ACCOUNTING INFORMATION AS THE BASIS FOR STRATEGIC MANAGEMENT OF AGRICULTURAL ENTERPRISES

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ABSTRACT

A key place in economic theory belongs to learning about the position of immediate creators, i.e. producers of goods in every socio-economic formation. This position and all relations in production and society depend significantly on the historical form of production of excess work and the way of appropriating excess work. Therefore, for analysis of the modern way of commodity agroproduction, it is necessary to dispose of information that is the basis for decision-making at the strategic level. This type of information is characterized by the accounting information system as one of the main sources of business information. For the subject of this work, we will take the modern way of agroproduction and creation of excess value, which in recent times, especially after the global economic crisis, is gaining increasing significance in both economic theory and economic reality.

Introduction

Today, as the world becomes an economic global village, and national economies powerless to counter the growing expansion of the world's most developed countries, the market way of creating value seeks new sources of information for the decisions of producers, including those with the slowest capital turnover - agrocontractors.

The development of small commodity production and the effect of value laws leads to a differentiation between small commodity producers. Namely, the law of values, as the most general law of any commodity production, acts by objectively

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differentiating agrocontractors to those who fare better in a competitive fight. In contrast, agrocontractors whose costs are necessarily economically declining as independent commodity producers. Thus, within the small commodity production there are substantial differences between economic power and the ability of individual commodity producers, one begins to get rich, while on the other side we have poverty (Milojevic, 2017). This process of polarization and differentiation of commodity agrocontractors is intensified by the development of production, and is particularly pronounced in transition countries.

Appropriating surplus products during the development of economic relations takes different forms, but basically this is the use of work, whether it is the excess work taken over the tower (work), in finished products (natura) or in the later stages of developing a society in money (Urlic, 2014). Hence the various names for forms of excess work alienation such as working rent, natural rent and monetary rent.

Countries in transition, as well as those underdeveloped countries, are characterized by the disintegration of large commodity agroproduction and follows the development of craftsmanship and small commodity agriculture, as well as the initial accumulation of capital, where social property is converted into private (Tomasevic et al., 2019).

The expansion of the market as a global village demands a fresh technology of agricultural production that can respond to the increasing market demand and also as a different legal and economic position to the basic mass of the working population. It demands the abolition of any worker bond for employers, which basically clashes with capitalist order (Jablan, 2019). The demands and use of the workforce and inactive population by the state and employers accelerate the struggles for their rights to work and wages and a more humane way of looking at the workforce than the general observation in the form of goods.

In these conditions, agro-production accounting information is aimed at creating additional value for shareholders and successfully achieving the goals set.

The subject of this work is the possibility of applying accounting information in the decision-making of business decisions of agribusinesses (Malinic, 2021). The aim is to use adequate quantitative accounting information properly to make optimal decisions by agribusiness management.

Production and creation of values as a prerequisite for making strategic decisions

In the process of agroproduction, in addition to the process of value creation, the process of creating excess value, i.e. the process of fertilization values. The value of each commodity determines the ratio of the market price and the cost to its production, the value of the products is the result of amount of value set in it. Certain means of operation and raw materials are required for each production, which means that the value of these production assets goes into the value of the goods produced by these

assets (Urlic, 2014). When we talk about the production of some goods, the processes of work for the production of raw materials and means of work are time-separate, so we can take these previously done and determined works as parts of the work needed to produce value.

Here, different concrete works used to produce labor or raw materials involved in the production of a new product, we reduce them to abstract work, because we consider them parts or phases of the same process — the consumption of human energy in the most general sense (Savic, 2020).

In addition to procurement of production assets, a workforce is needed to drive these means of production. The genesis of this two gives the value of the product as a result (Gulin et al., 2011). However, the value of the new product needs to be greater than value of the work that is already included in the production assets plus value which is spent on production the life supplies needed for the workforce (Mirovic, 2018).

The spending of the workforce in the manufacturing process means adding to the already devoted work in the production assets that go into the value of the new product, the amount of work that is greater than the amount of work required to produce the life supplies that go into the value of the workforce (Horngren et al., 2012).

Application of integral in the processing of accounting information

Quantitative methods occupy a high position in economic analyses (Paul, 2015). In the course of this work, we will apply integration and differentiation methods to accounting data to confirm the assumption that using accounting information can create a platform for the bottom lines of strategic decisions in agribusinesses.

When two inverse operations are performed consecutively over a size, for example, over a variable, x then their action is reversed and the size remains unchanged, that is, the size of the operations (Damnjanovic, 2018).

$\int dx = x + C$, C - integration constant.

The reason another arbitrary constant appears is easy to understand. x As a matter of fact, $dx = d\left(x + C\right)$ is $\int dx = \int d\left(x + C\right) = x + C$. Otherwise, this constant is vague and is also referred to as an indefinite integral.

This inverse differentiation operation can also be understood as follows. Under sign $\int$ is a differential, that is, a differential. product of the function statement and third variable differential.

Modern analyses of economic problems are often used in ways of differences and differential equations (James, 2015). The first ones come in discreet and the second in continuous *dynamic* models. The model being considered up frontis

a static model of the market. Such a model does not provide opportunities to include the development of some economic situation in time.It can, however, be dynamite to include time explicitly (Stanojevic, 2016).

An example of a simple differential equation provides discounted caps. If the value of capital is at the end of the year of capitalization C_x C_0 x and the annual decursive interest, then p

$$C_{x+1} = C_x + \frac{p}{100} C_x, \text{ or}$$

$$C_{x+1} - C_x = \frac{p}{100} C_x .$$

which can be written as follows:

$$\Delta C_x = \frac{p}{100} C_x \quad (1)$$

i.e. as a simple equation, an equation of difference (Ilic, 2019). This name comes from there, which in this equation stands a function and one of its (final) differences C_x $\Delta C_x = C_{x+1} - C_x$. It'scapital, it's C_x a function of capitalization time. Unoften $C(x)$ it'swritten C_x, since the time (i.e. independent variable) in the symbolism of financial mathematics usually occupies the place of the index.

And how does it depend C_x from x*?* In other words, what is the shape of this function? The answer to that question is familiar and is in every textbook of financial mathematics.The function looks like this:

$$C_x = C_0 \left(1 + \frac{p}{100}\right)^x .$$

It's the solution to the upper differential equation (Benaissa, 2021). We can easily make sure that this exponential function really satisfies the equation (1).

$$\Delta C_x = C_{x+1} - C_x = C_0 \left(1 + \frac{p}{100}\right)^{x+1} - C_0 \left(1 + \frac{p}{100}\right)^x =$$

$$= C_0 \left(1 + \frac{p}{100}\right)^x \left(1 + \frac{p}{100} - 1\right) = \frac{p}{100} C_0 \left(1 + \frac{p}{100}\right)^x = \frac{p}{100} C_x .$$

If interest rates match the principal at the end of each semester, then

$$C_{x+\frac{1}{2}} = C_x + \frac{1}{2} \cdot \frac{p}{100} C_x ,$$

where it is now $x = 0, \frac{1}{2}, 1, \frac{3}{2}, \ldots$

Not at all if it's capitalization time m - part of the year, we have

$$C_{x+\frac{1}{m}} = C_x + \frac{1}{m} \cdot \frac{p}{100} C_x ,$$

where is $x = 0, \frac{1}{m}, \frac{1}{m}, \ldots$. That's where it's coming

$$C_{x+\frac{1}{m}} - C_x = \frac{1}{m} \cdot \frac{p}{100} C_x , \text{ or}$$

$$\frac{C_{x+\frac{1}{m}} - C_x}{\frac{1}{m}} = \frac{p}{100} C_x ,$$

This can be written further as follows:

$$\frac{C_{x+\Delta x} - C_x}{\Delta x} = \frac{p}{100} C_x ,$$

if $\frac{1}{m}$ replace with Δx. As m greater, i.e., the more times in one year the interest rates are matched to the principal, that is $\frac{1}{m} = \Delta x$ less, or symbolically $m \to \infty$ pulls $\Delta x \to 0$. That's when

$$\lim_{\Delta x \to 0} \frac{C_{x+\Delta x} - C_x}{\Delta x} = \lim_{\Delta x \to 0} \frac{p}{100} C_x ,$$

and that is further equal:

$$\frac{dC_x}{dx} = \frac{p}{100} C_x . \qquad (2)$$

What we have received is *a differential equation* of continued capital growth, while (1) the equation is a differentiation of discreet or discounted capital growth. In this

case, capital grows continuously, continuously, while in the other case that the process takes place in jumps at the end of each subperiod Δx incisions.

Quantitative application of accounting information for strategic decision-making purposes

The application of quantitative methods on accounting data for agribusinesses will be shown on the rental mode, when the integral account is applied in the rental account, and when accounting information is available at the level of the agro-enterprise (Ilic, B., 2021). If we take that the surface of the soil R_1, R_2, R_3,…, R_n for which the rent on the end of the year (n-1) is calculated. From present value A rents are equal to

$$A = R_1 r^{-1} + R_2 r^{-2} + ... + R_n r^{-n} = \sum_{k=1}^{n} R_k r^{-k}$$

,

conditioned by demands that complex interest rates are the result of the decursive calculation and that the interest rate in this period is constant. If $R_k = const.$, $(k = 1,2,...,n)$, then

$$A = R\sum_{k=1}^{n} r^{-k} = R\frac{1}{r^n}\frac{r^n - 1}{r - 1} = R\, IV_p^n$$

.

Suppose rent doesn't come in discounted, jumped at the end of each year, but flows continuously throughout the year (Roković-Knežić, 2020). Let it be received every year for a penny. That's when it comes in approximately R $R\frac{1}{365}$ dinars per day, $R\frac{1}{365 \cdot 24}$ dinars per hour, etc., or $R \cdot \Delta t$ dinar at a small interval of time Δt.

If rent $R \cdot \Delta t$ due afterwards t years, starting today (when the $t = 0$), i.e. at interval t, $t + \Delta t$, then its present value, with continuous interest, is approximately equal to

$$R \cdot \Delta t\, e^{-\frac{pt}{100}}$$

.

What is the current value of rent at the entire interval of $t = 0$ do $t = x$ years.Apparently, it's roughly equal to the amount:

$$\sum_{\Delta t \in [0,x]} Re^{-\frac{pt}{100}} \cdot \Delta t$$

.

Label $\Delta t \in [0, x]$ indicates that summaries are summoned at intervals of time Δt from $t = 0$ to $t = x$.

If $\Delta t \to 0$, sum converges integral

$$\int_0^x R e^{-\frac{pt}{100}} dt$$

,

which represents *the exact* value of the considered rent at the time of $t = 0$.

In a special case, when the annual interest rate is p fixed, we have

$$\int_0^x R e^{-\frac{pt}{100}} dt = R\int_0^x e^{-\frac{pt}{100}} dt = R\left[-\frac{100}{p} e^{-\frac{pt}{100}} \right]_0^x = R\left(-\frac{100}{p} e^{-\frac{pt}{100}} + \frac{100}{p} \right)$$

.

Therefore, the present value of rent of dinar for the year, which flows A R continuously for years with continuous x $p = const.$, it's equal to

$$A = R \cdot \frac{100}{p}\left(1 - e^{-\frac{px}{100}} \right)$$

.

Obviously, A is a simple function of time x and interest rates p. It's easy to see that A depends on x. It's obvious that A is greater as the grows, i.e., that the present value of rent increases in function of the time interval.

$$\lim_{x\to\infty} A = R\frac{100}{p}$$

.

This result is interesting because it shows that *the present value of rent* in a continuous and discounted case is equal (Radovic, 2020). Therefore, the current or present value of the rent does not depend on how that rent flows or how interest is calculated (continuously or discounted).

It's easy to show that A declines when p grow (x is fixed), or symbolically:

$$\lim_{p\to\infty} A = 0$$

,

since it is

$$\lim_{p\to\infty} A = \lim_{p\to\infty} R\frac{100}{p} \cdot \lim_{p\to\infty}(1 - e^{-\frac{px}{100}}) = 0(1-0) = 0$$

.

Therefore, in the continuous and discounted case, the current value of rent is reduced when the interest rate rises (Ilic, 2019).

Is renting more affordable during the year continuously than at the end of the year in case of $R = 50000$ RSD for the year, $x = 28$ year and $p = 5$ annually.

That's when

$$A = 50000 \cdot \frac{100}{5}(1 - e^{-1,4}) = 1\,000\,000(1 - 0,246579) \approx 753\,403 \text{ Dinars,}$$

in case rent is continuously arriving on the assumption that it is done with complex continuous interest rates.

If the interest expence is discounted and decursive, and the rent is taken at the end of the year, we have

$$A = 50000 \cdot IV_5^{28} = 50000 \cdot 14,89812726 = \underline{744906} \text{ dinars,}$$

This is why the rent is better to receive during the year than at the end of the year.

Conclusion

In the modern way of agrarian production, where with the help of work means of the work, the economically viewed excess work as an economic occurrence arises after the satisfaction of the necessary work to create equivalent value.

The information revolution in the agroindustry begins with the introduction of modern information systems and technologies into the production process, which has increased labor productivity by several hundred times. The information revolution significantly changes the economic structure of individual countries, relations between individual branches of production, which affects the rapid development of the agroindustry in addition to the quarterly sector of the economy.

The impact of the information revolution is reflected primarily in the scope of the expansion of a highly educated workforce that increasingly depends on capital. By developing commodity production, excess products are sold on the market and take the form of value, namely, converted to excess value. Strategic business decision-making in these business conditions is primarily based on the application of accounting information processed by quantitative methods.

Accounting generate relevant, reliable and timely information that forms the basis for making business decisions for agribusinesses, taking into account the modern mathematical methods used to complete business decision-making grounds on a scientific basis.

We can conclude that in the global economy when the market is a product of micro markets, supply and demand globally meet at a higher level than in micro markets, thereby reducing their role in creating value drastically.

Conflict of interests

The authors declare no conflict of interest.

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