

Chetroiu, Rodica; Iurchevici, Lidia

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# THE IMPACT OF ENERGY CRISIS ON THE MEAT PRODUCTION PROFITABILITY

CHETROIU RODICA, IURCHEVICI LIDIA

THE RESEARCH INSTITUTE FOR AGRICULTURE ECONOMY AND RURAL DEVELOPMENT

Corresponding author e-mail: rodica.chetroiu@iceadr.ro

**Abstract:** *The purpose of this paper is to evaluate the impact that energy crisis which has debuted in 2022, had on the level of beef, pork and poultry meat production profitability. The methods used in the study are comparative analyzes of the evolution of some technical-economic and profitability indicators, calculated for the years 2018 and 2022. The research results show that indicators such as variable expenses, energy and fuel expenses, fixed expenses, production cost, the different income rates, etc., recorded higher values in 2022 compared to 2018, in some of them even by more than 50%, and the economic results obtained by farmers went from profit to loss. In conclusion, the impact of the energy crisis in the period under study was a negative one, demanding for carrying out the activity flows, affecting the entire meat production sector.*

**Keywords:** *impact, meat, energy crisis, profitability*

**JEL Classification:** Q12, Q13

## INTRODUCTION

The economy of the European Union countries, in the post-pandemic period, was affected by a new crisis, the energy one, in the context of the Russian-Ukrainian conflict: record energy prices, high inflation rates, supply shortages, rising debt levels, rising costs of production, all of which negatively influencing production activities and diminishing the purchasing power of consumers ([https://ec.europa.eu/commission/presscorner/detail/ro/ip\\_22\\_7072](https://ec.europa.eu/commission/presscorner/detail/ro/ip_22_7072)). This crisis has shown its consequences in all economic fields, both in large companies and at the level of small and medium-sized economic agents, in livestock farms, processors, or consumers. In this context, ways are being sought to address rising inflation and energy prices (Siksnyte-Butkiene, I., 2022).

Energy markets are volatile, so there is a need for measures and programs to support consumers when prices are high. Likewise, the diversification of energy sources, such as renewable ones, can be a viable alternative for mitigating the vulnerability of activities (Gilbert, A. L. E. X., Bazilian, M. D., & Gross, S., 2021). The main challenges are determined by ensuring the availability of energy to the various fields of activity and consumers at a price level that affects production cycles and the competitiveness of productions (Smal, T., & Wieprow, J., 2023).

In this context, meat production is also found, with a series of increases in different categories of expenses to ensure inputs. Both cattle, pig and poultry breeders encountered problems in this period of energy crisis regarding the maintenance of production cycles against the background of increased prices for all categories of inputs.

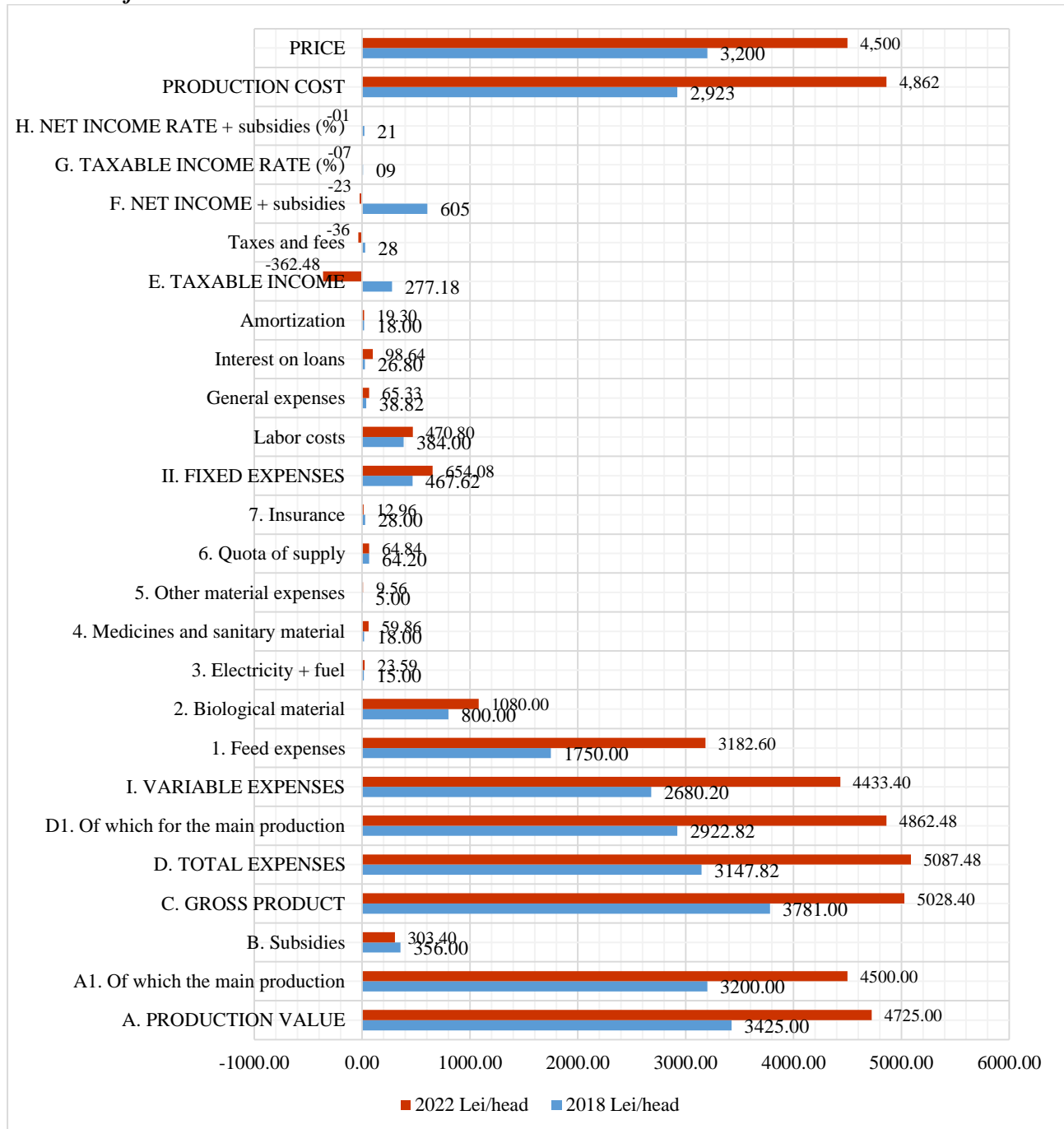
## MATERIAL AND METHOD

Within this paper, a series of technical-economic and profitability indicators were calculated for beef, pork and poultry products, for the years 2018 and 2022, respectively (before and after the pandemic crisis, respectively): variable expenses (feed, biological material, energy and fuels, medicines, other material expenses), fixed expenses (labor, general expenses, depreciation, etc.),

production cost, different rates of income, etc., achieving a comparative analysis of them, in the time period under study.

## RESULTS AND DISCUSSIONS

### Beef



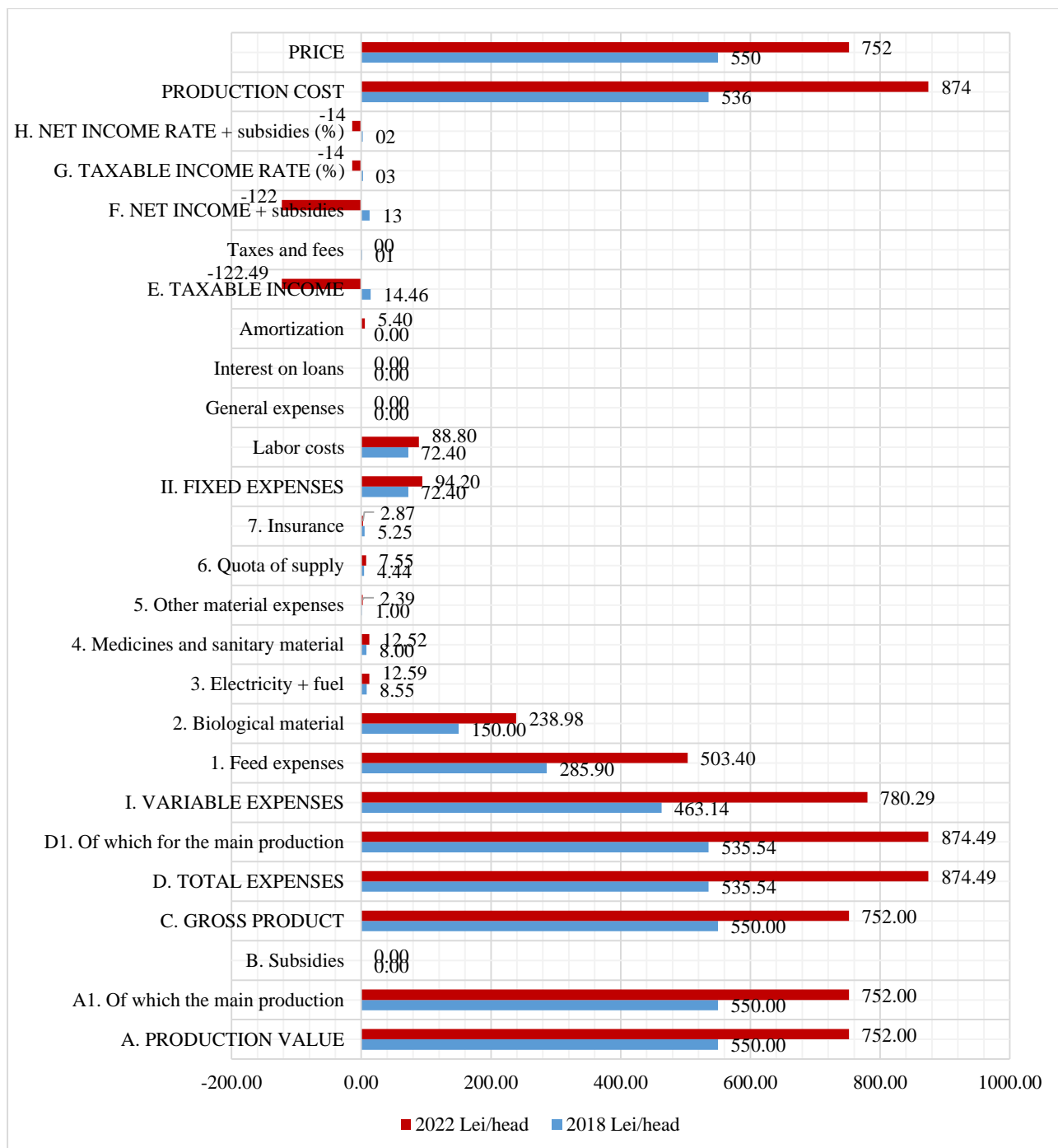
**Figure 1. Technical economic and profitability indicators for beef**

Source: Own calculations

In Figure 1, the main technical-economic and profitability indicators at the farm gate are presented, for the beef product, comparing the year 2022 to 2018. If the energy expenses experienced a 31% increase, the total expenses were higher by over 61%, this because other expenditure categories had increases of over 80%. Thus, the cost of feed was 82% higher in 2022 compared to 2018, other material expenses by 91%, and the biggest increases were those with medicines and loan interest

(more than 2.3 times). In total, the production cost at the farm gate was higher by 66%, but the price by only 41%, the result being the transition from profit to loss: from 20.7% to -1.2%.

### Pork



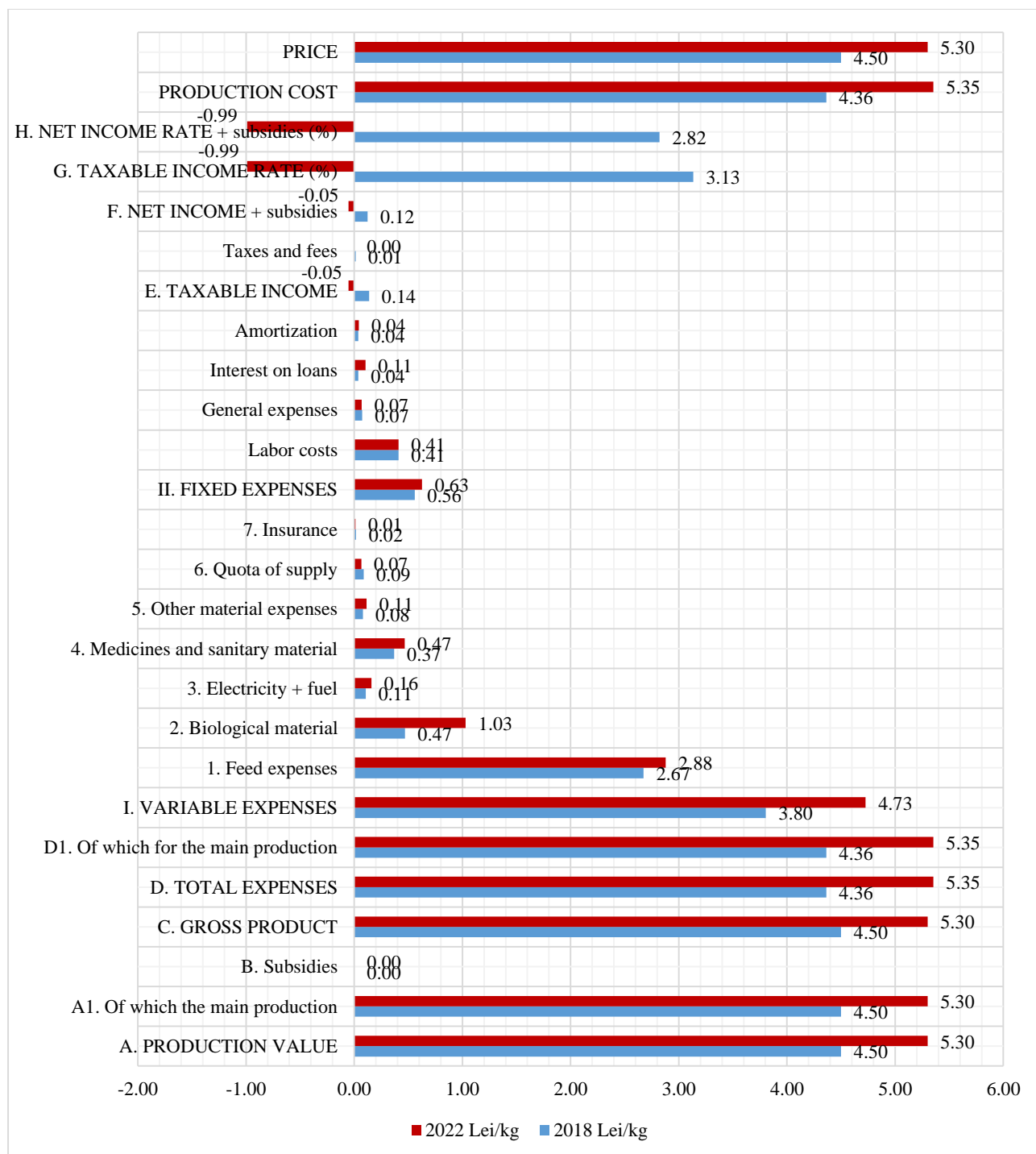
**Figure 2. Technical-economic and profitability indicators for pork**

Source: Own calculations

Figure 2 illustrates the technical-economic indicators at the farm gate for the pork product, compared for the years 2022 and 2018. Thus, energy expenses increased by 47.3% in the analyzed interval, and total expenses by 63.3%. Referring to the expenditure category that occupies the largest share in the cost of the product, feed, they were 76% more expensive in 2022 compared to 2018. Biological material, respectively piglets introduced for fattening, were also more expensive by 59.3%.

The farm gate price of fattened pigs increased by 36.7% and the net income rate decreased from 2.4% to -14%, with farms recording an economic loss.

### Poultry



**Figure 3. Technical-economic and profitability indicators for poultry**

Source: Own calculations

In Figure 3, technical-economic indicators for the poultry product indicate that energy and fuel expenses increased by 45.5%, feed expenses by 7.9%, but the significant increase was that of biological material, which became more expensive by 119% in 2022, compared to 2018.

Total cost increased by 22.7% and the price by 17.8%, so the net income rate went negative, from 2.82% to -0.99%.

Therefore, meat production was significantly affected during the energy crisis, as shown in Table 1:

**Table 1. Profitability of meat production at the producer, before and after the energy crisis**

Specification	Years	Production cost, lei/kg life weight	Producer price, lei/kg life weight	Net income rate, %
Beef	2018	6.50	7.11	20.7
	<b>2022</b>	<b>10.81</b>	<b>10.00</b>	<b>-0.5</b>
	<b>2022/2018</b>	<i>1.66</i>	<i>1.41</i>	<i>-21.2</i>
Pork	2018	5.36	5.50	2.4
	<b>2022</b>	<b>8.74</b>	<b>7.52</b>	<b>-14.0</b>
	<b>2022/2018</b>	<i>1.63</i>	<i>1.37</i>	<i>-16.4</i>
Poultry	2018	4.36	4.50	2.82
	<b>2022</b>	<b>5.35</b>	<b>5.30</b>	<b>-0.99</b>
	<b>2022/2018</b>	<i>1.23</i>	<i>1.18</i>	<i>-3.81</i>

Source: Own calculations

On beef farms, energy and fuel expenses influence all other expenses; along with other categories such as feed, biological material, labor, other costs, their supply at affordable prices is essential for running production cycles (Xu, J., Akhtar, M., Haris, M., Muhammad, S., Abban, O. J., & Taghizadeh-Hesary, F., 2022).

With the outbreak of the Russian-Ukrainian conflict, global economic conditions suddenly changed in early 2022 and production activities were put under pressure, especially due to rising energy prices (Hutter, C., & Weber, E., 2022). Various factors have contributed to the increase in the price of energy - low stocks of natural gas available to European countries, affected transportation, generators and plants with reduced activity (Ozili, P. K., & Ozen, E., 2021). That is why it is necessary to evaluate the costs and risks of agricultural production in this context, so that the world food situation does not suffer more (Pimentel, D. et. al, 1973).

The big challenges of the decades, such as energy or climate, require decision-makers to interact without taking into account borders and spheres of influence and take into account the complexity of socio-economic challenges (Coyle, E. D., & Simmons, R. A., 2014).

## CONCLUSIONS

The energy crisis that followed the pandemic period, against the background of the conflict near our country, affected all economic sectors, including the production of beef, pork and poultry. The technical-economic indicators show the fact that, from a certain level of profitability, economic losses have been reached in production farms. Producers were anyway affected by the consequences of the crisis generated by the COVID-19 pandemic, with all its syncope and disturbances of a social and economic nature. In any case, the pressure is very high on the livestock sector in general, and the general trend is downward, both in terms of livestock and production. The succession of crises of any nature is a critical factor for economic activities, but as long as there are constructive wills for recovery, the course of events can be rebalanced.

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