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**Article**

## Study on the Competitiveness of the Romanian Meat Processing Industry

Amfiteatru Economic Journal

**Provided in Cooperation with:**

The Bucharest University of Economic Studies

*Suggested Citation:* Stanciu, Silviu; Rizea, Raluca Daniela; Ilie, Anca Gabriela (2015) : Study on the Competitiveness of the Romanian Meat Processing Industry, Amfiteatru Economic Journal, ISSN 2247-9104, The Bucharest University of Economic Studies, Bucharest, Vol. 17, Iss. Special No. 9, pp. 1331-1345

This Version is available at:

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## STUDY ON THE COMPETITIVENESS OF THE ROMANIAN MEAT PROCESSING INDUSTRY

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**Please cite this article as:**

Stanciu, S., Rizea, R. D. and Ilie, A. G., 2015. Study on the Competitiveness of the Romanian Meat Processing Industry. *Amfiteatru Economic*, 17 (Special No. 9), pp. 1331-1345

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**Abstract**

Meat processing represents a strategic sector that can significantly contribute to local food industry competitiveness and national food security.

The generous natural resources available to Romania and the tradition in animal husbandry can provide adequate raw materials for the processing industry in order to cover domestic consumption needs and obtain substantial revenues by export. Currently, Romanian meat market is dependent on the imports of meat, as carcasses or processed products. There have been mainly live animals or semi-finished products which are exported, fact which led to an imbalance of trade and to low revenues for the domestic meat industry.

This article proposes an analysis of the local meat processing industry in terms of production, consumption and trade transactions, assessed in the international context of the meat market. The study indicates that in the last few years, Romania has recorded significant progress in the meat processing and production domain; nevertheless, the financial performance of the local companies is inferior to that of the EU companies. Except the poultry meat and mutton sectors, in which the export value exceeds imports, the other sectors show a deficit, the domestic demand not being covered. The low concentration degree of the companies from the meat processing industry show a continued market fragmentation and a growth potential for the existing companies.

**Keywords:** competitiveness, processing, meat, meat industry, consumption.

**Classification JEL:** L11, L25, L66.

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## **Introduction**

Animal slaughter and carcass processing ensure the process of transforming live animals into finished or intermediary food products intended for direct consumption or for consumption after cooking. The meat industrialisation plants are dependent on the raw materials from the domestic livestock sector or from imports. The quality of the raw materials, the technology and the meat industry processing conditions, the compliance with the hygiene criteria imposed by food production can decisively influence the finished product's quality and consumer safety. A proper unfolding of the technological process is important in achieving the sensory, nutritional, biological, energy or hygienic features, essential in defining the quality of products intended for the food market (Bobe and Procopie, 2011). In the primary meat processing plants, the added value is obtained by means of simple technological processes, usually by means of proper meat cutting and packaging, which allow to make the difference among quality classes, hygienic conditions of transport-marketing-display and facilitate the trade act by an adequate presentation and a better accessibility to the consumer. The complex secondary processing plants best exploit the animal resource, aiming at obtaining meat products and at using the secondary products resulted from slaughter.

The meat demand existing on the world market can be partially covered by increasing production in the livestock farms, which is limited by biological factors (animal husbandry cycles, animal development genetic criteria), by the extent to which farmland can ensure the necessary fodder or by ecological factors (Stanciu, 2014b). The livestock farm expansion and the production cycle decrease cannot exceed certain limits, other options to increase market production volume being necessary. The possible alternatives are a better usage of the available meat resources and the slaughtered animal edible part loss reduction at a minimum level (Heinz and Hautzinger, 2007), or by adding some by-products resulted from poultry slaughter, in particular at product types with lower prices (Deogade, Zanjadand and Raziuddin, 2008).

Consumers continually ask for new products, with superior sensory and functional features. The new directions in meat processing focus on innovative products, relying on the increase in added value by means of releasing on the market products with high nutritional value, superior sensory features and a low content of fat/cholesterol.

Thus, the meat industry represents one of the most important industries of the Romanian economy. A proper development of the food industry, together with the optimal use of the natural resources that Romania has can reduce the dependence of the domestic market on imports and can ensure the nation's food security (Stanciu, 2014a). The generous farmland, the tradition in the livestock domain and the population's availability for animal husbandry, the human resource from the rural areas, the specialists who graduate some form of accredited technical education in the agro-food domain are factors that can bring back to Romania the status of processed food of animal origin exporter and can ensure the availability of some valuable food resources for the country's population (Stanciu, 2015).

This article appears in the context of such an issue and aims both to present the features and evolution of the meat production and consumption at internationally level and in Romania, in the first part of the paper, as well as the analysis of the local meat processing industry, in the second part of the article, based on the data processed and interpreted by the authors, thus elaborating a comparative study between European industry and Romanian meat sector.

### 1. Global meat production and consumption

The world meat production varies at around 300 million tons per year, recording a constant growth trend due to the world population evolution and to greater consumption in the developing countries (table no. 1). The most used species of domestic animals for meat are the swine and the poultry, with a percentage of about 37% and 35%, respectively. The cattle hold the third position, with about 21% of the total world production, followed by sheep – goats, with about 4.5%. In smaller quantities, the meat of solipeds, camelids or wild animals is also used. The meat consumption of different species of animals is influenced by food traditions, age, sex, education, religious beliefs or the availability of food resources (He, Fletcher and Rimal, 2003). Poultry meat production recorded an impressive pace of growth, which led to the doubling of the number of animals in the last decade, which exceeded the growth rates at swine, cattle or sheep (table no. 1). For the 2015-2030 period, the FAO - OECD analysts forecast an increase in meat production, supported mainly by the evolution of consumption in the developing countries. On a short-term basis, the growth rate of production is estimated to be under the average recorded in the last few years, due to constraints imposed to the world's biggest producers, to the epidemics which affected animals and to restrictions imposed on trade (FAO - OECD, 2014). In 2014, the international meat transactions reached the level of 31.6 million tons, being recorded an annual growth rate of 2.3%. The most traded product on international markets is the poultry meat, followed by beef, pork and mutton (table no. 1). Mutton is the only type of meat that records a decrease in transactions in 2014, because of the Bluetongue (Stanciu and Sarbu, 2014) and ovine Scrapia epidemics (Stanciu, 2014c). The forecast regarding the meat world trade growth is moderate, amid an increased demand on producer markets.

**Table no. 1. Trends in the world meat sector (million tons)**

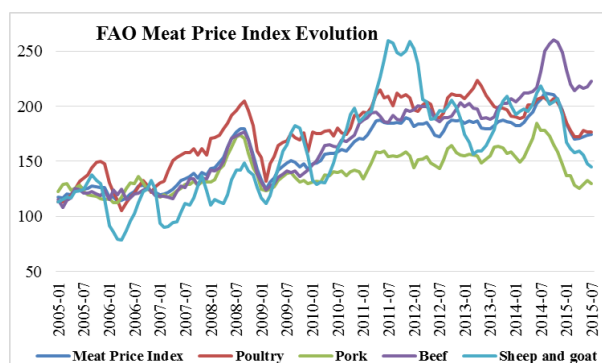
	2010	2011	2012	2013	2014	2015*
Meat production – total, out of which:	294.2	298.1	304.2	311.1	314.7	318.7
- beef	66.7	67.3	67.0	67.8	67.8	67.9
- poultry meat	98.9	102.6	105.4	108.6	110.2	111.8
- pork	109.3	109.2	112.4	115.0	117.2	119.4
- mutton	13.7	13.4	13.7	13.9	13.9	14.0
Trade with meat – total, out of which	26.7	29.0	29.6	29.7	30.6	31.2
- beef	7.7	7.9	8.0	8.9	9.6	9.8
- poultry meat	11.7	12.8	13.0	12.5	12.7	13.1
- pork	6.2	7.3	7.5	7.4	7.5	7.1
- mutton	0.8	0.8	0.8	1.0	1.0	0.9
Average meat consumption (kg/year capita), out of which	42.5	42.5	42.8	42.8	43.4	43.4
- in developed countries	79.2	78.8	76.2	75.7	75.5	-
- in developing countries	32.4	32.5	33.4	33.7	33.8	-

Source: Compiled by relying on the OECD– FAO, Annual Outlook (2010-2015)

\* Forecast

The annual average consumption per inhabitant has recorded relatively constant values in the last few years; nevertheless, there has been a slight decrease in the industrialised areas, compensated by an increase in demand in the developing areas. The annual meat consumption per capita is an indicator characterizing the economic welfare of the population because meat is a high value nutritional, energy and sensory food, ensuring the body, through metabolism, the necessary nutrients and its vital energy necessary to accomplish everyday tasks. Meat proteins are characterized by an optimal content of essential amino acids, fact that places them among first class proteins (Banu and Sahleanu, 2009). Thus, residents of economically developed areas cover the nutritional requirements of the body especially by consuming food of animal origin, being characterized by high annual meat consumption (Gerbens - Leenes, Nonhebel and Krol, 2010).

The global average meat price evolution is presented in graph no. 1. The constant tendency towards meat price increase in international transactions is mainly influenced by the demand from the market and price evolution for fodder intended for animal husbandry. After the historic levels reached in 2012, illustrated in maximum values for the main meat categories, the fodder prices recorded a cheapening process in 2013, which allowed the meat producers to obtain profit. The effects were felt mainly on pork and poultry meat prices, the most dependent on concentrated soy feed. The price of poultry meat has been relatively stable lately. Beef has recorded a constant growth in prices in the last few years, due to demand, to the diminished animal growth rate and to the diminished global production as a consequence of the Bluetongue epidemics (Stanciu and Sârbu, 2014). The global FAO Meat Price Index has recorded a slight decrease in the last period, under the influence of pork and mutton price reduction, due to a decrease in demand in the developed countries and to a decrease in the volume of transactions with the Russian Federation (OECD– FAO Reports, 2005 – 2014, Stanciu, 2014c).



**Graph no. 1. The evolution of the FAO Meat Price Index  
(Global and for the main varieties of meat)**  
Source: Author by using the FAO data, 2015

The European Union (EU 28) is one of the main meat producers and consumers, contributing with about 14% to global production. The EU meat production recorded in 2014 was of 44 million tons, partially retrieving the loss recorded in 2013 (table no. 2). The estimates for 2015 forecast a slight increase in production, at an annual growth rate close to

the value recorded on a global level. The meat community export reduction is mainly due to the problems which appeared in the livestock sector (the Bluetongue and Scrapie epidemics), to the implementation of the new EC regulations regarding animal welfare and to export reduction to the Russian Federation (Stanciu and Sârbu, 2014). The annual average meat consumption per inhabitant is superior to that recorded on a global level, being situated on a higher domestic production consumption coverage level.

**Table no. 2. Meat production in the EU 28 (thousand tons)**

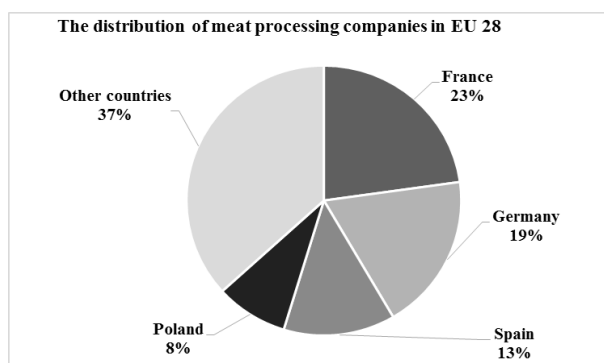
	2010	2011	2012	2013	2014	2015*
Total meat production	44134	44640	44044	43726	44018	44427
Meat imports	1385	1357	1326	1308	1 314	1317
Meat exports	3230	3783	3702	3704	3692	3699
Total consumption	42101	41976	41438	41153	41461	41860
The average of the annual consumption per inhabitant ***	66,4	66,1	65,2	64,7	65,0	65,5
The coverage rate of consumption from domestic production	104,8	106,3	106,3	106,2	105,8	105,8

Source: Author by processing the EC Short Term Outlook data 2010 -2015

\* estimates

Meat processing is an important sector in the European Union. In 2014, there were 12,385 companies registered with the code NACE (Rev.2) 1013 in the EU, mainly located in the extremely industrialised states (graph no. 2). The degree of concentration is high in this sector, over 55% of the specialised companies being located in France (23%), Germany (19 %) and Spain (13 %).

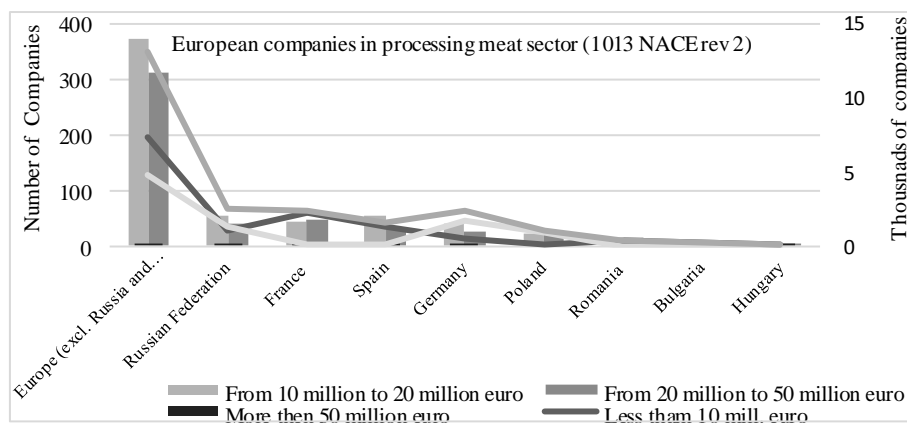
Romania is placed on a modest position within the EU28. In 2014, in the Trade Registry Office there were recorded only 398 firms with a NACE code 1013, representing 3.28% out of the total number of firms with the same code from the Community. As compared to the neighbouring member states, Hungary (83 firms) or Bulgaria (238 firms), our country is situated on the second position in SE Europe, after Poland, with 1060 firms in the meat processing domain.



**Graph no. 2. The distribution of the meat processing companies in EU 28**

Source: Drawn up by the author by relying on the Amadeus data, 2015

In September 2015 in the European meat production and processing sector was operating about 13,000 companies, most with a turnover below 10 million. Romania occupies a modest place in the classification, with France, Spain and Germany, surpassing the neighboring states Bulgaria and Hungary as the total number of companies with NACE Rev. code 1013 2 (graph nr. 3). Romania recorded an average turnover per company located at almost half the European average.



**Graph no. 3. European companies in the meat processing sector**

Source: Author using the Amadeus data, 2015

## 2. Meat production and consumption in Romania

EU integration made available a potential market of 500 million consumers to local producers, but it also imposed restrictions due to Community norms and involved the competition of some Community producers with tradition in the domain.

In the last few years, the local meat processing sector has confronted with a series of problems due to a decrease in domestic consumption and to the economic and financial crisis from the period 2007 – 2013. According to research carried out by Stanciu et al. (2013), the occurrence of some global (the Avian Flu, the swine flu, food fraud etc.) or national (altered meat, poultry meat contaminated with *Salmonella*) critical food safety incidents affected local producers and consumer trust. The Romanian meat production, estimated for 2014, was of 931 million tons (as can be seen in the table no. 3), representing approximately 2.1% out of the total production in the EU28. Although in the period 2000 – 2013, the meat sector in Romania recorded a global decrease of over 6%, the year 2014 was characterised by a growth rate of over 4% in meat production, which was superior to the European average.

In point of percentages, pork represents almost half of the total quantity produced at a national level, followed by poultry meat and beef. Beef and mutton recorded a decrease in production in the last year, due to the Scrapia and the Bluetongue epidemics, which affected the local livestock sector (Stanciu and Sârbu, 2014)

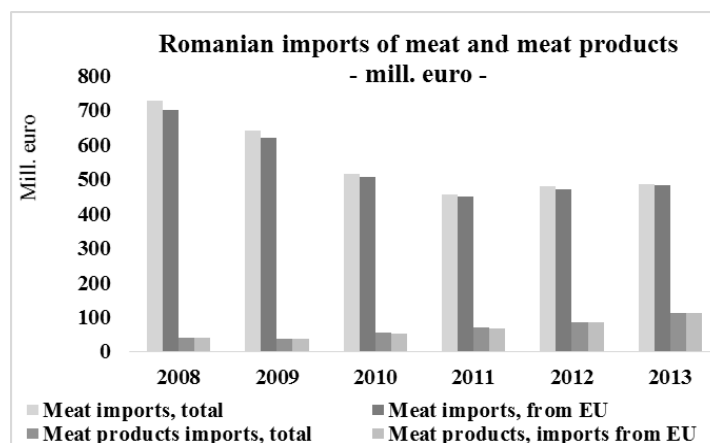
Table no. 3. Meat production in Romania (thousand tons)

	2000	2007	2010	2012	2013	2014	Variation (%)		Growth 2000-2014
	*					*	2014 /2000	2014 /2013	
Total production, out of which	982	1086	926	898	894	931	-5.19	+4.13	-0.4
Beef	162	211	102	101	93	93	-42.5	-0.1	-3.9
Pork	503	491	418	426	421	438	-13.0	+3.9	-1.0
Poultry meat	259*	312*	349*	313	326	346	+33.2	+6.2	+2.1
Mutton goat meat	58	72	57	58	54	54	-7.2	+0.3	-0.5

Source: Author by processing the EC Short Term Outlook (2015)

\* Estimated

With a growth rate of 6.2% in the last year, the poultry meat industry is the most dynamic sector of the national food production. The poultry sector is the only one that recorded growth in the period 2000 – 2014, also having a positive trade balance. Thus, according to the NIS statistics (2015), the year 2013 is the first year after the 1990 period in which Romanian poultry export exceeded import. After Romania joined the EU there may also be noticed a relative recovery for pork which, after the minimum recorded in 2010, shows a slight growth tendency. Pork imports made by Romania are presented in graph no. 4. The period 1990 – 2007 is characterised by a meat and meat product import growth, correlated with the domestic production decrease. In 2008, there is recorded a maximum level of meat and meat product imports of approximately 730 million euro; afterwards, there is a slight decrease in imports, up to a level of 487 million euro in 2013.



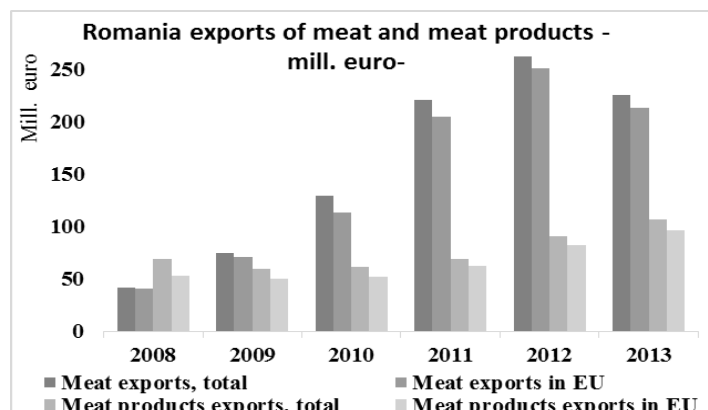
Graph no. 4. Romanian imports of meat and meat products

Source: Drawn up by the author by relying on the NIS -Tempo online data, 2015

The structure of local meat and meat product exports is presented in graph no. 5. Up to the moment when Romania joined the European Union, Romanian meat and meat product exports had low values, with a recorded minimum of 3.4 million euro in 2000. After 2008,



Romanian animal product exports began to increase. In 2013 there are recorded exports of 226 million euro, representing almost half of the values of imports for this segment of food products.



**Graph no. 5. Romanian exports of meat and meat products**

Source: Drawn up by the author by relying on the NIS -Tempo online data, 2015

Romania's foreign trade with animal products is oriented mainly towards EU partners, over 95% of the traded products being intended for the EU market.

The structure of exports from the meat sector is unbalanced, the products preferred by the foreign trade partners being mainly live animals or meat under the form of carcass. The statistical data provided by the NIS (2015), regarding transactions with live animals and meat, are presented in table no. 4.

**Table no. 4. Romania's foreign trade with meat and live animals (thousand euros)**

	2000	2005	2007	2010	2012	2013
Imports of live animals and animal products, out of which	162180	662292	870154	984428	1034909	1113919
- live animals	23622	35467	47389	95704	140152	163657
- meat and edible organs	83091	503087	553430	515172	479420	487174
Exports of live animals and animal products, out of which	137913	196052	252119	433571	731139	745289
- live animals	106721	142278	181210	195640	304381	314495
- meat and edible organs	3442	18183	27039	129312	262689	225978

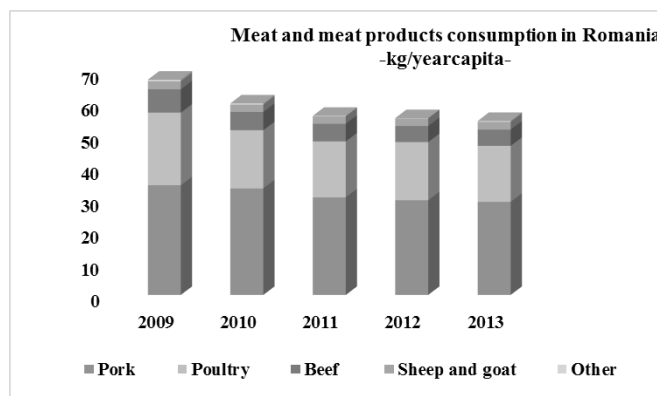
Source: Processed by the author by relying on the NIS data, 2015

Because the number of farms specialised in intensive husbandry of young cattle and sheep is insufficient in Romania, the local farmers export young cattle and sheep to Spain or Italy, where the animals are brought to optimum weight and slaughtered. Live animal imports are

mainly represented by chicken and piglets, purchased especially from the Netherlands, and they represent more than half of the value of live animal imports (CRPCIS, 2012).

The decrease in the number of breeding animals compels the local farmers to apply this solution to populate the intensive growth pig farms. Meat imports consist mainly of meat for consumption, cut or packaged, i.e. carcass or finished products (NIS, 2015).

According to official statistics provided by the NIS (2015), meat consumption in Romania is below the European average, recording a constant decrease in the period 2009 – 2013, mainly because of economic reasons (graph no. 6).



**Graph no. 6. Meat consumption in Romania**

Source: Drawn up by the author by relying on the NIS data, Tempo online, 2015

Thus, the average annual consumption of meat per inhabitant (equivalent in fresh meat) is about 67.3 kg in 2009 and 54.4 kg in 2013. Pork (including pork products) is the first in Romanians' preferences, the average annual consumption being of about 32 kg per capita, followed by poultry, with about 19 kg per capita. Romanians are not traditional consumers of beef, whereas sheep and goat meat is consumed mainly occasionally or in certain communities.

### 3. The meat processing sector in Romania

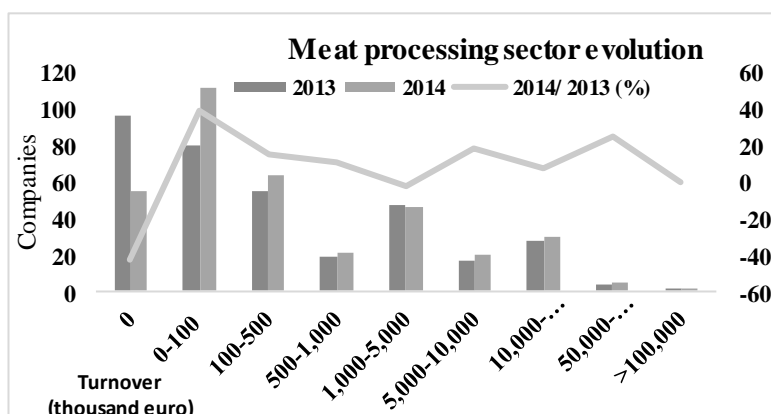
The evolution of the number of companies in the meat sector and of the main economic indicators which characterize this sector for the period 2008-2013 are presented in table no. 5. After the decreases recorded in 2009, mainly due to the lack of efficiency of the local sector and to the financial crisis, resulting in a 11% reduction in the number of companies, the dismissal of 14% of the number of employees and a sales volume decrease of 1%, the companies in this sector have managed to balance the business in terms of trade and labour productivity. The last three years are characterized by a positive development of the sector, with an increasing number of economic agents and sales volume. According to the information provided by the National Trade Register Office (NTRO), at the end of 2013 there were 347 companies recorded as having the main domain of activity "Meat product manufacture, including poultry meat products – NACE code 1013".

Table no. 5. The meat processing evolution in the period 2008-2013

	2008	2009	2010	2011	2012	2013
Number of active companies	355	317	333	334	339	347
The total turnover (million lei)	4,414	4,363	4,483	4,781	5,100	5,460
The average turnover per company (million lei)	12.4	13.8	13.5	14.3	15.0	15.7
The variation of the turnover (%)	-	-1	+3	+7	+7	+7
Net result (%)	0.67	0.16	0.14	1.03	2.56	1.71
Total number of employees	20,205	16,365	17,050	18,895	19,215	19,935

Source: Processed by the author by relying on Firme Info (2015) and on Muscalu (2014)

By relying on the evidence from The Ministry of Public Finances (MPF), it may be noticed that the economic agents from the sector generated a total turnover of 5.4 billion lei, ensuring approximately 20,000 jobs, without a significant change in the number of employees or in the number of active companies in the last few years. In the period 2013 – 2018, there was a 24% increase of the total turnover of the sector and a doubling of the level of profitability. Beginning with 2011, a constant growth of the sector's revenues can be noticed, having a constant value of 7%, and also the companies become profitable again. The period 2013 – 2013 brings about a series of modifications in the Romanian meat processing sector activity, as can be seen in the graph no.7



Graph no. 7. The evolution of the meat processing sector 2013-2014

Source: Compiled by Firme. Info (2015) and NTRO (2015)

Thus, the analysis of the financial information provided by the Muscalu Report (2014) leads to the following observations: 25% of companies ceased their activity in 2013, being set up only 5.5% new firms (5 companies ceased their activity – one newly set up company); 9 of the 85 companies that ceased their activity in 2013 recorded a turnover of over 1 million euro, approximately 53% of the companies from the sector presenting a high degree of indebtedness. According to the data provided by the NTRO (2015), presented in graph no.5, the meat processing national sector is characterised by a moderate increase in

the total number of active firms (with approximately 1.4%) and a massive decrease (with 42%) in the number of economic agents that didn't cease their activity but they didn't do business in 2013 either.

The segment of companies having a turnover between 500,000-1,000,000 euro recorded a decrease in the number of economic agents from 47 to 46, in parallel with an increase with 50% of the number of economic agents with a turnover of under 500,000 euro. With the exception of the segments 0-100,000 euro there weren't any significant modifications in the structure of the sector. The financial information specific to the sector for 2013 is presented in table no. 6.

**Table no. 6. Financial information specific to the meat processing sector (2013)**

Annual turnover (thousand euro)	Number of firms	(%)	Total turnover (thousand euro)	(%)	The average turnover (thou. euro/ company)
0	96	27.7	0.00	0.00	0.00
Under 100	80	23.1	2168.40	0.18	2710.50
100-500	55	15.9	13878.50	1.11	24869.93
500-1000	19	5.5	13225.22	1.07	69606.42
1000-5000	47	13.5	115848.07	9.38	246485.26
5000-10000	17	4.9	117583.05	9.52	691664.94
10000-50000	28	8.1	552914.03	44.75	1974692.96
50000-100000	4	1.2	253918.42	20.55	6347960.50
Over 100000	1	0.3	166138.24	13.45	16613824.00
Total	347	1.0	1235473.88	100.00	356044.35

Source: Data processed by the author Muscalu (2014) and MPF (2015)

#### 4. The analysis of the meat processing sector firm concentration degree

Concentration in an industry reflects the extent to which a market/industry activity is dominated by large companies. The lower the number of companies from the industry or the more unequal distribution of market segments from the respective companies, the more concentrated the market is. The percentages of the 10 leading Romanian companies in point of turnover within the sector is presented in table no. 7.

The quantification of the level of concentration is achieved by means of various indicators that can quantify general or specific aspects for the degree and dynamic of market concentration (Lămătic and Lămătic, 2005). Common methods for assessing the concentration in an industrial sector are the Lorentz curve, the Gini Index and the Herfindahl - Hirschman Index (HHI).

The high values of the HH and Gini index shows a tendency to monopolize the market. The HHI criteria was used in order to assess the degree of concentration and the competitiveness of the poultry meat sector in the USA, by Elam (2010). Hansen and Lund (2012) apply the HHI criterion in order to characterise Danish agriculture and business in the agro-food sector. An analysis of the industrial sector competitiveness based on the CR and HHI criteria is used by Kassalis (2010) in order to characterise the agro-food sector in Latvia. The method is frequently used in the official statistic estimation, being applied in

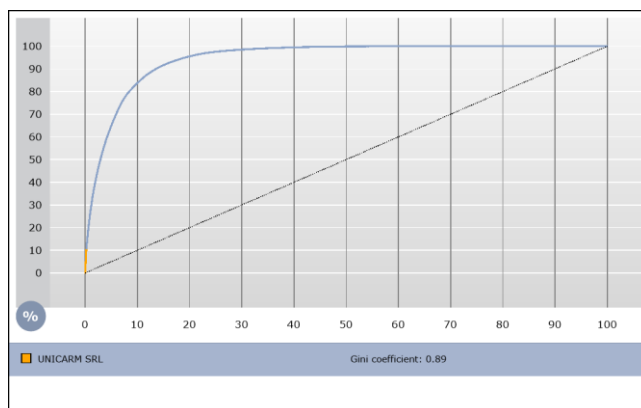
the reports drawn up by the agents of the European Commission (2012) or of the United States of America's Department of Agriculture (2015).

**Table no. 7. The share of the 10 leading meat industry processors in Romania**

No.	Name of the company	Turnover in 2013 (thousand euro)	Cumulative value (thousand euro)	Percentage (%)	Cumulative value (%)
1.	Unicarm SRL	149307	149307	10,86	10,86
2.	Caroli Foods Group	78918	228225	5,74	16,59
3.	Diana SRL	69295	297520	5,04	21,63
4.	Recunostinta Prodcum Impex	61818	359338	4,49	26,12
5.	Aldis SRL	51573	410912	3,75	29,87
6.	Scandia Food SRL	51,542	462,454	3.75	33.62
7.	Sergiana Prodimex SRL	42,935	505,389	3.12	36.74
8.	Fox Com Serv	38,930	544,319	2.83	39.57
9.	C+C SA	36,883	581,202	2.68	42.25
10.	Angst RO SRL	33,347	614,549	2.42	44.68

Source: Author, using Amadeus database, 2015

The degree of concentration of the local meat processing sector, obtained by adding the market shares held by the 10 leading companies in 2013 is of 44.68%, a value which is situated under the value of 50%, specified by Lămătic și Lămătic (2005) as a threshold above which a sector can be considered monopolist. Lorenz curve was applied to determine the concentration of meat sector, shown in graph no. 8.

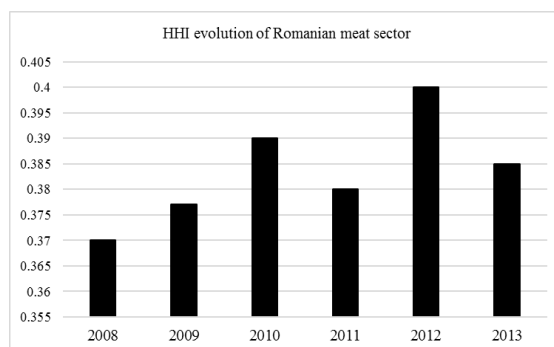


**Graph no. 8. The concentration Lorenz curve of the Romanian meat processing sector**

Source: Author, using Amadeus database, 2015

Gini index, calculated for 2013 assumes the value of 0.89, indicating a high degree of monopolization of the market. The HHI values for 2009-2013 is shown in graph no. 9.

The maximum value was recorded in 2012 when the sum of the market shares of the first 10 companies in Romania reached 52%.



**Graph no. 9. HHI evolution (2008-2012)**

Source: Author, using Amadeus database, 2015

In 2009-2013s, HHI showed a balanced evolution, showing a relative stability of the sector. The analysis carried out by Lorentz Curve, Gini Coefficient, respectively HHI shows a trend of concentration in Romanian meat processing sector.

### Conclusions

The analysis of the local meat processing industry was carried out for 2008-2014. As a full assessment of the sector must take into account the trends in the global meat market and the Community context there have been briefly presented and analysed the international meat market and Romania's place on the Community market. The local market is still dependent on meat imports, although progress has been made in recent years, especially in the production and processing of poultry meat and mutton. The average consumption of meat per year and per capita in Romania is below the European average, being close to the average world consumption. The Romanian consumer prefers especially pork, followed by poultry meat. Beef and mutton consumption is reduced as compared to the European average.

Progress has been made in the Romanian meat sector in the last few years, as highlighted by the increasing number of businesses, the turnover and profitability of companies. Sector development has had a positive influence on the trade balance of meat, as there has been recorded an increase in the value of exports and a relative decrease in imports. The Romanian meat processing sector is characterized by high values of Gini and HH indicators that show a high degree of engrossment.

### Acknowledgements

This paper was co-financed from the European Social Fund through Sectorial Operational Programme Human Resources Development 2007-2013, project POSDRU number /159/1.5/S/138907 "Excellence in scientific interdisciplinary research, doctoral and postdoctoral school, in the economic, social and medical fields-EXCELIS", coordinator The Bucharest University of Economic Studies.

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