

OUTSOURCING AGRICULTURAL WORK - A VIABLE ALTERNATIVE FOR FARMERS?

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Abstract

Farmers are faced with a dilemma about the volume and structure of the work they have to do. Some of the work they have to do to obtain agricultural production or to market it may be handed over to other economic units (services from third parties). Farmers must decide which activities they will carry out through their own efforts and which will be transferred to other units. The field survey was carried out by questionnaire survey on a representative sample by economic size categories of 60 farms operating in the NE and SE development regions. These were identified 30 from each region and also 5 from each county. The 5 farms in each county were identified according to economic size (less than 100 thousand SO; 100 thousand SO - 250 thousand SO; 250 thousand SO - 500 thousand SO; 500 thousand SO - 750 thousand SO; greater than 750 thousand SO). The economic size structure of the sample was pre-determined within the research project aimed at determining costs in agriculture. Outsourcing of agricultural work proves unprofitable and unreliable for the sampled farms. This decision could result in an average loss of 19.2% and a decrease in safety of 26.4%. However, for farms with an economic size of less than 250,000 SO this approach can result in a profitability of up to 6.7% and an increase in the safety margin of up to 13.1%.

Key words: costs, agriculture, outsourcing, profit, viability, profitability

In the activity of agricultural holdings, within the same agricultural year or from one year to another, farmers are faced with a dilemma related to the volume and structure of the work they have to carry out (Ciaiana P. *et al.*, 2018). Some of the activities they have to carry out to obtain agricultural production or to market it may be handed over to other (third party) economic units such as: transport of inputs, marketing of agricultural products, processing, packaging, labelling, technical-economic design, etc.

Farmers have to decide which activities they will carry out through their own efforts and which will be transferred to other units (Brumă, I.S., Bohatereț, V.M., 2016; Bohatereț, V.M., Brumă, I.S., 2015; Medelete, DM., Panzaru, RL., 2015).

Outsourcing is the decision to transfer some of the economic unit's own activities to a third party against payment.

Due to the differences in returns and risks specific to the activities within the economic units, their managers decide to eliminate activities that are less profitable and safe and to focus their resources on activities that are performing well or have a clear potential to do so.

For example, a business unit promotes its products through its own efforts. At some point its manager may decide to ask a specialized firm for promotion services.

One of the fullest definitions of outsourcing can be "the transfer of one or more internal functions and other activities to an external supplier who provides a specific service for a fixed period of time at a predetermined price" (Heywood B.J., 2001).

The term outsourcing is most often used in relation to entrusting certain activities to an external supplier and covers several areas, including even the outsourcing of the manufacturing of certain goods. The process may involve transferring an important business function to the external environment (Melvor R., 2005).

In neoclassical theory, the value of production costs is determined by technology, subjective preferences and prices. The size and structure of production costs are institutionally "neutral". The costs and benefits of economic behavior are modelled not only as a result of the interaction of factors of production or the play of prices, but also as a result of the institutional structure of social interactions (Vyacheslav V.D.,

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2020). Recent research has confirmed that proper cash management enables firms to manage profitable opportunities, as external financing is associated with higher costs and also increases the probability of forgoing such opportunities (Kuldeep S., Madhvendra M., 2019).

Costs are one of the major determinants influencing business management. This is especially true for agricultural enterprises (Popescu A. *et al.*, 2016; Vavrek R., Adamisin P., 2012). A product's cost reduction effort cannot be determined independently of other production-related options, such as product mix, capacity and price, in the presence of product and production interdependencies (Kee R., Matherly M., 2013). This effort can be supported by results provided by applied scientific research (Shiferaw B. *et al.*, 2013; Zaharia C. *et al.*, 2010).

The aim of the research is to analyze the alternative of outsourcing agricultural work as a tool to increase the economic performance of farms.

MATERIAL AND METHOD

The field survey was carried out on a representative sample by economic size categories of 60 farms operating in the NE and SE development regions, distributed 30 from each region and also 5 from each county. The 5 farms in each county were identified according to economic size (less than 100 thousand SO; 100 thousand SO - 250 thousand SO; 250 thousand SO - 500 thousand SO; 500 thousand SO - 750 thousand SO; greater than 750 thousand SO). The economic size structure of the sample was pre-determined within the research project aimed at determining costs in agriculture.

The research steps presented in this article were: a. establishment and delimitation of the topic; b. formulation of the objectives; c. establishment of the instruments, auxiliary techniques; d. determination of the research area; e. pre-analysis; f. operational documentation; g. establishment of the structure of the research results; h. construction of the sample; i. drafting of the questionnaire; j. pre-testing and finalization of the questionnaire; k. administration of the questionnaire; l. validation of the questionnaire responses; m. data analysis, processing and interpretation.

Respondents were questioned about the agricultural works carried out in the agricultural year 2020 - 2021 so, information was requested about crops established in autumn 2020 and then those established in spring 2021. In February - March data were collected on autumn crops and in April data were collected on crops established in spring.

The collection method was a questionnaire administered by the researchers by asking questions about every aspect included in the questionnaire, from the category of crops to the

resources used. The researchers explained to the farmers what the requested data referred to and how the farmers could obtain the data. In many cases, farmers used personal records or those in computer applications such as farm management software (Da Silva, L.F., *et al.*, 2022).

Interactions between researchers and farmers took place directly at the farm premises, at the university premises in case some farmers had local trips, by phone or on video platforms such as Zoom, Microsoft Teams or Google Meet. All forms of interaction were mostly necessary because farmers' limited available time and the need to review the accuracy of some information require frequent and easy interactions. In some cases it was necessary to travel to the farmers' premises because they were not able to use the online tools or were not available by phone because they were busy with farming activities or agricultural support.

l. Validation of the questionnaire responses was carried out during the field research in terms of the type of data, values, units of measurement, reasonableness of the values, etc. The database obtained was the central tool needed to carry out the analysis of the data collected from the field (technical, economic and financial analysis). It enabled correlations and regressions to be made between factors and was the data source for the calculations.

The first steps in the data analysis were to determine labor costs and identify correlations with employee characteristics. The data collection for this research was carried out in field research on a representative sample of 60 farms in the NE and SE regions of Romania. The analysis was preceded by a documentation component on this topic.

The evaluation of the statistics given by the organization and simplification of the data allowed an objective estimation that showed that an analysis was correct or that a change had occurred (Franco A.D.D. *et al.*, 2014). Equally important was that the results of these statistical procedures were recorded and could be retrieved (Berg C., Boote S., 2017). It was necessary to research a large volume of available data and to correctly interpret its implications. But in order to sort out all this information, appropriate tools for statistical data analysis were needed (Pentti N., 2020). In order to numerically characterize the studied phenomena and processes, complex statistical methods were used and specific indicators were calculated (Hand D.J., 1996). The collected data were processed, centralized and systematized and presented in the form of distributions, series, tables and graphs (Zou D.J. *et al.*, 2019).

A first effect of outsourcing has been observed since the early phase of the research, because by giving up doing farm work on their own, farmers end up saving some expenses. As a result, diesel, wages, interest, depreciation, repairs, maintenance and insurance of machinery, taxes and duties become the main revenue of

outsourcing, turning into saved expenses that only increase the profitability of the farm.

These economic indicators have been determined in relation to the main agricultural crops which are the object of the farm's activity, namely: maize, sunflower, wheat, rapeseed, soya, number of machines per crop (total days per crop), depreciation per crop (lei/ha), repair expenses per day/per crop (lei/ha), interest on current loans (%), total depreciation, repair expenses per day, number of days per machine per crop (total days per farm), depreciation per day, total repair expenses, provided by the technology sheets.

RESULTS AND DISCUSSIONS

The main idea behind the reasoning was: The farmer gives up doing an activity to get some income or/and will reduce some costs. Questions prompted

by these expectations: (1.) Does outsourcing farm work lead to a change in income? Which? How much? How much? When? Where? (a) Which income will change due to the outsourcing of agricultural work? (b) Why will the identified revenues change? (c) How much will these revenues change? (d) How will these revenues change? (e) When will these revenues change? (f) Where will revenues change due to outsourcing of agricultural work? (2.) Does the outsourcing of agricultural work lead to a change in expenditure? Which expenditure? How much? How much? When? Where? (g) What income will change due to the outsourcing of agricultural work? (h) Why will the identified revenues change? (i) How much will these revenues change? (j) How will these revenues change? (k) When will these revenues change? (l) Where will revenues change due to outsourcing of agricultural work?

Table 1

Income and expenditure resulting from the decision to outsource agricultural work (lei/ha)

Crop	maize	sunflower	wheat	rapeseed	soybean
Surface	605.0	401.0	378.0	191.0	165.0
Outsourcing costs	1,004.2	1,229.2	1,324.2	1,084.2	1,079.2
Outsourced work rate (lei/ha)	930.0	1,155.0	1,250.0	1,010.0	1,005.0
Lost revenue	74.2	74.2	74.2	74.2	74.2
income from operating subsidies	64.2	64.2	64.2	64.2	64.2
income from financial fixed assets	10.0	10.0	10.0	10.0	10.0
Outsourcing income (Saved expenses)	875.4	938.0	963.8	914.8	901.4
diesel	462.8	530.4	520.0	504.4	494.0
salaries	61.0	53.0	81.0	59.0	52.0
interest	41.7	44.7	45.9	43.6	42.9
depreciation	225.4	225.5	230.5	224.0	227.3
repairs	57.2	57.2	58.5	56.8	57.7
maintenance	20.0	20.0	20.5	19.9	20.2
insurance	5.0	5.0	5.1	4.9	5.0
taxes and duties	2.3	2.3	2.3	2.2	2.3

The income lost was: income from operating subsidies (average value 64.2 lei/ha) and income from financial fixed assets (average value 10.0 lei/ha). These now constitute the costs of outsourcing along with the agricultural services tariff which had an average value of 1,144.2 lei/ha (Table 1).

As far as diesel consumption is concerned, the size of the change (lei/ha) is given by the average consumption/work. The reason for the change is that the farmer will only pay the service provider, reducing the input purchase costs.

For wages the size of the change is given by the sum of the products of the number of hours/work and the rate/hour. The motivation is that the farmer will reduce his expenses by not having to pay the mechanizers wages.

For interest, the size of the change is given by the sum of the products of the value of the

machinery and the related interest and the motivation is given by the fact that the farmer will reduce his expenses and will not have to borrow money to buy machinery.

As far as machinery depreciation is concerned, the size of the change is given by the product of the ratio of the sum of the input values of the machinery to the total number of operating hours and the number of hours/work and is motivated by the fact that the farmer will reduce his expenditure because depreciation is no longer taken into account if he does not own agricultural machinery.

Machinery repairs suggest a size of change given by the ratio of repair expenditure to agricultural area. The reason for the change is that the farmer will not have to incur repair costs because he does not have agricultural machinery.

For the maintenance of machinery the size of the change is given by the ratio of maintenance

expenditure to agricultural area. The reason for the change is that the farmer will not have to incur maintenance costs as he does not have agricultural machinery. The same reasoning applies to insurance costs and taxes on farm machinery.

Thus, the expenses saved were diesel for agricultural work (average of 502.3 lei/ha), mechanics' salaries (average of 61.2 lei/ha), interest on loans for financing crops (average of 43.7 lei/ha),

depreciation of machinery that would have been used for the work (average of 226.6 lei/ha), repairs to these machines (average of 57.5 lei/ha), maintenance of these machines (average of 20.1 lei/ha), insurance of these machines (average of 5.0 lei/ha), and fees and taxes incurred in owning the machines (average of 2.3 lei/ha). These expenses become income from outsourcing (Table 1).

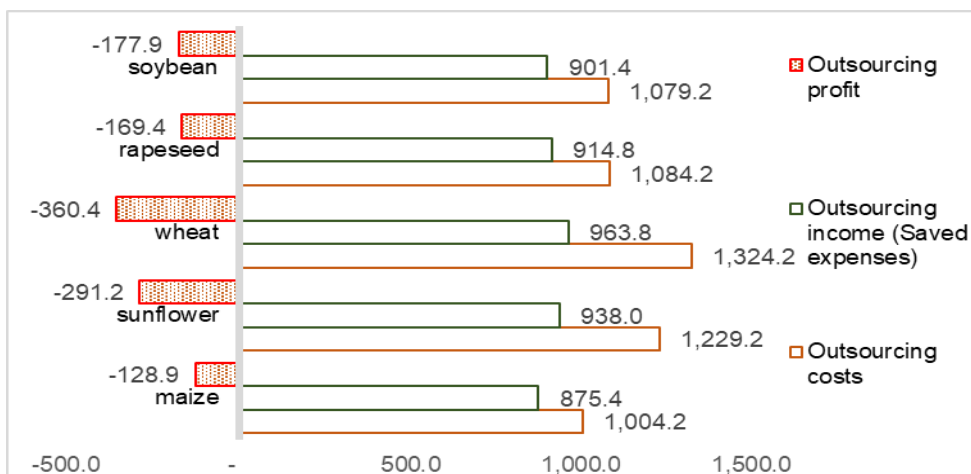


Figure 1. Main economic indicators

Outsourcing of agricultural works recorded an average loss of 225.6 lei/ha with a minimum for maize cultivation at a level of 128.9 lei/ha and a maximum of 360.4 lei/ha for wheat cultivation. (Figure 1). These results show that, for an average level of farm capitalization, carrying out

agricultural work on own account is appropriate. Probably with the development of the market for agricultural services, this situation will change as a result of increased competition and probably higher prices for these services.

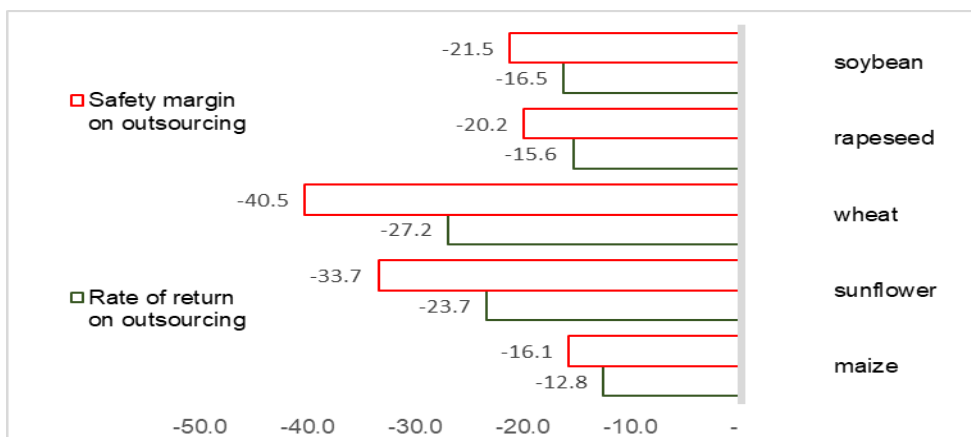


Figure 2. Rate of return and safety margin by crop (%)

The rate of return on the decision to outsource agricultural work recorded an average value of -19.2% with maximum values for maize cultivation at -12.8% and minimum values of -27.2% for wheat cultivation. These values show that for a farm with the average size and characteristics of the sample, the outsourcing of agricultural works is

unprofitable. Obviously, it brings losses. This decision does not seem to be safe either as the safety margin recorded an average value of -26.4% with maximum values also for maize crop at a level of -16.1% and minimum values of -40.5% for wheat crop (figure 2).

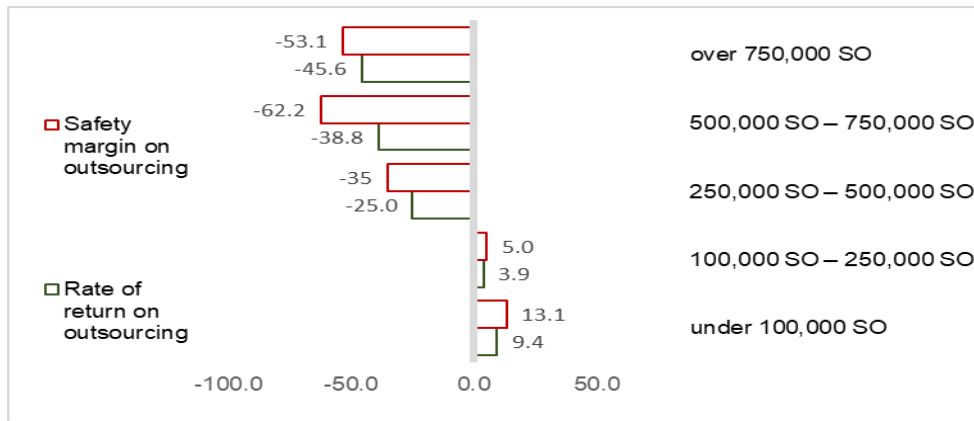


Figure 3. Rate of return and safety margin by economic size ranges (%)

The analysis of the rate of return of the decision to outsource farm work by farm size categories showed a favorable average value of 6.7% in the size categories below 100,000 SO and 100,000 SO - 250,000 SO but negative values in the other categories, with the lowest level in farms over 750,000 SO with a value of -45.6%. The safety margin recorded a minimum value of 62.2% in the size category 500,000 SO - 750,000 SO and a maximum of 13.1% in the size category below 100,000 SO (Figure 3).

These values indicate the appropriateness of outsourcing agricultural work to farms smaller than 250,000 SO. The others have working capital and probably organize the use of this capital more efficiently.

The limitations of these results are that they are relevant for the economic size categories analyzed. Future research, calibrated to the scale of such an approach, could carry out representative research for all economic size categories to provide a clear picture of the efficiency and appropriateness of the use of services for agriculture.

CONCLUSIONS

Outsourcing farm work is proving unprofitable and unreliable for the sampled farms. This decision could result in an average loss of 19.2% and a decrease in safety of 26.4%. However, for farms with an economic size of less than 250,000 SO this approach can result in a profitability of up to 6.7% and an increase in the safety margin of up to 13.1%.

For an average level of farm capitalization, carrying out own-account farm work is more favorable. It is likely that as the market for agricultural services develops, this situation will change as a result of increased competition and probably higher prices for these services.

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