

Economic Indicators Used in the Holistic Management of Ecological Agricultural Entities

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Abstract

The paper begins with a review of theoretical concepts including a conceptual delimitation of the terms Holistic management and sustainable development.

Aim of the work is to emphasize the importance of the transition from an economy focused on obtaining maximum profits in a responsible economy, which prioritizes basic maintenance of ecological balance.

Under these conditions, economics in general and particularly economic and financial analysis must fundamentally rethink traditional concepts of economic viability and profitability in the economy, by considering the fundamental causes capable of destroying ecosystem restoration capacity.

The innovative character of such a theoretical-methodological approach is limited only by the possibility of implementation at the macroeconomic and microeconomic level.

It is noteworthy, however, increasing research activities in this field of holistic management and sustainable development, literature study clearly reflects a new direction in the economy, the paradigm shift is expected by all professionals, but was seriously hampered by the financial crisis.

Starting from these considerations, I propose in this paper, introducing a some economic indicators for measure the economic viability and economic profitability in the ecological agricultural entities, justifying the need for, and practical possibilities to implement in economic analysis and fiscal management economic entities.

Keywords: *holistic management, sustainable development, income tax, fiscal management, shareholder return, profitability, market share*

JEL classification: O11, O12, Q01, Q51, Q53, Q57, M21, M41

Introduction

Categorization of natural ecosystems as natural support human activities aimed at obtaining maximum profits reduce and even cancel importance which they presented in complex natural and anthropogenic factors that contribute effectively and significantly to the production of economic goods.

Endowed with a amazing capacity of self regulation, these ecosystems are particularly vulnerable to sudden intervention of the anthropogenic factor, can control external balances being much less damaged than internal power their recovery. Agriculture used the same business model as the industry, transforming traditional agriculture into a farming business (agribusiness) in pursuit of

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maximum profits. Fundamental characteristics of industrial design to which we refer are simplification and mechanization.

This article aims to introduce some indicators in agricultural entities efficiency analysis which takes into account the criteria of sustainable development and the benefits of holistic management.

1. Holistic management

Holistic Management is based on four key principles (figure 1). Allan Savory, creator of Holistic Management®, has been instrumental in the restoration of countless acres of land in Africa, Australia and America together with the livelihoods that depended upon them.

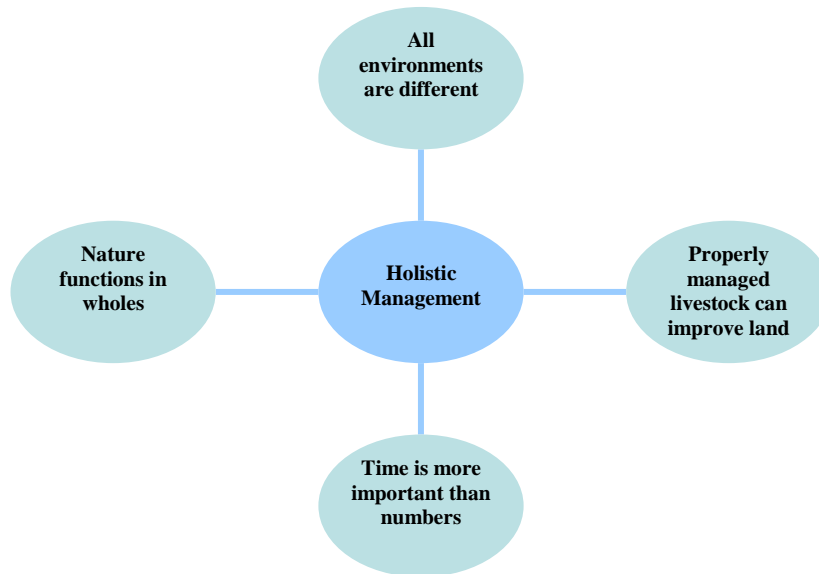


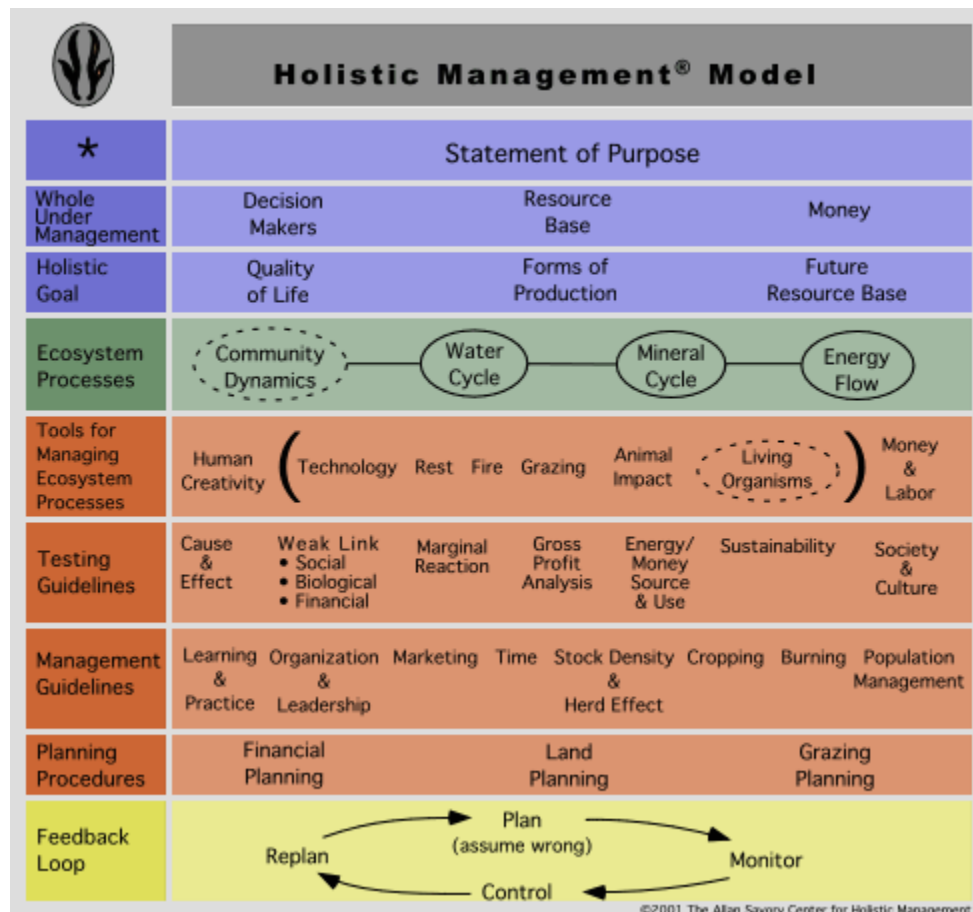
Figure 1. Holistic Management key principles

Source: Developed for this research

Keys principles description:

1. Nature functions in wholes - you can't control or change one thing in one area without having an impact on something else in another area.
2. All environments are different - it is crucial to acknowledge nature's complexity and that an action can produce completely different results in different environments.
3. Properly managed livestock can improve land health - when domestic livestock is properly managed to mimic the behavior of wild herbivores interacting with grasslands, they can reverse desertification.
4. Time is more important than numbers - overgrazing of plants is directly related to the amount of time the plants are exposed to the grazing

animals and the amount of time that lapses between consecutive grazing events.



The Holistic management model created by Allan Savory is presented in figure 2:

Figure 2. Holistic management model

Source: The Allan Savory Center for Holistic Management

Holistic Resource Management (HRM) is a process of goal setting, decision making and monitoring which integrates social, ecological and economic factors (Stinner et al., 1997).

1.1 Sustainable Development - a new paradigm

The new paradigm of sustainable production economy requires rethinking some of its basic theories and important changes.

"We live in a world where the dynamics and importance of communication are inseparable, and the change has become more a rule than an exception."

Importantly is the moment when the change is made and who will participate on it. People should be involved in this process. They should be instructed to understand their own feelings and should be taught to perceive the organization in relation to its environment" (Năstase, et al, 2012).

Production of goods in quantities not getting older, but the real "useful" in terms of quality of life should be the new paradigm, not maximizing profits, but their balance.

Economic viability requires maintaining control over resource use. An entity can not survive economically loses sustainability feature. Sustainable development (sustainable) in agriculture integrates three main goals: environmental health, natural, economic profitability, social and economic equity.

The concept of sustainable development has been widely introduced by the World Commission on Economic Development and the United Nations environment (Oxford University Press, 1987).

The report known as the "Brundtland Report", defines sustainable development as development that meets the requirements of the present without limiting the aspirations of future generations.

At EU level, sustainable development has become objectively taken since 1997, when it was included in the Treaty of Maastricht. In 2001 the Sustainable Development Strategy was adopted in Gothenburg, which was added in 2002 to Barcelona, the external dimension, and in 2006 was adopted the Sustainable Development Strategy of the European Union revised.

Sustainable Development Strategy of the European Union aims to "achieve continuous improvement of quality of life" and the emphasis is thus on supporting the improvement of human welfare. Sustainable development is less a search for a balance, being a dynamic concept which recognizes that changes are inherent in human societies.

In our country was adopted in 2008 National Strategy for Sustainable Development of Romania, which proposed the following strategic objectives in the short, medium and long term: incorporating the principles and practices of sustainable development into all programs and policies of Romania as a member of EU, achieve the current average level of EU countries in key indicators of sustainable development, significant near Romania's average that year of EU countries in terms of sustainable development indicators.

Sustainable development is a long term process, and focus on immediately, it may have long-term negative consequences (Brandon, 2012).

"Management strategies driven by shareholder value objectives have been highly successful for businesses of all sizes in the past fifty years.

Use of resources, waste management, pollution, climate change and biodiversity has all issues of great importance which, in the traditional business model, have had to give way to the maximization of shareholder return. Today that approach is no longer viable in the long term." (Grayson, et al, 2008).

The concept of sustainable development should be differentiated from that of sustainability. "Sustainability" is the property of a system by which it is maintained in a particular state over time. The concept of sustainable development refers to a process involving changes or development.

1.1.1 Sustainable Society Index

Sustainable Society Index (SSI) is a new index, which manages to integrate for the first time the most important aspects of quality of life and sustainability of national company.

ISD was calculated for 150 countries based on data from various scientific institutes and international organizations. ISD scores obtained allow a quick comparison between countries - with updated versions every two years - indicated by these countries over time.

In 2008 it published first Sustainable Society Index for Romania. The main structure of ISD consists of 22 indicators, grouped into 5 categories. The general score obtained by Romania in the SSI Romania - 2008 is 5.7 on a scale of 0 to 10.

1.2 The first Profit and Loss Account "green" - a world premiere

PUMA is the second largest sportswear manufacturing company in Europe and third in the world.

PUMA collaborated with PricewaterhouseCoopers and Trucost to conduct the first Environmental Profit and Loss Account (EP&L) for 2010, published in 2011 (Puma Financial and Sustainability Report 2010).

Jochen Zeitz, chairman and CEO of Puma and chief sustainability officer at PPR, said: "The E P&L statement is an essential tool and a shift in how companies can and should account for and, ultimately, integrate into business models the true costs of their reliance on ecosystem services and PPR Home will encourage and collaborate with the industry to adopt this tool".

The EP&L serves as a strategic, risk management and transparency tool. The account quantifies the value of ecosystem services and the negative impacts, focusing on GHG emissions, water use, land conversion, other air pollution and waste resulting from core operations and along its entire supply chain. Environmental impacts were valued at € 145 million for 2010.

Only € 8 million of this total derived from PUMA's core operations, and the remaining € 137 million from PUMA's external suppliers. PUMA is heavily reliant on the use of water for the production of raw materials and their processing.

By recognizing the extent of economic risk derived from negative environmental impact PUMA is able to quantify the benefits of integrating sustainability into its global supply chain.

The main output from the EP&L is the quantification of the value of the environmental impacts (€ 145 million for 2010), which present an economic risk from environmental factors such as water availability, rising raw material costs and further constraints in production. In practical terms this amount would translate as a negative financial impact on business. Using the tool (EP&L) allows PUMA to reduce this financial loss thus strengthening its operating margin through an early view of emerging risks, enabling the company to respond strategically to protect long-term shareholder value.

2. Indicators used in the holistic ecological management

Currently, the concept of sustainability is widely used only at macroeconomic level, most indicators are designed in this direction. However, substantive changes concerning microeconomic side of the problem, the case of farms organized on the principles of sustainable development (ecological), is the most conclusive in this sense.

I propose in this paper to provide a representative set of indicators, possibly used in theory and practice, by which an agricultural entity may be formally recognizes the character of sustainability, which we call organic farming entity.

2.1 Indicators on the economic viability of ecological entities

1. **Loss of production** (P_p) following the abandonment of chemical fertilizers.

This index is determined by comparing the level of production per hectare or per animal, between an entity organized exclusively ecological principles (P_e) and a similar entity in size, activity profile, but using chemical fertilization (P_{nec}).

$$P_p = P_{ec} - P_{nec}$$

The indicator can be expressed in physical quantities (t / ha) and in value terms.

2. **Increase quality** (S_k) determined by the exclusively ecological technologies.

Assessing agricultural products entity is globally according to their quality parameters and developed country markets accept only quality food products, as recognized by specific standards. Indicator is determined by comparing the obtained production index quality in the organic farm (K_{ec}) and that obtained in a similar non-organic entity (K_{nec}).

$$S_k = K_{ec} - K_{nec}$$

Quality growth may be able to cancel the production loss (quantitative) caused by the waiving of widespread use of chemical fertilizers (to the extent that the market recognizes the value of organic products by price).

Starting from the formula for determining the physical production in expression STAS, we can determine the STAS ecological production formula:

$$Q_{STAS} = Q \cdot K, \quad Q_{STAS_{ec}} = Q_{ec} \cdot K_{ec}$$

Q_{ec} - physical output produced in an environmentally friendly,
 K_{ec} - quality index of physical production obtained in ecological conditions.
Obviously, $K_{ec} > K$, where S_k is the quality growth.

3. **Additional costs** dictated by the organic production.

Organic farming involves obvious additional costs to the industrial, due to the need to obtain on their own natural fertilizer (or buying them), use an additional workforce, use class experience of specialists who constantly monitor quality indicators soil, water, and other means to compensate for lack of industry input

type. Additional costs reduced gross profitability of organic farming entities, jeopardizing its economic viability, hence their need for financial support through a national policy of preferential credit, and taxation adapted to their needs.

4. Increasing the economic value of agricultural land.

Productive agricultural land use may lose their character of renewability, due to widespread use of chemical fertilizer or pest control.

Therefore, their economic value recognized in the balance sheet does not reflect precisely reality, the land without economic value or economic value reduced (due to erosion of any kind, lost productive qualities of the start of humus, excessive salinity) causing long-term decrease in asset value owned by an entity.

Accurate assessment of the value of agricultural land must take into account primarily the reproductive capacity of the soil, otherwise there is a risk buying an asset with life and economic exploitation determined. Until complete transformation of the existing entities of ecological entities, it is useful to determine the indicator "proportion of area operated exclusively on organic in the total cultivated area":

$$PS_{eco} = \frac{S_{eco}}{S_{cult}} \cdot 100$$

Obviously, the effects of agricultural land use in the requirements of environmental compliance are not visible in a financial year, but the most convincing aspect is the possibility that land use on an unlimited period, where increased economic value to the mined land in conditions of excessive mechanization.

Agronomists task is to determine those limits in the soil can be considered natural balance, keeping regenerative and productive property indefinitely. As a result, the economic value of land to be influenced by the number of years capital from economic exploitation determined based on the regenerative capacity of the soil. We can not predict scientific income achievable from an area of land, whether that land use inevitably leads to loss of useful surfaces in terms of production.

5. Additional market share

For now organic products are luxuries. Obviously, the situation will change when the majority of countries still have a semi or fully industrialized agriculture to organic farming will pass.

As a result, markets for organic agricultural products are currently reserved consumers substantial income markets, where almost no question of the value of production uncertainty collection.

Quality growth is reflected in higher prices for buying organic products, which offset lower physical production obviously obtained additional costs already mentioned. Thus, in addition to traditional markets holding their products produced in non-organic conditions can conquer markets with special character, especially in economically developed countries by exporting that can absorb and organic agricultural products. This while the total transformation of production to the production of agricultural products produced in the entity can exist both forms of

production. Thus appears an additional market share, with beneficial implications on revenue entity, income can become necessary efforts for the readaptation of all production obtained with purely organic production. For now, organic agricultural products have provided sales, demand far outstripping supply, due to strict quality standards imposed especially in the European Union.

2.2 Indicators of socio-professional labor

Indicators may be used: quality of life of workers in ecological entities, educational level of workers ecological entities, the average wage of workers in ecological entities, access to information workers.

Obviously, the number of indicators that can be designed for framing agricultural entity ecological category is much higher, the first steps in this regard must be made by science agronomic, economic aspect of the problem is much lower than that biological technology. Is required and a special category of professionals, recognized by the company to constantly monitor the activities of these entities organic soil biological processes are ongoing and subject to change.

2.3 Eco profit

Analysis profit obtained by an economic entity, regardless of size or type, requires, in the globalize economy and accession to the principles of sustainable development, a strict delimitation of the concept of profit in the classical sense by the concept of eco profit or "profit obtained in the ecological conditions".

Under these conditions, economics in general and particularly economic and financial analysis must fundamentally rethink traditional concepts of profit and profitability in the economy, by considering the fundamental causes capable of destroying ecosystem restoration capacity.

Eco profit is able to provide the current viability of a business, legitimate economic future usefulness of its products, especially the maximum possible reproduction of existing environmental conditions a priori in that area.

Eco profit not exclude the gain, but is limited to a reasonable level for investor and human society, to which it belongs, a voluntary renunciation of profit in favor of the natural balance of nature preserve future profits of the investor.

Thus, between the notion of profit and time horizon considered for running a business there is a causal link. This causal link make always long-term profit to coincide with eco profit and short-term profit to represent a maximum profit. Going forward the causal thread, long-term profit appears as a responsible company and short-term profit as irresponsible.

Must be scientifically established standards generally accepted in the world, in terms of minimum limits, including a man-modified ecosystems may be "natural balance". Allows post-industrial society "transformation" of natural ecosystems in the intrinsic capacity faster than their natural recovery, where the emergence of numerous natural disturbances.

Categorization of natural ecosystems as natural support human activities aimed at obtaining maximum profits reduce and even cancel importance which they presented in complex natural and anthropogenic factors that contribute effectively and significantly to the production of economic goods.

Endowed with a amazing capacity of self regulation, these ecosystems are particularly vulnerable to sudden intervention of the anthropogenic factor, can control external balances being much less damaged than internal power their recovery. So we can determine the maximum values of production of economic goods (different from case to case) threshold for natural balance, which is capable of overcoming the natural balance of each ecosystem break in hand, and long-term quantitative decrease and especially the quality of production (when production is based on natural productive capacity of the environment).

Eco profit notion of targeting macroeconomic side, overall and microeconomic side related to practical application in each economic entity concept. Macroeconomic side harmonizing tax legislation as environmental legislation. In the long run, the correct application of sustainable economy (and the renunciation of maximum profit in favor of the eco profit) state budget that will be more balanced and can count on the resources of nature and the tax on dividends, less high as value, but what is, in my opinion, fundamentally - term certain collectible. Sphere of economic and financial analysis of the economic entity, extending from the result itself to the environment they have created, and the pursuit of financial balances to the complex balance, financial and environment.

Starting from the considerations set out above, should that economics, not only, to find models to quantify the overall losses in a particular ecosystem as a result of mindless environmental interventions, and the manner of intervention (administrative arrangements, tax, etc.).

Implementation of these goals can be solved in two ways:

- a) the establishment of a universal tax on the profits made from activities with obvious negative impact on the natural balances in the form of differentiated rates depending on the degree of intervention on the ecosystem (relatively, medium, serious, dangerous)
- b) increase at the level of share of each country's tax (also to profit from activities with obvious interference in ecosystems balances) at a rate determined by the additional economic impact of these on the overall environmental balance in that country or geographical area in question).

2.4 Tax considerations in agricultural entities

It is necessary to understand that farming should not be treated the same tax considerations with industry targets for the following reasons:

- agricultural products are luxury products, but products strictly necessary for food security of the nation,
- extra expenses due to transition to organic production are fully justified due to the positive impact they have on the health of a country,

- failure of small businesses in the industry have implications on the overall economic and social life, while destruction of agricultural areas is an irreversible process that generates financial and social economic losses for generations,
- general economic equilibrium will not be affected by preferential tax profit entities organic farm.

A lower profitability in the agricultural entities organized to work on ecological principles lowers domestic and foreign investors' interest for this type of economic activity. Therefore, the State levers at its disposal to encourage the development of Romanian agriculture entities, entities organized to operate on principles of profitability complex - economic, financial, environmental and social.

Proceed to the next step theory to illustrate the veracity of statements above: Let us suppose that in conditions of organic farming are active in the economy (record profits) **X** number of agricultural entities (of different sizes, economic size and type of organization).

Budgetary income tax related nature of these **X** entity is determined as the sum of own tax each entity in part:

$$\text{Budget revenues}_{agric} = \sum_{i=1}^X I p_i$$

We assume that the effect of non-organic agriculture adversely on the health of the population directly through food consumption from domestic agricultural primary products and natural imbalances indirectly through the soil, climate, represents the **A%** of total spending on health.

If switching to organic farming would reduce the tax rate of gross profit obtained from organic farming entities active with **B%**, then the problem is to determine how close to reality the impact of one percentage point reduction in profit tax farming has on reducing the share of health expenditure in total expenditures. Proposed issue exceeds the present paper, but logic leads me to believe that reduce revenues is much lower compared to reducing national health expenditures. Thus, the overall macroeconomic balance is encouraged by reducing direct taxation in organic agriculture.

Obviously, the effects of such measures can not be quantified in a single budget year, but long term health insurance population will certainly lead to reduced financial burden for health care.

We assimilate the conceptual reduction in organic farming as a tax allowance granted long-term ecological entities to reduce the risk of ill health in a country.

The problem is extremely complex and can be solved in different ways, remains essential for the purposes of encouraging political decision on the part of organic farming entities and on the other policymakers responsibility for the health of the population.

The conclusion is the need to support agricultural entities in their efforts to transition to sustainable development, in order not to affect profitability and enable them to withstand a competitive market with globalization trends evident.

Conclusions

Issues raised by sustainable development is complex, shareholder opposition is quite evident in most cases, it involves reducing short-term profits and hence dividends.

Obviously, sustainable agriculture implies the following restrictions on the profitability of agricultural entities:

1. higher production costs imposed by the use of pure organic inputs,
2. lower labor productivity due to abandoning the use of chemical fertilizers or other means of "forcing" output growth,
3. lower production involves obtaining less revenue because not all consumers can afford to pay out once more for organic products (educating the public in the sense shifting consumer preferences, and additional personal funds allocation for them is a long process),
4. income (effect) lower obtained additional financial efforts generate lower gross profit,
5. net profit falls only if the state does not change its perception of ecological tax on agriculture.

We propose the following measures to reduce spending or shift to 'green' agricultural entities or to increase revenues, thereby obtaining a return performance:

- fiscal effort directed towards the establishment point of small and medium agricultural entities green
- operating subsidies existing agricultural entities, until it is fully production-ecological
- contracted by the state to the national reserve mainly agricultural organic agricultural products,
- reducing direct taxation (income tax) and indirect (VAT) for organic farming entities, at least until they achieve the financial stability of the firm,
- lending special conditions of ecological agriculture, by providing government guarantees for large-scale projects in this area (agricultural policy).

Developing models to capture and to potentate the positive effects of development that takes account of the environment is a challenge for researchers, most results are evident today in the organic agriculture, but there are sufficient indications that, the industry is reposition to this overall goal.

The indicators presented in this paper trying to show the benefits of holistic management. Is undoubtedly a first step in this direction, a challenge for researchers, and future developments in the global economy will be decisive for such research.

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