Considerations regarding investments efficiency in agriculture

Consideraţii privind eficienţa investiţiilor în agricultură

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Abstract

In the present days, we consider that it will be very interesting and useful to do some research on the agricultural sector (distinct from the industrial and other sectors of economic activity), although the process of globalization in modern economies determine trends converged approach and integrated development of rural and urban areas. In this paper we will try do some considerations regarding the problems of agricultural production and some characteristic ways of addressing the economic efficiency of investments held within it.

Keywords: *agriculture; efficiency; investments; effectiveness*

Rezumat

În zilele noastre, considerăm că va fi foarte interesant şi util a face unele cercetări privind sectorul agricol (distinct de la alte sectoare industriale şi de activitate economică), deşi procesul de globalizare în economiile moderne determină tendinţe de abordare convergentă şi dezvoltare integrată a zonelor rurale şi urbane. În această lucrare vom încerca să facem unele consideraţii cu privire la problemele producţiei agricole şi pentru anumite moduri caracteristice de abordare a eficienţei economice a investiţiilor realizate în cadrul acesteia.

Cuvinte-cheie: *agricultură; eficienţă; investiţii; eficacitate*

JEL Classification: *Q10*

Introduction

Agriculture is regarded as one of the basic branches of the national economy, which provides food for the population and raw materials for consumer goods industry such as food and light (Andrić, 1998). Unlike other branches of production materials, the process of agricultural production has certain features that have arisen with agriculture and maintain as

long as it will be producing branch especially food for human consumption. Agricultural production is characterized by a complex set of processes for conversion of a number of substances and forms of energy (fossil, chemical, biological, solar, etc.). Pursued under the impact of human labor and natural factors, through the body of live plants and animals - in a specific category of goods, designed to ensure the needs of agricultural products of the population, in terms of a level more favorable the ratio of the economic results obtained and effort or resources allocated to production, (Baghinschi, Cămăşoiu, Candelă, & Iacobovici-Boldişor, 1979). As a result, the pursuit of agricultural production, similar to any production activities, is conditional on the existence and combining two elements: work and the subject of work, derived from general factors of production: land, labor and capital (Barro, 1990).

Characteristics of the agricultural activities

In this context, the nature, content and the effectiveness of primary agricultural production are strongly marked the particularities of the agricultural activity, characterized by:

- The influence of natural factors (land, climate, water etc.);
- Existence of biological processes and organic production (consisting of herbal culture and farm animals);
- The production (process of combining work with the natural process of growth and development of material biological - pursuing a contradictory influence on the efficacy of the use of material resources, financial and human);
- The social (the existence of several categories of property, the complex process of division of labor, price scissors etc.).

Due particulars mentioned above, agriculture is considered an area of activity with everything particularly characterized by certain functions that must be prosecuted and judged in the light of the contribution of agriculture to economic development overall.

Functions of agriculture (food factor of economic growth, protect environment etc.) provides agriculture with industry, the basic position in economic development, and in some countries even underdeveloped branch of the national priority.

The level of life of a nation is in close dependence on food resources, quantitative and qualitative, (Binswariger, & Von Braun, 1993); welfare is determined by the insurance needs imposed by normal civilized life. It is known that nutritional imbalances have influence on the health of the population, mainly characterized by relatively high share of suffering from obesity, hypertension, anemia, cholesterol, etc. Therefore, a fundamental characteristic of agriculture in all countries in the world is the domestic production to ensure their needs and then to surpluses for export; objective which can only be achieved by allocating additional funds for investment required for development and modernization process of permanent production agriculture.

A number of international entities specializing in agriculture and food, especially FAO, have developed specific programs and strategies for combating hunger and malnutrition in different countries and areas of the world, (Cistelecan, 2002). The starting point was determined by the food requirements that must be urgently provided for the reminded regions. But, it appears that the food problem is not regarded in the same terms in all countries in the world, which causes that the default of two poles, diametrically opposed. Thus we have:

1. A pole of poverty, contributing to a lot of poor people and very poor in developing countries, living in pedo-climatic and geo-economic conditions totally unfavorable, and need their food consumption is provided only half;
2. A pole of wealth, represented by a population with a high standard of living and very high, located in developed countries, where the food requires faithful confrontation between supply and demand - Food needs of society are often exceeded.

By that agriculture policy is oriented with priority to the requirements of consumers and food security; it is not just a problem of agriculture and food industry, but the economy as a whole. In this sense, the current situation can be overcome with the help of macroeconomic policy and the sector to achieve new link between population and development of gross domestic product between national productivity and the labor sector, between income and prices that generate high solvent demand, widening the internal market and economic effects of training. So, we find that the food needs of the population depend not only on the existence of available food, but also the application of solvent consumers, the result of the increase in GDP and food prices.

The place of agriculture in every national economy, according to the methodology used by FAO, is expressed through the criteria for assessment of agriculture in the economy. These criteria are: the share of the agricultural population occupied in the overall employment, the share of agriculture in the Gross Domestic Product (GDP) and Net domestic product (NDP), the share of agricultural exports in total exports and the share of agricultural exports in total imports.

Economic activity in agriculture is related directly and indirectly to the ground as its main means of production and an important element of agricultural capital. Earth is not only a simple factor of production, but also the food security of the population is the most precious natural resource which, in particular, depends on the development of rural communities and healthy existence of the rural family. He has a great social function determined the role of basic space for human activities.

What characterizes the role of capital in agriculture is that in the process of agricultural production is a significant holding of fixed capital, the principal receiver of investments in agriculture, (Ioniță, & Blidaru, 1999). It is part of the operating capital (which allows the development of the earth), may occur in two forms, and it is composed of:

- Different material means such as tractors, agricultural machines, etc. referred to in literature under the names of dead cattle;

- Animals (also called live cattle) traction, breeding and revenue.

In conditions of market economy, developing modern agriculture requires Procurement technical material and can be achieved only by allocating additional funds for investment. Unfortunately, sometimes it is not only sufficient number tractors, but above all state matters in which they are located and the possibilities for use.

And limits the use of machinery in agriculture is very different, so it should be offered alternative available to all agricultural producers. The main of these guidelines should address: the price of tractors and agricultural machinery, cars diversification systems (power energy, power tractors correlation with the machinery of the aggregate, diversification area industries and cultures etc.) Increasing the number of units that provide mechanization agricultural equipment and works directly with farm machinery, the efficient operation of all energy sources, limiting environmental pollution, mechanization training specialist and the farmers who use cars and tractors, ensuring the necessary spare parts, features on the price of fuel, development cooperation to avoid risks arising from the use of inefficient cars and making timely agricultural work, limiting excessive parceling property etc.

In carrying out all the problems of transition phase to a global agricultural market, investment, as material support of economic development, is crucial factor. Through their help it is possible to ensure development, modernization and sustainable re-technologisation of each branch of economic and, ultimately, the entire national economy. Regarding the agricultural sector, investment activities are conditional on the existence of particular agricultural production and knowledge of the consequences of their technical and economic, (Mellor, 2001).

The most important feature is derived directly from the role in the earth are agricultural production, it is also a means of employment and object of labor. Earth does not, but on the contrary, improving continuously and in particular on account of investments hydro-ameliorative made to work.

Economic activities in agriculture also requires other means of employment and participation of more and more direct labor, due to a lower degree of mechanization and automation of business in this sector. In most cases, investment in agriculture provides technical increasing production through the introduction of fixed assets. This process represents a form of manifestation of technical progress in agriculture to ensure economic growth and labor productivity.

In agriculture the effects of new means of employment are found mostly in the same volume and quality of agricultural production, improve plant varieties and breeds animals, and increased financial and economic efficiency. Agricultural investments are directed towards priority objectives quantitative conduct to ensure normal processes and activities, to a certain level of agricultural science and technique.

Technical progress in agriculture, besides the fact that contribute to increased production volume, can contribute to improving the quality of

agricultural products to existing or creating new varieties of plants or field breeds of farm animals and their adaptation to natural conditions throughout the country.

The process of agricultural production can have a long-term, but also very long, some species of animals, especially the increase animal breeding (2-3 years), which means that the cycle of rotation of capital is allocated more slowly.

In agriculture, there is a close correlation between the use of conditional fixed assets in various sectors. Thus, the rise in investment in livestock production is conditional on providing forage base. This in turn requires the allocation of funds for investment in chemical fertilizers, irrigation, construction, which allows lifting and keeping in good condition the production of feed.

Production of live bodies (plants and animals) determines economic breeding to link with the natural plants and animals, indissolubly linked to a specific period of time that agricultural production should be realized biologically. Due to the particularities of the seasonality of production, the employment does not coincide with the production, which causes an intermittent use of fixed assets during the year, such as tractors and agricultural machinery, irrigation, construction, working animals and animal production in certain periods required by their biological evolution.

In agriculture we can meet some expenses for investments that do not materialize in fixed assets, nor do they consume in a production cycle. In this category are natural and chemical fertilizers, amendments, the development of new land by grubbing etc. (Persley, 2006)

Financial resources

The investment requires financial resources, whose training is determined by the mechanism of market economy and financial lever, tax, used by state. In a market economy is characteristic autonomy investment management resources; each trader creates its own investment fund, looking at the same time that the amounts should be used judiciously, as efficiently. Sources of which can be financed investments are:

a) Internal sources (local) for the financing of investment (own sources of the enterprise or company for investment; existing sources on the capital markets; allocations from the state budget for investment);

b) External sources of financing investment (imports of capital);

c) The lease, a new form of financing investment.

In most cases, internal financial resources are insufficient to the needs large investment, caused by the requirement of restructuring the economy, particularly on technology. Along with tackling resources by attracting foreign capital, is easier access to technology. Ultimately, calling on external sources for investment represents the import of capital.

To obtain certain medium and long term credits, farm must submit its financial situation in recent years to the bank, under which the bank makes client solvability analysis. The level and trends of financial performance is expressed

through a particular category of financial indicators. These indicators are used in financial analysis and permit the establishment of the farm solvability. In the economic theory there are some significant financial indicators (the solvability), under which banks and business partners can assess the competence of the management team and prospects for holding such as:

1. Liquidity indicators (general liquidity rate, the rate of immediate liquidity and asset liquidity ratio);

2. Solvency indicators (overall solvency rate, the rate of debt, solvency rate, the rate of coverage net fixed assets and the financial solvency);

3. Balance financial indicators (the financial autonomy, the financing of circulating assets, the equity to the fixed assets, the capital permanently to the fixed assets and the degree of indebtedness);

4. Management indicators (speed of rotation of stocks turnover rate assets - fixed and circulating total - in turnover and income saddening rate debt);

5. Indicators of profitability (revenue profitability rate, the rate of financial profitability, the economic profitability, the profitability of total assets, the profitability of resources consumed, the threshold of profitability, the profitability of agricultural land and the rate of yield personnel).

These indicators serve to analyze solvability different sides of financial activity with turnover, expenses, profits, etc. In principle, solvability indicators determine the capacity of holding cash or the ability of the recipient.

Like any human activity, agriculture, is at the same time, resources consumer and effects producer. Limited level of material resources and generate employment requirement their use, for the purposes of ensuring maximum yields or consumption as low. Protecting these resources and the natural environment is coordinated in addressing the fundamental concept of economic efficiency in farming.

In the current phase of restructuring for the global economy, investment increase in agriculture is provided technical and technological modernization of economic stabilization. Investments, according with the definition, are savings, resulting surplus of revenue over expenditure of consumption, which puts the current generation for the creation or development upgrading fixed capital for the purpose of obtaining a sustainable flow of cash income in subsequent periods time. In these circumstances we can no matter how the savings are consumed, which requires comparison of results / effects of economic investment efforts made essential requirement of rational and effective leadership. This comparison is done through economic efficiency, which determines the relationship between resources allocated for investment deployment of an action and the results obtained from it. Economic efficiency of investment in agriculture is a very complex, resulting primarily from general features and social sector, influenced by the particularities of the production process. Taking into account this fact, the economic results is determined by a multitude of factors contributing to the light of the features which refers to the influence of natural factors, the existence of biological processes and

production organic; the production, social nature. Starting from the etymology of the term (to produce expected effect) can say that economic efficiency should be seen at the microeconomic and macroeconomic level. In particular the economic efficiency of investments and fixed capital has a forecast of ensuring the utmost importance in making economic decisions. In business investment in agriculture, economic decision through several successive stages, depending on the level they place on efficiency calculations for optimizing allocation of resources investment.

The first phase, called phase of political and economic decision, it is the decision of targeting investments across the whole of agriculture, and under its branches on agricultural production and socio-economic sectors of activity.

A second phase decision refers to targeting of investments at enterprises where, depending on the tasks of production resulting from the development perspective of the farm to determine investment goals, taking into account the complex factors involved in the production process such as:

a) Natural factors (the productive potential of land, rainfall, temperature etc.);
b) Biological factors (race, variety etc.);
c) Agrotechnical and technological factors;
d) The factors of work organization and production;
e) Social factors.

These factors are in a close connection and interdependence, and the changes taking place within one of its causes and changes on other factors.

The third stage of decision-making analyzes different alternatives of investment using a complex system of economic efficiency indicators. In general shall be such that the stage of choice of investment objectives and the choice of variants investment to be made at the same time, using economic efficiency indicators of production and economic efficiency of investment, to find appropriate solution, both production needs and the needs of resource investment. Indicators of economic efficiency of investments, which are used in evaluating project may be split after several criteria. As a result, depending on the level of the assessment and economic analysis, we can distinguish:

a) Macroeconomic indicators, who are those that serve to evaluate and analyze the economic efficiency of investment in the branches or the entire national economy.

b) Microeconomic indicators, who are those who are used to evaluate and analyze the economic efficiency of investment level trader. In turn, the indicators from this category are can be split as follows (Vasilescu, Românu, & Cicea, 2000):

1. Indicators with general purpose;
2. Basic indicators;
3. Specific indicators for different targets and economical branches;
4. Additional indicators.

We must mention that there are three groups of indicators that should be considered by any investor. We must notice that some specific indicators for

different targets and economical branches were examined (in particular, indicators that relate to agricultural production).

The most important indicator of economic efficiency of agricultural production is considered:

a) The volume of additional production;
b) The volume of total net;
c) Costs of production;
d) The rate of energy consumption;
e) Increase the profit (or net income increase);
f) Rate of profitability;
g) Productivity of work.

Making appeal to specific agricultural production, it is noted that specific economic efficiency indicators of investment in agriculture differ, in some cases, according to the content from the specific economic efficiency indicators of investment. In agriculture, for a judicious decision on the economic efficiency of investment projects, it takes into account only the effect of additional economic value targets related to new investment.

The most significant indicators of economic efficiency of investments in agriculture are (Vasilescu, Cicea et al, 2009):

a) Specific investment;
b) Specific absorption (in relation to this indicator, the author noted calculate specific production tree-vineyard);
c) Recovery term of investment;
d) Speed recovery of investments;
e) Repayment term investments;
f) Coefficient of economic efficiency of investment;
g) Economies of a monetary unit investment;
h) Technical coefficient;
i) Real economic effect (the indicator was examined in particular by the author, who has developed a specific calculation of tree-vineyard);
j) Loss of net farm income.

All economic processes and phenomena consume time, so are dynamic and must be studied over time. Time factor has a special influence also over the investment process, as the materialization of investments in fixed capital and then the process of obtaining the production and recovery of funds held consumed over time.

We proposed to examine a special technique for assessing the influence of time over the investment in agriculture, (Vasiljević, 1998). This technique has the property to make all the money in the past or the future (otherwise incomparable values) at a time (making them comparable with each other), which is normally the moment, where the name of “upgrade technique” also known as “discounting

technique". Following a profound analysis of the upgrade technique we can make a few remarks:

• Update all money funds can be made at any time, at any time, any day calendar. Updating the financial funds may be so, either before the adoption decision of investment so that it can be optimal, or after this time, to see if the recovery of funds invested or held under plan established. Upgrading is made at any time reference, by applying the dynamic calculation of own-called indicators of economic efficiency (economic return on investment and time to recover investment).

• Regardless of the upgrade moment, the size of the economic efficiency indicators remains unchanged. It just changes the amount of the component, namely the efforts and effects that are played by investment updated and upgraded profit.

• The main points of reference falling into the economic life of a target for investment are:

m – when adopting a decision on investment;
n – the starting point for establishing the investment;
p – the starting point for exploit the investment;
u – the time the refund loans received;
v – the final point of the investment.

From our point of view, in order to explain technical upgrade and update the indicators (for specific agricultural production), we considered as the most important moments of reference n, p and v, (Zahiu, 1999).

In order to achieve a good fundament for an investment decision in agriculture area, it is hard to imagine that this is done correctly, in real time, without using a properly mathematical tool.

It is unanimously recognized that investments fulfill their mission under a high economic efficiency, only when the implementation is using scientific criteria and methods of calculation, mathematical models etc. In calculations and analyze the economic efficiency of investment in agriculture can be applied to a number of mathematical methods, statistic-mathematical, econometric and simulation, which helps to establish the best options for sharing resources, the choice of production technologies etc. Thus, it was shown how the linear programming - static and dynamic - serves to solve problems related optimal allocation of resources for investment in agriculture. In particular, was shown how the dynamic programming may be involved to solve problems relating to the allocation of funds for investment in the livestock industry. It also has been studied and how fuzzyfication problem of linear programming on the modernization of farm livestock through the allocation of investment funds on sections of animals (lambs, sheep-rammers). Specific issues related to the phenomenon of risk and uncertainty, have been presented.

Another important analysis was made regarding investments macroeconomic modeling. There were presented models of economic growth, which is an effective tool for investigating the influence of investments as the main factor of economic growth, the economic phenomena and processes. Given the importance of investment as a material support for economic growth, there are many models that address direct correlation between investment and economic growth, or indirectly through fixed capital. Among these models, which have a significant theoretical and practical impact, the most significant models were developed by Keynes, Harrod, Clark, Domar and Solow, in the light of the impact of investment over economic growth, focusing more on relationships between investments on the one hand, and income / national product, on the other. Also have made some references to the balanced growth under the impact of investment in the agricultural sector. In connection with the models examined, we found that most of them (Keynes's multiplier, the coefficient capital Harrod's, Clark's accelerator and productivity investments of Domar) is not conducive to ensuring a balanced development / constant economy. The only model of economic growth which requires that the work practice to meet the conditions required is prepared by Solow. Particular attention was given to the Cobb-Douglas function, as one of the most frequently used functions in economic activity practice, but, with so much success can be applied to the microeconomic level. A model of growth was proposed by Romer and that, in addition to describing the function of dynamic economic, introduces a new element, the stock of capital human.

Conclusions

In the present paper we tried to do some consideration regarding the analysis of the evaluation methods for the economic efficiency in the sphere of agriculture (with emphasis on the investment in this sector of activity). Far from exhaust the issue of econometrics in this area, the paper is constituted as a guide to potential farmers, governmental authorities or specialists in the field, in order to improve efficiency in a vital sector of human activity, with a length greater than two millennia, agriculture.

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