: 036992

ACRONYM : **S**cience **P**olicy **I**ntegration for **Co**astal **S**ystems **A**ssessment

REPORT

FINANCIAL ANALYSIS SPECIFICATION SHEET

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January, 2011

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How to cite: D'Hernoncourt, J., and Raux, P. (2011), Financial Analysis – Specification sheet, *Spicosa Project Report*, Université Libre de Bruxelles – CEESE, Brussels.

Integrated Project funded by The European Community
Under the Sixth Framework Programme
Priority 1.1.6.3
Global Change and Ecosystems

SPECIFICATION SHEET

Financial analysis

Method and assumptions

Financial analysis is based on microeconomic theory. As such, it does not concentrate on the social level but on the private one and thus on firms or groups of firms. The production process is at the core of the economic activity. In this approach, one considers profit as an indicator of economic efficiency. Profit of the firm is calculated using a cost benefit approach; it is equal to total revenue minus total cost. The revenue is the amount of money that flows into the firm, which is composed of product sales mostly but also of subsidies for instance. Any costs incurred by a firm may be classified into two groups: fixed cost and variable cost. Costs can be related to /dependent on production (for example material that might be necessary for production) or be fixed i.e. incurred at any level of production including zero (cost of equipment maintenance, depreciation, rents, etc.).

To derive the revenue part of the analysis, one uses the level of goods and services produced (outputs) and price levels. The production system itself is seen as the production of outputs, obtained by combination of factors of productions called inputs. The production function Y=F(K,L,A) formulates the production process of the output. Y is the level of production, K the level of capital, L the level of labour and A represents technologies or technological development (not always included). This economic system can be made more complex according to economic theories and paradigms (level of competition, technological progress endogenous or not,…) and more dynamic by introducing decision making for the firm (decisions about investment in capital, future production) as well as policy options and scenarios in the frame of a coupled ESE simulation model.

One usually considers that the aim of the firm is to maximise profit. But depending on the economic activity, some firms might have other aims: the stability of production, of employment levels or environmental sustainability for instance.

Relation to systems approach

In general, financial analysis is well adapted to system dynamics since firms make production decisions regularly (depending on the activity, at a minimum once a year) and this can be integrated in a simulation model. The accumulation function of capital, determined by the amount of capital available and the reinvestment provides some dynamics to the system. Other sources are non linearity in prices and the possible inclusion of endogenous technological development (innovation). Dynamics are also induced from the coupling with the ecological and social components: policy -and production- respond to environmental impacts of economic activities. In a systems approach perspective, one can thus yield interesting results comparing impacts of different scenarios on the production process and profitability of the studied economic activity.

When this method is especially to be used

The framework of financial analysis is really general and can be used for all types of private firms or activities (for instance fisheries or farms). One can use this methodology to simulate the production decision of a firm (investment decision, future production level decision). It can also help highlight costs of operational cycles, the profitability of an investment, of an activity,… and show the effects of different management scenarios on these indicators.

However, this methodology is not adapted to all policy issues but only to issues that need to be studied at a local/private scale or focus on a particular private sector; it is not suited to the regional or national level. To shed light on regional or national economic impacts of the studied activity, you could use other assessment methods based on Input-Output analysis. In order to broaden the perspective and include environmental concerns, multi-criteria analysis or cost benefit analysis could also be used.

How to best present results to stakeholders?

The results of a financial analysis should be presented and interpreted carefully. Advice should also be given to stakeholders to be cautious with respect to the use of the results.

While presenting the results to stakeholders, bear thus in mind the main limitation of the method: the economic figures you obtain relate to private interests and as such do not represent the whole economic impact of the studied activity in the region. Neither do they cover other impacts: environmental, social or cultural.

An estimation of the number of jobs in the activity alongside the results on the cost structure, revenues and profit can help highlight another aspect of the analysis.

Example of use of the method

Within the SPICOSA project, financial analysis has mostly been used to model fisheries or aquaculture dynamics. An example of integration of the method into the SAF is Thermaikos Gulf case study.

The team designed a tool to achieve a sustainable management option for mussel culture. Individual mussel farms were modeled. On the cost side, labour costs, maintenance costs (repairs on nets, gasoline) and depreciation costs (of farm installations and boats) were included, along with a module for environmental hazards (Harmful algal bloom occurrence which raises increased labour and gasoline costs to maintain the quality of the production).

The modeled revenue side depends on production (i.e. the number of kilograms of mussels produced times the market price), on farm characteristics: number of lines, bunches, sock lengths and on the farm productivity coupled with the environmental dimension (due to orientation and placing, linked with sea currents and food availability).

The simulation model helped highlight variations of profitability to different regulation options of farming activities and thus provided indicators to assess these options from the economic point of view.

Further references

Coffen, S.S. and A.T. Charles. 1991. Production economics of shellfish aquaculture in Atlantic Canada: a preliminary analysis, Aquaculture and fisheries management, 22, 193-202.