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Trends in poultry in Romania for the period 2007-2019

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TRENDS IN POULTRY IN ROMANIA FOR THE PERIOD 2007-2019

AURELIAN BULIGA-ȘTEFĂNESCU¹, RALUCA-ALEXANDRA RĂDOI²

Abstract:

The study aimed to analyze the evolution of the poultry sector in Romania in the period 2007-2019. The main indicators studied in the poultry sector were: poultry, meat production, eggs production, consumption, producer prices, imports and exports. The research method was based on a quantitative approach, respectively on national and European data series. The results showed that the number of birds in Romania decreased at the level of individual holdings and increased at the level of holdings with legal personality. Overall, the decrease in numbers was 8.13% in 2019 compared to 2007. In the period 2007-2019, Romania's poultry meat production increased by 256.12 thousand tons (+61.54%). Romania's egg production decreased in the period 2007-2019 by 14.69%, from 6.5 billion pieces in 2007 to 5.56 billion lei in 2019.

Keywords: poultry, livestock, production, consumption, import, export

JEL classification: Q10, Q13, Q17, O13

INTRODUCTION

Agriculture is an essential factor in ensuring Romania's sovereignty and food security [9]. Poultry farming is one of the strongest agricultural sectors in Romania that has managed to rise to the level of Western countries in terms of technological and productive performance after joining the European Union [11]. The poultry sector, through the evolution registered in the analyzed period, is the most spectacular sector in Romanian animal husbandry [3]. In 2019, Romania ranked 8th in the European Union in poultry production [11]. Most industrial farms have developed vertically, from hatching to feeding, slaughtering, processing and selling meat [5]. Integration allows poultry farms to control production costs and increase profitability. The poultry market in Romania is facing overproduction, massive imports, but also negative media campaigns related to the use of banned hormones and proteins [10]. With regard to the poultry meat sector, there is price pressure due to imports [3].

MATERIAL AND WORKING METHOD

The study is based on data available from the National Institute of Statistics (INSSE), Eurostat and the International Trade Center (ITC) for the period 2007-2019. The following were used as statistical indicators for analysis and projection: mean, standard deviation, annual growth rate [2], and second degree trend equations and correlation coefficients (R and r) [6]. The economic indicators were calculated for the period 2007-2019, and for the subperiods 2007-2013 and 2014-2019. The deviation between the average of the indicators analyzed on the two subperiods was statistically evaluated using the t sample (significance depending on $GL = 11$ ($n_1 = 7$; $n_2 = 6$; $GL = n_1 + n_2 - 2$), and probability $\Rightarrow t_{cal} > t_{:} > 0.05$ *; > 0.01 **; > 0.001 ***; if $< 0.05^0$; $< 0.01^{00}$; $< 0.001^{000}$) [6]. The assessment scale was used to assess the correlation coefficient: 0.30-0.49: moderate association; 0.50-0.69: substantial association; over 0.7: very strong association [6].

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RESULTS AND DISCUSSIONS

According to INSSE data for the period 2007-2019 (Table 1) there is a decrease in the number of birds by 8.13% from 82.04 million heads in 2007 to 75.36 million heads in 2019. This decrease is the result of a decrease within individual holdings by 19.33% from 59.05 million heads in 2007 to 47.63 million heads in 2019 and the increase by 22.83% (+5.15 million heads) of the staff within the holdings with legal personality.

Table 1. Descriptive statistical analysis of the evolution of poultry number in Romania in the period 2007-2019

| Specification | Period 2007-2013 | | | | | | Period 2014-2019 | | | | | | Deviations | |
|---------------------------------------|------------------|------------|------------|------------|-----|----------|------------------|------------|------------|------------|------|----------|------------|-------|
| | 2007 | 2013 | Average 1 | St. Dev | CV | Rhythm 1 | 2014 | 2019 | Average 2 | St. Dev | CV | Rhythm 2 | M2-M1 | Sign. |
| | Mil. head. | Mil. head. | Mil. head. | Mil. head. | % | % | Mil. head. | Mil. head. | Mil. head. | Mil. head. | % | % | Mil. head. | |
| Total | 82.0 | 79.4 | 81.5 | 2.0 | 2.4 | -0.5 | 75.5 | 75.4 | 75.4 | 2.1 | 2.7 | -0.5 | -6.1 | 000 |
| Private sector of which: | 81.6 | 79.4 | 81.4 | 2.0 | 2.4 | -0.5 | 75.4 | 75.3 | 75.4 | 2.1 | 2.7 | -0.5 | -6.0 | 000 |
| Individual farms | 59.1 | 53.8 | 56.8 | 3.8 | 6.7 | -1.6 | 52.6 | 47.6 | 48.6 | 4.5 | 9.3 | -4.5 | -8.3 | 000 |
| Legal holdings with legal personality | 22.6 | 25.7 | 24.6 | 2.1 | 8.4 | 2.2 | 22.9 | 27.7 | 26.9 | 3.0 | 11.0 | 7.3 | 2.2 | * |

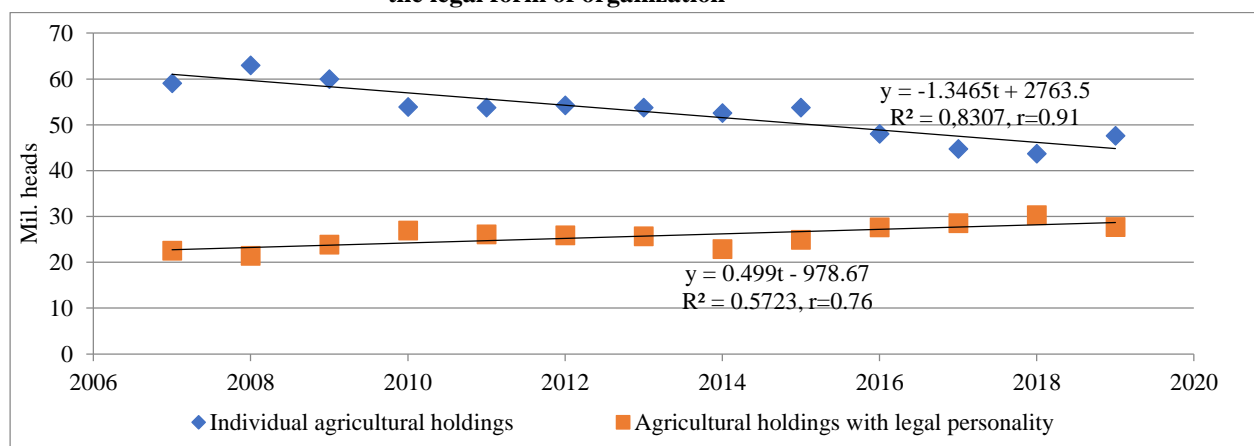
Source: Own calculation based on data provided by INSSE, TempoOnline,

Significance (GL = 11, tcal > t: > 0.05 *; > 0.01 **; > 0.001 ***; < 0.05^o; < 0.01^{oo}; < 0.001^{ooo}; < 0.05: N)

Despite this increase, it was not possible to compensate for -11.42 million heads from holdings without legal personality. In the subperiods we find that the decrease of 6.03 million heads in the private sector has a very significant negative statistical significance and the increase of 2.22 million heads in agricultural holdings with legal personality is statistically significant. In the period 2007-2013, in the holdings with legal personality, the rate was + 2.18%, while in the period 2014-2019 this indicator reached + 7.26%.

Analyzing the trend of the poultry number for the period 2007-2019 for individual agricultural holdings by the equation $Y_{exp i} = -1.3465t + 2,763.5$ ($r = 0.91$; very strong association) and the holdings with legal personality $Y_{exp j}$ equation = $0.499t - 976, 67$ ($r = 0.76$; very strong association), we find that these trends are statistically significant.

Figure 1. The equation of trend of the number of birds in Romania in the period 2007-2019 according to the legal form of organization



Source: Own design based on data provided by the National Institute of Statistics, TempoOnline,

From the extrapolation over 5 years, respectively in 2024, the individual agricultural holdings will have a number of birds of 37 million heads and the holdings with legal personality of 32 million heads, totaling a total number of 68.5 million heads. This number will be 4.2 million lesser than compared to 72.7 million in 2019 (Figure 1).

In the period 2007-2019, Romania's poultry meat production increased by 256.12 thousand tons (+ 61.54%). The difference between the averages of the two periods compared is very statistically significant (Table 2). Investments in the poultry sector led to a growth rate of poultry meat production in the period 2014-2019 of +6.48 (four times higher than in the period 2007-2013, when it was +1.56). In relative terms, poultry meat production increased by 9.72% in 2013 compared to 2007. A spectacular increase (of + 37.67%) was recorded between 2014 and 2019, from 488.36 thousand tons at 672.31 thousand tons. As it can be seen from Table 2 and observed in Figure 2, the increase in poultry production in Romania was based on holdings with legal personality.

Table 2. Descriptive statistical analysis of the evolution of poultry meat production in Romania during 2007-2019 (thousand tons live weight)

| Specification | Period 2007-2013 | | | | | | Period 2014-2019 | | | | | | deviations | |
|---------------------------------------|------------------|-------------|-------------|-------------|------|---------|------------------|-------------|-------------|-------------|------|---------|-------------|--------|
| | 2007 | 2013 | Average 1 | StDev | C V | Rhythm1 | 2014 | 2019 | Average 2 | StDev | C V | Rhythm2 | M2-M1 | Sig n. |
| | Thousands € | Thousands € | Thousands € | Thousands € | % | % | Thousands € | Thousands € | Thousands € | Thousands € | % | % | Thousands € | |
| Total | 416.2 | 456.6 | 452.4 | 30.1 | 6.6 | 1.5 | 488.4 | 672.3 | 558.9 | 49.4 | 8.8 | 6.4 | 106.6 | *** |
| Private sector of which: | 412 | 456.6 | 451.7 | 30.9 | 6.8 | 1.7 | 488.3 | 672.3 | 558.9 | 49.4 | 8.8 | 6.4 | 107.2 | *** |
| Individual farms | 131.5 | 118.1 | 132.6 | 16.2 | 12.2 | -1.7 | 122.5 | 144.8 | 108.5 | 9 | 8.3 | -2.6 | -24 | 000 |
| Legal holdings with legal personality | 280.5 | 338.4 | 319.1 | 37.4 | 11.7 | 3.1 | 365.8 | 527.4 | 450.4 | 54.7 | 12.1 | 9 | 131.2 | *** |

Source: Own calculation based on data provided by INSSE, TempoOnline,

Significance (GL = 11, tcal > t: > 0.05 *; > 0.01 **; > 0.001 ***; < 0.05⁰; < 0.01⁰⁰; < 0.001⁰⁰⁰; < 0.05: N)

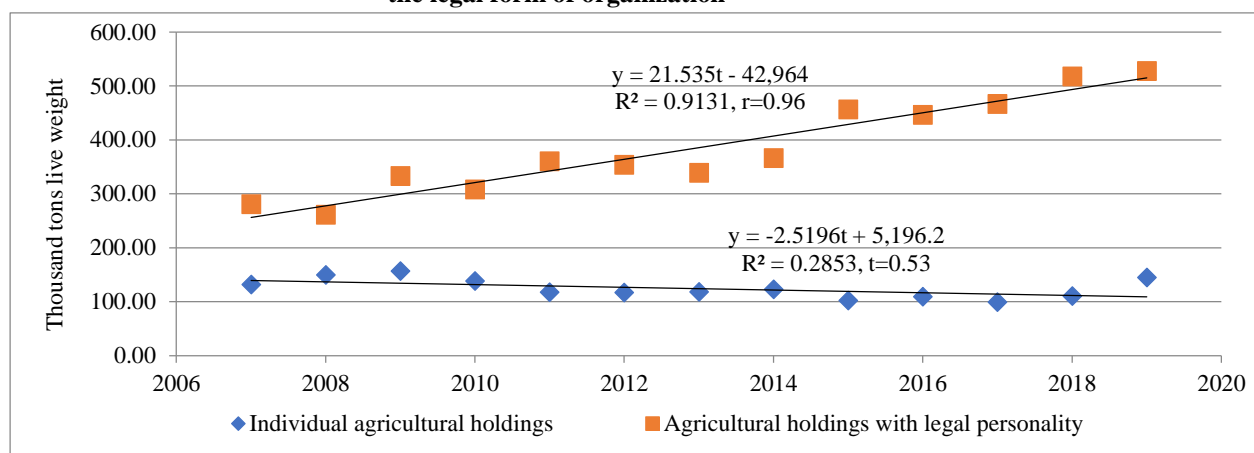
Poultry meat production has continuously increased as a result of demand which has evolved positively from one year to the next [3].

After processing the statistical data obtained from INSSE, we noticed that in terms of structure, in 2007, 67.40% of poultry meat production was obtained in industrial systems, and 31.59% in farms. In 2019, as a result of the industrial farms development, the share of production obtained in agricultural holdings with legal personality became 78.46% (527.47 thousand tons live weight) while individual agricultural holdings decreased to 21.54% (144.82 thousand tons live weight). Absolute figures in both forms of organization resulted in increases in production during the period under review.

Poultry meat production obtained in peasant households decreased in the period 2007-2013 by 10.16% from 131.49 thousand tons in 2007 to 118.13 thousand tons in 2013 and increased in the period 2014-2019 by 18.25 % from 122.47 thousand tons in 2014 to 144.82 thousand tons in 2019. Over the entire analyzed period 2007-2019, the production of poultry meat obtained from individual farms increased by 10.13%. The difference between the averages of the compared periods is -24.04 thousand tons, a very significant negative difference. Regarding the production of poultry meat obtained in agricultural holdings with legal personality we can see from the table that the rates of the two periods are positive, respectively +3.18 in 2007-2013 and +9.06 in 2014-2019. Throughout the

analyzed period, 2007-2019, there is an increase in meat production by 88.05% from 280.5 thousand tons in 2007 to 527.47 thousand tons in 2019.

Figure 2. The trend equation of poultry production in Romania in the period 2007-2019 depending on the legal form of organization



Source: Own design based on data provided by the National Institute of Statistics, TempoOnline

From the calculation of the trend equations of meat production for the period 2007-2019 (figure 2) it is found that the equation for agricultural holdings without legal personality is $Y_{expj} = 21.535t + 42,946$ ($r = 0.96$; very strong association) and holdings with legal personality equation $Y_{expj} = -2.5196t + 5,196.2$ ($r = 0.53$; substantial association), and extrapolation for 2024, results in a meat production of 738.1 thousand tons, compared to 643 thousand tons in 2019, respectively 87.3% in holdings with legal personality and 12.7% in holdings without legal personality.

It is estimated (according to the Department of Agriculture of the United States of America, 2020) that Romanian poultry meat production will increase by 2.15% in 2020, being stimulated by relatively low feed prices, consumer demand and a lower price than that of pork [13].

Table 3. Descriptive statistical analysis of the evolution of eggs production in Romania during 2007-2019

| Specification | Period 2007-2013 | | | | | | Period 2014-2019 | | | | | | Deviations | |
|---------------------------------------|------------------|------------|------------|------------|-------|----------|------------------|------------|------------|------------|------|----------|------------|-----|
| | 2007 | 2013 | Average 1 | StDev 1 | CV1 | Rhyt hm1 | 2014 | 2019 | Average 2 | StDev 2 | CV2 | Rhyt hm2 | M2-M1 | smf |
| | Mil. p cs. | Mil. p cs. | Mil. p cs. | Mil. p cs. | % | % | Mil. p cs. | Mil. p cs. | Mil. p cs. | Mil. p cs. | % | % | Mil. p cs. | |
| Total | 6522 | 6388 | 6391 | 173,8 | 2,72 | -0,35 | 6636 | 5564 | 6216,4 | 385,3 | 6,20 | -3,67 | -174,6 | N |
| Private sector of which: | 6505 | 6386 | 6387,9 | 171,9 | 2,69 | -0,31 | 6634 | 5562 | 6213,6 | 385,5 | 6,20 | -3,68 | -174,3 | N |
| Individual farms | 5307 | 4939 | 5211 | 220,9 | 4,24 | -1,19 | 4862 | 3813 | 4469,8 | 428 | 9,58 | -4,91 | -741,2 | 000 |
| Legal holdings with legal personality | 1198 | 1447 | 1176,9 | 171,6 | 14,58 | 3,20 | 1772 | 1749 | 1743,8 | 104,1 | 5,97 | -0,51 | 566,9 | *** |

Source: Own calculation based on data provided by INSSE, TempoOnline,

Significance (GL = 11, tcal>t:> 0.05 *;> 0.01 **;> 0.001 ***; <0.05⁰; <0.01⁰⁰; <0.001⁰⁰⁰; <0.05: N)

Romania's egg production decreased between 2007 and 2019 by 14.69%, from 6.5 billion pieces in 2007 to 5.56 billion lei in 2019. The number of eggs obtained from poultry raised on individual farms decreased by 28.15% while in the holdings with legal personality it increased by 46%. The difference between the two periods studied is very significant negative for individual holdings and very statistically significant in the case of holdings with legal personality. Table 3 shows that in the

period 2007-2013 the rhythm was positive (+3.2) while in the period 2014-2019 it became negative (-0.51).

In individual farms, the significant decrease in egg production was recorded in the period 2014-2019 when production decreased by 21.58% from 4.86 billion pieces in 2014 to 3.8 billion pieces in 2019.

Table 4. Descriptive statistical analysis of the evolution of poultry and eggs consumption in Romania in the period 2007-2018

| Specification | Period 2007-2013 | | | | | | Period 2014-2018 | | | | | | Deviations | |
|--------------------------|------------------|------|-----------|-------|--------|------------|------------------|------|-----------|-------|--------|------------|------------|-------|
| | 2007 | 2013 | Average 1 | StDev | CV (%) | Rhythm (%) | 2014 | 2018 | Average 2 | StDev | CV (%) | Rhythm (%) | M2-M1 | Sign. |
| Poultry meat (kg / year) | 20.7 | 17.5 | 19.2 | 1.9 | 10 | -2.8 | 20.1 | 26.9 | 23.8 | 2.5 | 10.5 | 7.56 | 4.53 | *** |
| Eggs (pcs / year) | 276 | 247 | 260 | 13.7 | 5.2 | -1.8 | 246 | 236 | 253 | 12.4 | 4.9 | -1.03 | -6.94 | N |

Source: Own calculation based on data provided by INSSE, TempoOnline,

Significance (GL = 11, tcal > t: > 0.05 *; > 0.01 **; > 0.001 ***; < 0.05%; < 0.01⁰⁰; < 0.001⁰⁰⁰; < 0.05: N)

The annual consumption of poultry meat per capita reached in 2018 a level of 26.9 kg, increasing by 6.8 kg compared to 2014 and by 6.2 kg compared to 2007. The annual consumption of eggs per capita reached in 2018 a level of 236 decreasing by 10 compared to 2014 and by 40 compared to 2007.

Between 2007-2013, consumption decreased due to the economic crisis of 2008-2009 but also due to wage cuts in 2010. In the period 2014-2018, the increase in poultry consumption was driven by the reduction of VAT on food to 9% in 2015 and increasing the income of the population.

The difference between the averages for the consumption of poultry meat is very statistically significant and for the consumption of eggs it is insignificant.

A study published in 2017 shows that the most important factor that influenced the consumption of poultry meat / capita in Romania is the price, which makes this category of meat accessible [4]. At the same time, poultry meat is a lean, healthy, high-protein meat with lower cholesterol than pork [5].

Consumer preference is currently for eggs produced on Romanian farms, because they are very fresh and have the best traceability of all agri-food products [1].

Table 5. Analysis of the price of poultry meat and eggs in 2019

| Week | Poultry meat | | | | Consumer eggs | | | |
|------|--------------------|--------------------|--------------------|-------|---------------|------------|--------------------|-------|
| | Romania | EU average | Differences | | Romania | EU average | Differences | |
| | 2019 | 2019 | | | 2019 | 2019 | | |
| | (lei / kg carcass) | (lei / kg carcass) | (lei / kg carcass) | % | (lei/egg) | (lei/egg) | (lei / kg carcass) | % |
| 1 | 6.65 | 8.66 | 2.01 | 130.2 | 0.33 | 0.39 | 0.06 | 118.2 |
| 13 | 6.83 | 8.7 | 1.87 | 127.4 | 0.3 | 0.37 | 0.07 | 123.3 |
| 14 | 6.92 | 7.83 | 0.91 | 113.2 | 0.29 | 0.37 | 0.08 | 127.6 |
| 15 | 6.93 | 8.84 | 1.91 | 127.6 | 0.28 | 0.37 | 0.09 | 132.1 |

Source: MADR, <https://www.madr.ro/comunicare/5219-punct-de-vedere.html>,

Compared to EU average prices, it can be found that those for poultry meat are 22% lower (Table 5). The farm gate price for eggs is also 24% lower than the European average [16].

Table 6. Analysis of Romanian poultry meat imports by country of origin in the period 2007-2019

| Specification | Period 2007-2013 | | | | | | Period 2014-2019 | | | | | | deviations | |
|----------------|------------------|--------|--------------|------------|-------|-------------|------------------|--------|--------------|------------|-------|-------------|------------|-------|
| | 2007 | 2013 | Average 1 | StDev 1 | CV 1 | Rhythm 1 | 2014 | 2019 | Average 2 | StDev 2 | CV 2 | Rhythm 2 | M2- M1 | Sign. |
| | Mil. € | Mil. € | Mil. € | Mil. € | % | % | Mil. € | Mil. € | Mil. € | Mil. € | % | % | Mil. € | |
| World | 146.3 | 122.4 | 132.7 | 16.5 | 12.4 | -2.9 | 146.5 | 177.8 | 161.2 | 15.5 | 9.6 | 4.0 | 28.5 | *** |
| Hungary | 9.4 | 50.4 | 27.0 | 15.8 | 58.6 | 32.3 | 47.3 | 50.7 | 48.3 | 1.9 | 4.0 | 1.4 | 21.3 | *** |
| Poland | 6.2 | 10.5 | 7.4 | 2.5 | 34.2 | 9.0 | 19.0 | 40.9 | 30.7 | 7.0 | 22.7 | 16.6 | 23.3 | *** |
| Germany | 9.0 | 13.6 | 13.1 | 5.4 | 41.4 | 7.0 | 17.6 | 23.8 | 18.8 | 3.4 | 17.9 | 6.2 | 5.7 | ** |
| Netherlands | 55.8 | 15.8 | 35.4 | 19.7 | 55.8 | -19.0 | 26.1 | 15.1 | 17.3 | 5.0 | 28.8 | -10.3 | -18.0 | 00 |
| Bulgaria | 3.7 | 11.6 | 10.8 | 7.7 | 71.0 | 21.2 | 11.6 | 6.5 | 8.7 | 2.7 | 30.9 | -10.9 | -2.2 | N |
| United Kingdom | 4.5 | 2.2 | 3.4 | 1.6 | 47.2 | -11.2 | 3.6 | 9.3 | 7.8 | 3.0 | 38.1 | 20.8 | 4.4 | *** |
| Italy | 2.7 | 2.5 | 2.4 | 0.9 | 39.0 | -1.7 | 1.5 | 6.5 | 4.8 | 2.9 | 60.8 | 33.4 | 2.4 | ** |
| Spain | 2.6 | 1.0 | 1.5 | 0.6 | 38.6 | -15.1 | 3.4 | 4.9 | 3.9 | 1.0 | 26.6 | 8.1 | 2.4 | *** |
| Cyprus | 0.1 | 3.7 | 1.2 | 1.8 | 148.4 | 2.9 | 2.8 | 2.6 | 2.4 | 0.8 | 34.4 | -1.8 | 1.2 | * |
| Slovakia | 0.8 | 0.4 | 0.6 | 0.3 | 45.9 | -10.1 | 0.4 | 4.4 | 1.0 | 1.3 | 135.4 | 65.7 | 0.4 | N |

Source: Own calculation based on data provided by the International Trade Center (ITC), <https://www.trademap.org/Index.aspx>

Significance (GL = 11, tcal > t: > 0.05 *; > 0.01 **; > 0.001 ***; < 0.05°; < 0.01⁰⁰; < 0.001⁰⁰⁰; < 0.05: N)

As it can be seen from Table 6, Romania's poultry meat imports increased in the period under analysis by 21.47% from 146.33 million euros in 2007 to 177.76 million euros in 2019. The difference in averages is 28.52 million euros, being considered statistically very significant (figure 3).

The first three sources of poultry meat in 2019 for Romania are represented by Hungary (50.67 million euros;), Poland (40.93 million euros) and Germany (23.76 million euros) (table 6), 64.9% of the poultry meat imported from Romania comes from these three countries. In the period 2007-2019, imports from Hungary increased dramatically from 9.42 million euros in 2007 to 50.41 million euros in 2013 at a rate of +32.26. After 2014, poultry imports from Hungary remained constant around the average of 48.48 million euros, the rate for the period 2014-2019 being + 1.41%.

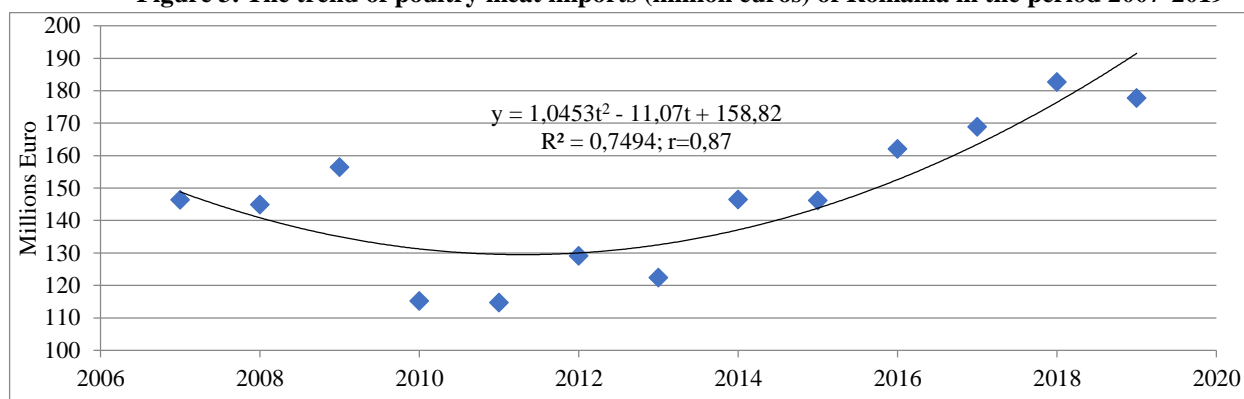
If in the period 2007-2013 the value of poultry meat imports from Poland increased by only 4.24 million euros, in the period 2014-2019 we see a significant increase of 115.3% from 19.01 million euros in 2014 to 40.93 million euros in 2019.

A positive and constant rhythm in both periods is also observed in poultry meat imports from Germany: + 7.01% in the period 2007-2013 and + 6.21% in the period 2014-2019. The difference in averages is 5.71 million euros, being considered statistically distinctly significant.

In the period 2007-2013, imports from the Netherlands decreased dramatically by 71.66%, from 55.80 million euros in 2007 to 15.81 million euros in 2013, the calculated rate being negative, respectively -18.95%. The situation of imports from the Netherlands remained constant during 2014-2019. The difference in averages is -18.03 million euros, being considered statistically significant negative.

Smaller quantities of poultry meat were imported by Romania during the analyzed period from countries such as Great Britain (9.25 million euros; 5.20%), Bulgaria (6.51 million euros; 3.66%), Italy (6.45 million euros; 3.63%), Spain (4.94 million euros; 2.78%), Slovakia (4.38 million euros; 2.47%) and Cyprus (2.59 million) 1.46%).

Figure 3. The trend of poultry meat imports (million euros) of Romania in the period 2007-2019



Source: Own design based on data provided by the International Trade Center (ITC), <https://www.trademap.org/Index.aspx>

From the analysis of the trend of the import of poultry meat (mil euro) of Romania in the period 2007-2019, by the equation $Y_{iro} \text{ (mil €)} = (1.0453t^2 - 11.07t + 158.82)$ ($r = 0.87$; association very strong), extrapolated for 2024, it turns out that in that year Romania will import poultry meat worth 325.8 million euros.

Romania's poultry meat exports have increased dramatically since joining the European Union (Table 7, Figure 4). The growth rate in the period 2007-2013 was +88.14 exports, increasing from 3.11 million euros in 2007 to 138.10 million euros in 2013. In the period 2014-2019, the rate was only +2.21. The difference in averages is 35.87 million euros, being considered statistically significant.

68% of Romania's poultry meat exports in 2019 were directed to four countries: Great Britain (26.45%), France (17.63%), Bulgaria (12.02%) and Hungary (11.87 %).

The main market for poultry meat is the United Kingdom. In 2019, Romania delivered 36.36 million euros worth of poultry meat to this country. Table 6 shows that in 2007 exports to France amounted to 0.81 million euros (26.04%), and in 2019 poultry meat worth 24.22 million euros (17.65%) was sold.

Bulgaria is the third country that prefers Romanian poultry meat, with sales of 16.52 million euros in 2019, 25.65% higher than in 2014.

We are dealing with very statistically significant differences in averages for the United Kingdom, France and Greece; distinctly statistically significant for Austria; statistically significant for Italy. For Hungary, the Netherlands, the Czech Republic and Slovakia, the calculated differences are statistically insignificant because the coefficients of variation are very high.

Table 7. Evolution of Romania's poultry meat exports to destination countries in the period 2007-2019

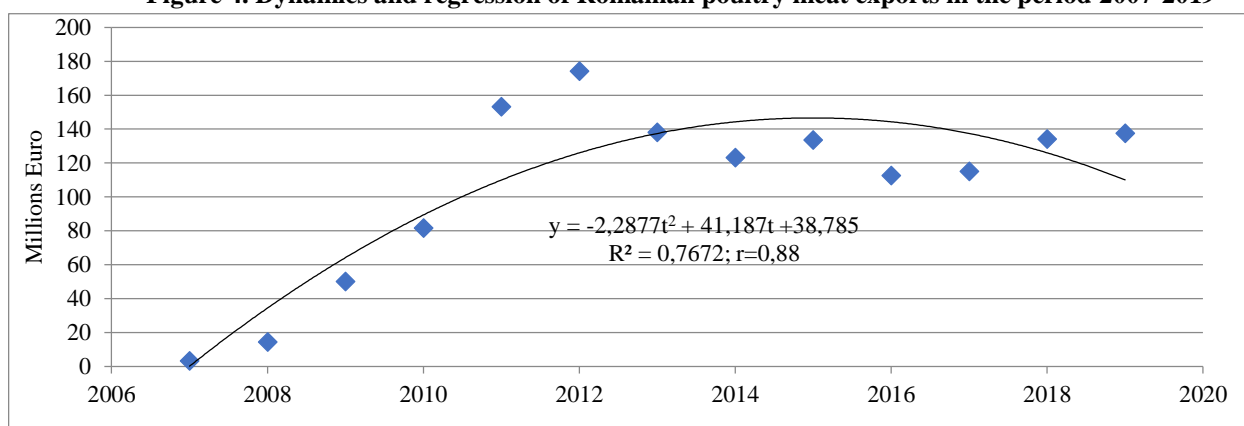
| Specification | Period 2007-2013 | | | | | | Period 2014-2019 | | | | | | deviations | |
|----------------|------------------|--------|-----------|--------|-------|--------|------------------|--------|-----------|--------|-------|--------|------------|-------|
| | 2007 | 2013 | Average 1 | StDev | CV | Rhythm | 2014 | 2019 | Average 2 | StDev | CV | Rhythm | M2-M1 | Sign. |
| | Mil. € | Mil. € | Mil. € | Mil. € | % | % | Mil. € | Mil. € | Mil. € | Mil. € | % | % | Mil. € | |
| World | 3.1 | 138.1 | 87.8 | 68.7 | 78.2 | 88.1 | 123.2 | 137.4 | 123.7 | 10.1 | 8.1 | 2.2 | 35.9 | * |
| United Kingdom | 0.0 | 17.7 | 5.6 | 6.8 | 121.6 | 277.9 | 22.0 | 36.4 | 35.6 | 8.0 | 22.3 | 10.6 | 30.0 | *** |
| French | 0.8 | 12.2 | 3.2 | 4.1 | 126.5 | 57.3 | 20.9 | 24.2 | 22.3 | 1.9 | 8.3 | 3.0 | 19.1 | *** |
| Bulgaria | 0.1 | 13.4 | 34.2 | 35.1 | 102.8 | 133.0 | 11.5 | 16.5 | 13.3 | 3.3 | 25.1 | 7.5 | -20.9 | 00 |
| Hungary | 1.0 | 23.8 | 12.9 | 9.6 | 74.1 | 68.7 | 13.0 | 16.3 | 9.1 | 2.6 | 28.6 | 4.7 | -3.8 | N |
| Greece | 0.3 | 27.7 | 11.1 | 11.9 | 107.4 | 110.9 | 8.3 | 8.7 | 7.0 | 1.3 | 18.9 | 0.9 | -4.1 | N |
| Netherlands | 0.2 | 7.4 | 3.3 | 3.0 | 91.9 | 89.8 | 8.5 | 8.5 | 8.7 | 2.0 | 23.2 | -0.1 | 5.5 | *** |
| Slovakia | 0.0 | 0.0 | 0.7 | 0.8 | 108.5 | -12.8 | 0.4 | 3.6 | 1.4 | 1.5 | 105.4 | 66.2 | 0.7 | N |
| Austria | 0.0 | 5.0 | 2.1 | 1.9 | 91.3 | 30.4 | 5.7 | 3.0 | 2.4 | 2.0 | 83.3 | -11.9 | 0.3 | N |
| Czech Republic | 0.0 | 2.7 | 0.9 | 1.0 | 109.4 | 101.4 | 1.5 | 2.9 | 1.7 | 0.3 | 19.5 | 13.5 | 0.8 | ** |
| Italy | 0.0 | 0.8 | 0.6 | 0.7 | 114.5 | 97.7 | 1.7 | 2.4 | 1.4 | 0.7 | 53.3 | 7.6 | 0.8 | * |

Source: Own calculation based on data provided by the International Trade Center (ITC), <https://www.trademap.org/Index.aspx>
 Significance (GL = 11, tcal> t:> 0.05 *;> 0.01 **;> 0.001 ***; <0.05⁰; <0.01⁰⁰; <0.001⁰⁰⁰; <0.05: N)

Romania's trade balance in terms of trade in poultry meat is negative. In the period 2007-2013 there was an accelerated decrease in the deficit. Starting with 2014, there is an increasing trend for both commercial exercises. According to the statistical data, in the whole period studied the results indicated a trade deficit. They demonstrate the essential role of the Romanian farmer for food security and the vulnerable aspects of the relationship between the actors of the agri-food system, as well as between them and consumers, while indicating to the European and national authorities the directions and urgent interventions [9].

From the analysis of the trend of the export of poultry meat (mil. euro) of Romania in the period 2007-2019, through the equation $Y_{ero}(\text{mil } \text{€}) = (-2,2877t^2 + 41,187t + 38,785)$ ($r = 0,88$; very strong association), extrapolated for 2024, shows that in that year Romania will no longer export poultry meat.

Figure 4. Dynamics and regression of Romanian poultry meat exports in the period 2007-2019



Source: Own design based on data provided by the International Trade Center (ITC), <https://www.trademap.org/Index.aspx>

The trade deficit in poultry consumption in 2024 will be equal to the import of 325.8 million euros. These considerations place Romanian poultry farming in a field of maximum interest for both producers and consumers, Romanian poultry companies being obliged to continue investing in production and processing technology, logistics and branding [6].

CONCLUSIONS

- The decrease of the Romanian poultry number is caused by the disappearance of the peasant households. In the period 2007-2019, the numbers decreased by 11.5 million heads on individual farms and increased by only 5.1 million heads on authorized farms.

- Poultry meat production increased continuously during the analyzed period due to the industrial sector, from 416.2 in 2007 to 672.3 thousand tons of live weight in 2019 (+256.1 thousand tons of live weight).

- There is a significant consumption of poultry meat in Romania of 26.9 kg / capita / year, a figure comparable to the consumption in the European Union (24.8 kg / capita / year in 2018).

- Romania's poultry meat imports increased by 21.47% from 146.33 million euros in 2007 to 177.76 million euros in 2019.

- Romania's poultry meat exports increased after joining the European Union, from 3.11 million euros in 2007 to 138.10 million euros in 2013.

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