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The Impact of the COVID-19 Pandemic on the Production and Price of Poultry Products in Romania

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ABSTRACT

Poultry products (eggs and meat) are some of the basic agri-food products globally, being part of over 85% of the population's diet. This study follows the evolution of the logistics of poultry products, generated by the imposition of the state of emergency and home isolation. Based on Romanian National Institute of Statistics data, it can be established how production fluctuated in the years 2020-2023, compared to the pre-pandemic period, as well as how the prices of eggs and chicken meat have changed in the same period. The correlation between these two parameters leads to interesting conclusions regarding the impact generated by the Covid-19 pandemic on consumer preferences. Part of the increase in the number of birds since 2021 is due to the migration trend of the population from urban to rural areas, where many people decide to produce part of their own food. It can be concluded that any major disruption will lead to imbalances related to production and price levels, but these will be regulated in a short period of time, through measures taken at a general level (state support) or individually.

1. Introduction

The pandemic period caused by the SARS-CoV2 virus, known globally as Covid-19, has been a period of great challenges in all areas of activity and, most important, for every individual. Regarding food, the entire population has asked itself questions about how supplies will be provided, amid home isolation. While bread could be made at home, other basic products had to be purchased from stores, especially for urban residents. These include poultry products, the most sought-after of which were eggs, this miracle food that provides the nutrients needed for an entire day. Chicken meat was also in great demand, as people froze significant quantities to have the necessary reserves for a longer period, leading to markets with fluctuating demand. In general, as restaurants have ceased operations and events have not been organized, demand for agri-food products has decreased drastically, generating generalized price increases.

2. Literature review

Globally, the pandemic has put supply chains under severe strain (Malone et al., 2021) and even more so international trade (Montari et al., 2021). The most affected were, as expected, developing countries, which depend on imported products (Attia et al., 2022). Another aspect that must be considered is

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related to the costs involved in sanitary safety measures throughout the production chain, which have not been negligible (Hafez et al., 2021; Jan et al., 2023; Rahimi et al., 2022).

It was an unprecedented situation, which many did not know how to manage, whether they were in the position of consumers or producers. That is why authors from all corners of the world began to write about issues related to food safety and security since the first months of the pandemic. According to the analysis carried out by Chapot et al. (2021), between January 1 and April 24, 2020, 1858 English-language sources were identified that had poultry products as a theme. The emphasis was placed on the fact that, in such a situation, the food sector must be prioritized immediately after health, to avoid the triggering of a food crisis and the economic impact generated (Aday & Aday, 2020).

Fang et al. (2021) mention that the hardest months for poultry products were the months of lockdown. In Myanmar, in June 2020, the number of birds and eggs had already decreased significantly, amid the sudden increase in costs involved in all technological stages. A similar situation is also found in Bangladesh, where an analysis of price fluctuations is also carried out, according to which at the beginning of April 2020 poultry products become cheaper by an average of 11%, only to suddenly increase by 40% for meat and 30% for eggs in May 2020, a trend that was maintained in the following months (Al Sattar et al., 2021; Amin et al., 2023).

Similar situations were also experienced in Brazil, Nigeria and Indonesia, with large price fluctuations, mainly generated by the doubling of processing costs, which led to an overall decrease of almost 20% in productivity and over 32% in profitability (Belarmino et al., 2023; Oluwasola et al., 2022; Setiadi et al., 2022; Suganda et al., 2024) and with supply chain disruptions (Sembada et al., 2021).

As for Romania, egg consumption increased by about 10% in 2020, compared to 2019 (Giuca & Necula, 2021) and, although imports exceed exports, Munteanu (2020) states that our country can fully meet its egg needs and 88% of its chicken meat needs. A new element that may explain the increase in national production in the post-pandemic period is the relocation of part of the population to rural or pre-urban areas, where they can produce certain foods for their own consumption (Incaltarau et al., 2024), as has happened in many other countries.

3. Material and methods

The aim of this paper is to carry out an objective analysis of the poultry sector in Romania in the post-pandemic years, to identify the changes that have occurred in terms of production and prices.

To carry out this study, emphasis was placed on evaluating the specialized literature, in order to be up to date with the current state of knowledge and to be able to make correlations between Romania and other countries in the world. To collect information related to production and prices, the database of the National Institute of Statistics was used. The period 2019-2023 was analyzed, and the year 2010 was taken as a control. All data were presented in tables, and then used to create graphs, to which the function and correlation ratio were added.

4. Results and discussions

Analyzing the data provided by the INS, we find that when we compare the values of the years 2019-2023 with those of the year 2010 (chosen as a control), we find that meat production increases by over

50%, while the number of eggs is about 10% lower (Table 1). In the case of eggs, the values increase in the post-pandemic period, starting with 2021, exceeding 2019 by about 10%. The dynamics are slightly different in the case of chicken meat, the production of which suffers a slight decrease in 2020 and 2021, before increasing sharply.

Table 1. Poultry meat and egg production in dynamics, in the years 2019-2023, with 2010 taken as a control year for the analysis

Poultry product	Measure-ment unit	Year					
		2010	2019	2020	2021	2022	2023
Poultry meat	Tons (live)	446,387	672,312	664,093	662,925	700,531	723,337
Eggs	Million pieces	6,199	5,564	5,446	5,937	6,005	5,869

Source: NIS (INS) –Tempo-online database, Animal agricultural production

The data in the table above are graphically represented in Figure 1, making the fluctuations in production much more visible. The graph is ensured by a high correlation ratio, which indicates a determination of 61.47%. The impact of the Covid-19 pandemic is not significant, in terms of chicken meat and egg production - compared to the pre-pandemic year 2019, the value decreases are 1.22% for meat and 2.12% for eggs.

What is interesting, in this case, is what happened in the following years, when the production of both agri-food products increased very significantly, even when taking the pre-pandemic year 2019 as a reference – +7.59% for meat and +5.48% for eggs in 2023. The increase, in this case, is due to individual farms, the consumers' own production, who thus no longer must buy from the market.

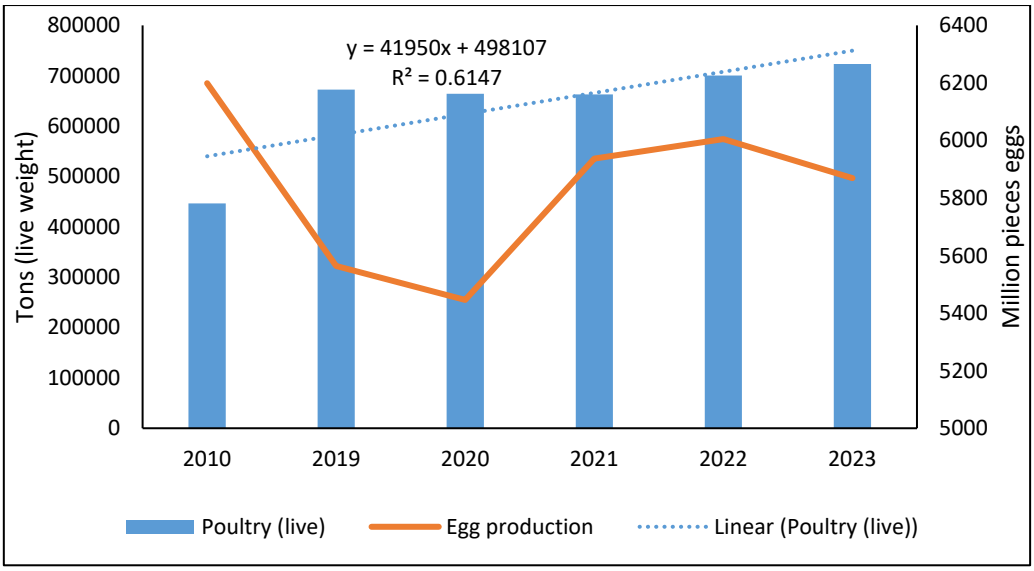

Figure 1. Production fluctuation for chicken meat and eggs in the years 2019-2023 and comparison with 2010

Source: original processing according to NIS (INS) data (n.d.-a)

Regarding prices, the same working method was used, the data related to this economic indicator being those in Table 2. For chicken meat, price stability is visible from 2010 to 2019, a slight increase in the early years of the pandemic (2020 and 2021), so that in 2022 and 2023 the price increases suddenly, a trend that is maintained from one year to the next. This significant price increase comes against the

backdrop of increased production, this aspect confirming that the plus is provided by animals raised in households for their own consumption.

Table 2. Poultry meat and egg production in dynamics, in the years 2019-2023, with 2010 taken as a control year for the analysis

Poultry product	Measure-ment unit	Year					
		2010	2019	2020	2021	2022	2023
Poultry meat	Lei/kg live	3.88	3.94	4.09	4.28	5.62	6.44
Eggs	Lei/piece	0.46	0.62	0.62	0.66	0.88	1.08

Source: NIS (INS) –Tempo-online database, Average prices of agricultural products (n.d.-a)

Similarly, in the case of eggs, price stability is observed in 2019-2021, followed by an explosion in 2022 and 2023, when life returns to normal, to the state before the pandemic. This time, another global event may be the cause of sudden price changes, namely the outbreak of the war in Ukraine, in February 2022.

To closely follow the events that generated the instability of poultry product prices, quarterly prices are presented in Figure 2. They highlight the fact that every year there were price increases around the holidays (Quarter II – Easter and Quarter IV – Christmas), but also that in 2020 and 2022 these trends were also found in Semester I (Covid-19 and the war in Ukraine, which destabilized the country's economy).

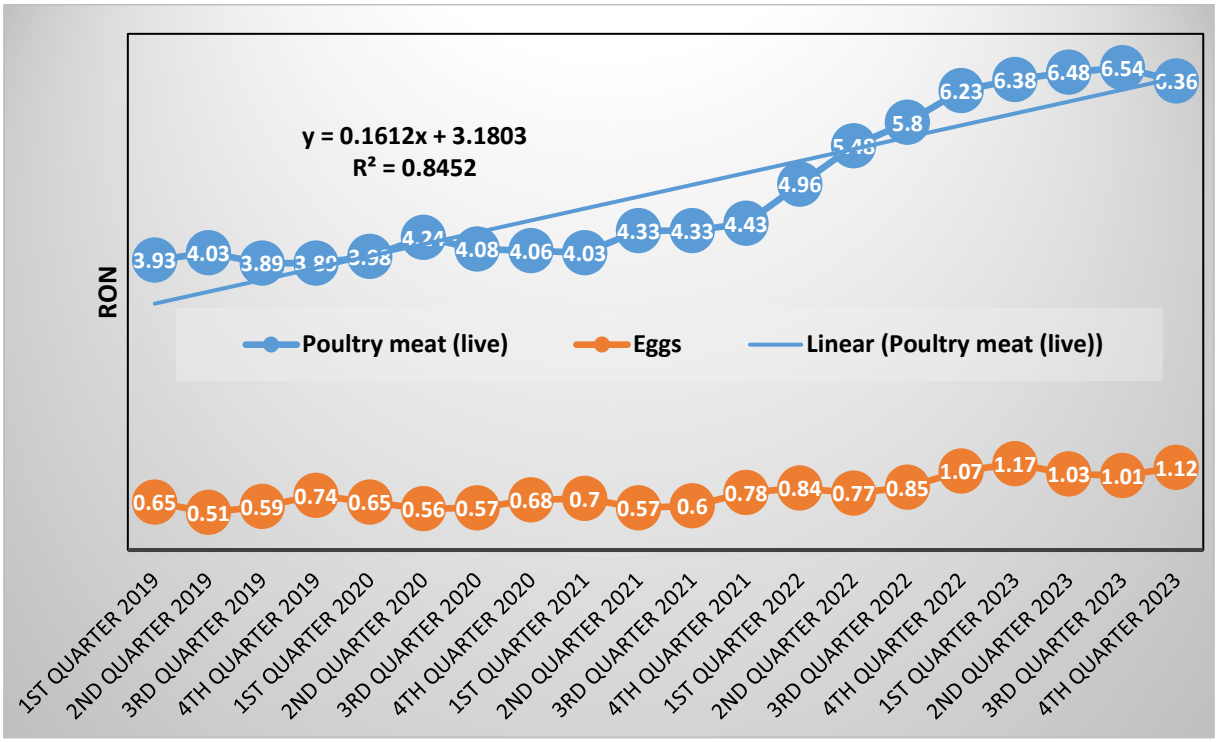

Figure 2. Quarterly fluctuation of chicken and egg prices in 2019-2023

Source: original processing according to NIS (INS) data (n.d.-b)

5. Conclusions

In recent years, there have been several global crises – economic, pandemic, energy, as well as wars in different parts of the world, which have destabilized the economies of several countries, including

Romania. This explains the large fluctuations in egg and chicken prices in the period 2020-2025, which can be extrapolated to all products and services.

It can be rightly said that many people have decided that they want to be able to provide themselves with the bare necessities, in other words, to improve their safety and quality of life. Among agri-food products, poultry products are the easiest to obtain in one's own household, with minimal effort and without requiring significant investments, and this aspect is reflected in national productions.

To fully understand the impact that the Covid-19 pandemic has had on the poultry sector, additional research is needed, which should also focus on the quality of poultry products from 2019-2024, to complete the picture of the evolution of this agri-food product segment.

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