

EMPLOYMENT TRENDS IN EUROPEAN UNION'S MEAT PROCESSING COMPANIES: A TEN-YEAR PERSPECTIVE, 2011-2020

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Abstract

The study provides an in-depth analysis of employment trends within the European Union's meat processing industry over a ten-year period, from 2011 to 2020. It specifically focuses on companies across various employee size categories, emphasizing Romania's position within these dynamics. The research employs comprehensive data from Eurostat, assessing changes in the labour force across different company sizes and countries. The study uncovers notable variances in labour force evolution, reflecting the distinct impacts of economic conditions, industry-specific factors, and regulatory frameworks in each nation. Germany exhibited a significant rise in its labour force in larger companies, while Spain showed the highest growth rate, more than doubling its labour force in this sector. Contrarily, Poland experienced a minor decrease, illustrating a different trend. Italy and Romania both marked considerable growths, with Romania demonstrating notable progress, particularly in larger companies. These findings highlight the multifaceted nature of labour dynamics in the EU meat processing industry, influenced by a complex interplay of market demand, technological advancements, and economic policies. The study underscores the sector's essential role in the EU's economy and the need for adaptable labour force strategies in response to changing industry landscapes.

Key words: meat processing industry, labour force dynamics, employment trends, industry evolution

INTRODUCTION

Climate change is at the forefront of European decision-making, significantly influencing both natural and human systems [10]. This has spurred a global focus on developing solutions for climate change adaptation, disaster risk reduction, and sustainable practices, with a special emphasis on circular economy models and societal impacts [5]. In the field of agriculture, an essential component for global food security, there's a marked shift occurring within the European Union (EU) [11, 18]. Farmers, who are central to this sector, are facing the challenges of rising input costs, the use of fertilizers and pesticides and circular economy [8, 18]. These costs are partly attributed to the EU's dependency on countries like Russia, Ukraine, and Belarus, which, in 2021, supplied a

significant portion of the fertilizers used in the region [3].

The EU has traditionally focused on conventional agriculture, aimed at maximizing profits and labor efficiency [17]. However, this approach is being reassessed due to its environmental impacts and questions about its long-term sustainability [14]. In response, there's a noticeable movement towards organic farming, which not only signals a shift to more environmentally friendly practices but also holds the promise of feeding Europe until 2050 and supporting grain exports to other countries. Organic agriculture could provide healthier food products [7, 13, 14].

In this evolving landscape, the role of processing companies becomes critically important. These companies, pivotal in transforming raw agricultural products into finished goods, form an integral part of the

food supply chain. Their business turnover and employment rates are significant indicators of the sector's health and impact on the economy. Romania, in this context, is noteworthy. Its agricultural sector, dominated by small and semi-subsistence farms, is complemented by a network of processing companies [15]. These businesses are essential in adding value to agricultural products, thereby boosting the sector's overall profitability. The turnover of these companies provides insights into the health of the agricultural economy, where high turnovers indicate robust demand and efficient processing capabilities, while lower figures might signal market challenges or inefficiencies.

The employment aspect in the processing sector is equally vital, especially in economies like Romania, where small-scale farming prevails [20]. Processing companies in these regions often become key employers, offering stable jobs, and contributing to the economic stability of rural areas. This is particularly important in a landscape where farming alone might not provide sufficient economic support for local communities [9].

Additionally, the environmental footprint of these processing companies is increasingly scrutinized, aligning with the broader EU focus on sustainable practices. The push towards sustainability encompasses not just how food is grown, but also how it is processed and brought to market, as processing methods can significantly impact the carbon footprint of food products.

In conclusion, as the EU and particularly Romania navigate the challenges of sustainable agriculture, the role of processing companies, their contribution to business turnover, and the employment they provide are key factors in shaping a resilient, economically viable, and environmentally conscious agricultural sector [16]. Cooperatives have provided access to factors of production, technology, or markets for farmers and growers [6]. These elements intertwine with consumer demands, market dynamics, and environmental considerations, offering a comprehensive view of the agricultural landscape in the EU [12].

The EU meat processing industry is facing challenges in terms of the reduction of livestock, high input costs, and product quality [19].

In this context, this study aimed to offer an in-depth analysis of employment trends within the European Union's meat processing industry in the period 2011 to 2020, emphasizing various employee size categories of the companies and especially in Romania.

MATERIALS AND METHODS

The study utilizes comprehensive employment data from Eurostat, focusing on the meat processing industry in the European Union. Data were collected for companies of various sizes, specifically those with 0-9, 10-19, 20-49, 50-249, and over 250 employees. The time frame of analysis spanned from 2011 to 2020.

A quantitative approach was adopted to evaluate the labor force numbers annually. Comparative analysis techniques were employed to discern trends and changes in labor force sizes across different countries within the EU. Special attention was given to the growth or decline rates of these numbers, to understand the underlying patterns and influences in each member state, with a particular emphasis on Romania's position in these dynamics.

The study's methodology allowed for a comprehensive overview of the labor force trends and provided insights into the broader economic and regulatory impacts on the meat processing industry in the EU.

RESULTS AND DISCUSSIONS

In the context of this study, we aim to analyze the numerical evolution of companies in the meat processing and meat product sector within the European Union, with a particular focus on the top five member countries in terms of the number of these entities, as well as Romania's position in this context. The time interval targeted is the decade from 2011 to 2020.

We observe that the total number of companies in the EU27 has decreased from

37,700 in 2011 to 33,364 in 2020, representing a reduction of 11.50%. This general trend of reduction could be attributed to the consolidation processes within the industry, possibly reflecting both mergers and acquisitions, as well as a potential restructuring following changes in regulations or market demand.

Analyzing each of the top five countries individually, Germany, being at the top of the ranking, shows a reduction of 17.91% in the number of companies, suggesting a concentration of production in the hands of a smaller number of larger entities. On the other hand, France shows an even more pronounced decrease of 30.70%, one of the most

significant declines among the countries analyzed.

In contrast, Poland exhibits an increase of 16.12% in the number of companies, contrary to the general trend observed in the EU. This phenomenon indicates an expansion of the sector in this country stimulated by a favorable economic environment and a diversification of business strategies.

Romania's case is interesting, ranked seventh, where an increase of 15.27% in the number of companies is noted, suggesting a positive dynamic of the sector in the national context, potentially influenced by internal economic factors and a growing market (Table 1).

Table 1. Top 5 European countries in meat and meat product processing companies and Romania's position, 2011-2020

No	Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020/2011	Share
	EU 27	37,700	38,114	37,000	37,000	38,211	35,000	32,671	34,066	33,885	33,364	88.50%	100.00
1	<i>Germany</i>	11,295	11,120	10,225	9,440	10,206	8,925	7,409	9,445	9,518	9,272	82.09%	27.79
2	<i>France</i>	6,540	7,299	7,970	8,425	8,399	6,392	5,466	5,108	4,749	4,532	69.30%	13.58
3	<i>Spain</i>	4,062	3,910	3,297	3,455	3,657	3,714	3,661	3,500	3,503	3,459	85.16%	10.37
4	<i>Italy</i>	3,601	3,555	3,500	3,458	3,463	3,421	3,182	3,132	3,162	3,185	88.45%	9.55
5	<i>Poland</i>	2,692	2,787	2,448	2,486	2,730	2,684	2,788	3,246	3,172	3,126	116.12%	9.37
7	<i>Romania</i>	773	777	793	817	801	800	814	839	834	891	115.27%	2.67

Source: Eurostat, 2024 [4].

The impact of the pandemic has been particularly acute in the business sector, leading to a downturn in company performance. In Romania, the aftermath of the 2008-2011 financial crisis saw a significant increase in corporate debt levels, from 65% to 76%, which in turn led to a spike in insolvencies. However, subsequent economic growth has helped to reduce the number of insolvency cases.

At a broader European level, the analysis of insolvency trends reveals some interesting patterns. While there was an expectation of a significant increase in insolvencies in 2020 due to the global economic shock, the actual outcome was a 12% decrease. This discrepancy can be attributed to massive state interventions, which prevented more than 35% of potential insolvencies globally. This trend was especially pronounced in Western Europe, where government interventions

averted roughly half of the expected insolvencies[1].

The Eurozone experienced a 6.8% GDP contraction in 2020, but with various countries implementing different measures to combat the economic impact of the pandemic, the recovery has been uneven. For instance, countries like France, Belgium, Italy, and Spain enacted laws in 2020 that temporarily froze bankruptcy proceedings or declared bankruptcies inadmissible. These measures led to a sharp decrease in insolvencies for the year[2].

In the meat processing sector, most companies are small and medium-sized enterprises (SMEs), which have been particularly affected by these economic shifts. The European Regional Development Fund (ERDF) 2014-2020 aimed to enhance the competitiveness of these SMEs, a goal that seems to have been reflected in their upward

trend. The case of Germany is notable, where a large share of meat processing companies are also SMEs. The German three-pillar banking system, characterized by fragmentation and the presence of small local creditors, plays a significant role in this sector. This structure has likely influenced the high proportion of SMEs in the industry.

In summary, the European insolvency landscape, particularly in the wake of the pandemic, illustrates the delicate balance between economic pressures and state interventions. The meat processing industry, dominated by SMEs, has been significantly impacted by these broader economic trends.

Table no. 2 presents a detailed overview of the small-scale meat processing industry in Europe, focusing on the top five countries and Romania over a decade. These top five countries collectively hold 68.29% of all European companies with 0-9 employees in this sector. Except for Poland, each of these countries has experienced declines since 2011, particularly after 2017 due to the swine fever crisis. Romania, in the sixth position, comprises 2.62% of the total European sector. Out of 33,364 European meat processing companies, a significant 66.64% are micro-enterprises, underscoring the prominence of small businesses in the industry (Table 2).

Table 2. Top 5 European countries by meat processing companies with 0-9 employees and Romania's position

No		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020/2011	Share
	<i>EU 27</i>	24,907	24,476	25,357	25,752	25,627	22,723	21,922	21,959	22,590	22,235	89.27%	100.00
1	<i>Germany</i>	6,145	6,669	5,941	5,811	5,477	3,976	3,722	4,366	5,405	5,116	83.25%	23.01
2	<i>France</i>	5,502	6,046	6,770	6,919	6,771	5,091	4,531	4,157	3,782	3,531	64.18%	15.88
3	<i>Spain</i>	2,684	2,625	2,086	2,371	2,437	2,487	2,379	2,354	2,292	2,320	86.44%	10.43
4	<i>Italy</i>	2,538	2,504	2,470	2,450	2,461	2,388	2,213	2,162	2,174	2,214	87.23%	9.96
5	<i>Poland</i>	1,617	1,726	1,428	1,466	1,761	1,726	1,876	2,093	2,027	2,004	123.93%	9.01
6	<i>Romania</i>	387	395	425	452	449	454	463	490	514	583	150.65%	2.62

Source: Eurostat, 2024 [5].

These data highlights the critical role these companies play in the European meat processing industry landscape, reflecting the challenges and shifts they have encountered over the years, including economic shifts and health crises like swine fever.

It's clear that Table 3 shows an overall decline in the number of companies with 10-19 employees within the EU27, with a decrease from 6,813 in 2011 to 5,278 in 2020, which is a 77.47% change over the period. Germany

leads with the highest number of such companies, despite a decrease to 64.38% of its 2011 figures. The table also highlights that, in contrast to Romanian companies with 0-9 employees, which saw an increase, those with 10-19 employees experienced a decrease in 2020 compared to 2011 by 22.8%.

For Romania, the table indicates a decrease in the number of companies with 10-19 employees, holding a 1.61% share of the EU market in this category by 2020.

Table 3. Top 5 European countries by meat processing companies with 10-19 employees and Romania's position

No	Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020/2011	Share
	<i>EU27</i>	6,813	6,195	5,874	5,229	6,397	6,337	4,983	6,100	5,223	5,278	77.47%	100.00
1	<i>Germany</i>	3,933	3,224	3,048	2,389	3,488	3,525	2,295	3,404	2,409	2,532	64.38%	47.97
2	<i>Italy</i>	546	539	535	527	503	539	500	495	507	490	89.74%	9.28
3	<i>Spain</i>	592	556	507	416	454	464	526	430	480	467	78.89%	8.85
4	<i>France</i>	347	495	495	577	621	527	416	429	441	460	132.56%	8.72
5	<i>Poland</i>	281	288	270	288	266	250	230	391	387	412	146.62%	7.81
8	<i>Romania</i>	110	100	102	95	97	98	106	111	92	85	77.27%	1.61

Source: Eurostat, 2024 [4].

This trend of decrease is consistent with the broader EU trend, except for France and Poland, which show an increase in the number

of companies compared to 2011, with France growing to 132.56% and Poland to 146.62% of their 2011 figures (Table 3).

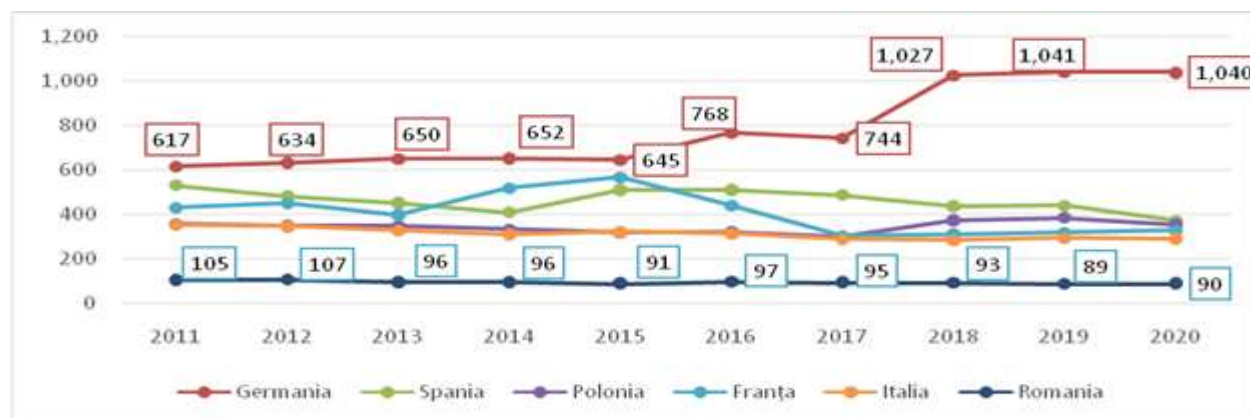


Fig. 1. Top 5 European countries by meat processing companies with 20-49 employees and Romania's position
Source: Own representation based on data available on Eurostat, 2024.

Germany's trend line shows a remarkable upward trajectory, particularly from 2016 onwards, reaching its peak in 2019 with 1,041 companies, and maintaining nearly the same number in 2020 with 1,040 companies. This signifies a strong growth in medium-sized meat processing companies within Germany, dominating the industry compared to the other countries shown.

Spain, Poland, France, and Italy demonstrate relatively flat or slightly declining trends over the decade. Spain's numbers show a gradual decline overall, ending lower in 2020 than where they started in 2011. Poland's line remains stable with minor fluctuations, suggesting a consistent industry size throughout the years. France exhibits some variability with a significant drop between 2016 and 2018 but shows a slight recovery by 2020. Italy's number of companies declines consistently over the period, indicating a

shrinkage in this sector of their meat processing industry. Romania's line, while starting the lowest, remains relatively flat, with a slight dip in the mid-decade and a small uptick in 2020. Although Romania has the fewest companies of this size among the countries represented, its industry shows resilience with little change over the years (Figure 1.).

Between 2011 and 2020, medium-sized meat processing companies in the EU experienced a decline, with Romania facing a notable decrease, ending with a 4.48% market share. Germany's minor drop contrasts with Italy and Spain's growth, suggesting varied industry health across the EU. Romania's medium-sized meat processing sector saw a significant reduction over a decade, diminishing to 68.94% of its presence in 2011 and holding a 4.48% share of the EU market by 2020 (Table 4).

Table 4. Top 5 European countries by meat processing companies with 50-249 employees and Romania's position

No		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020/2011	Share
	<i>EU27</i>	2,239	2,221	2,102	2,270	2,298	2,256	2,152	2,085	2,103	2,030	90.67%	100.00
1	<i>Germany</i>	509	503	496	499	503	556	542	540	563	486	95.48%	23.94
2	<i>Poland</i>	343	331	309	308	294	304	298	297	288	277	80.76%	13.65
3	<i>Spain</i>	218	209	213	210	212	208	219	220	225	233	106.88%	11.48
4	<i>Italy</i>	137	143	142	149	157	161	158	167	163	166	121.17%	8.18
5	<i>France</i>	225	244	238	323	347	264	173	168	163	165	73.33%	8.13
6	<i>Romania</i>	132	132	124	129	121	107	106	102	96	91	68.94%	4.48

Source: Eurostat, 2024 [4].

The EU27 has experienced a general increase in the number of large meat processing companies, which suggests a trend of growth and consolidation within the industry at a larger operational scale.

Germany, as the leader, has shown a substantial increase in its number of large companies, although not the largest in terms of percentage growth, it still holds the most significant share within the EU (Figure 2).



Fig. 2. Top 5 European countries by meat processing companies over 250 employees and Romania's position
Source: Own representation based on data available on Eurostat, 2024 [4].

Poland's decrease in the number of large companies indicates a possible shift, due to economic pressures or internal restructuring within its meat processing industry. Spain stands out with the highest percentage

increase among the top five countries, indicating an aggressive expansion or favorable market conditions that have supported the growth of larger companies in the sector. France also demonstrates a considerable increase, although not as pronounced as Spain's.

Romania, while having the smallest share among the mentioned countries, shows an increase in the number of large companies, reflecting potential growth within its large-scale meat processing sector.

The data regarding the turnover of companies operating in the meat processing industry indicates a positive trend in the revenue of meat processing companies within the EU between 2011 and 2020, highlighting overall growth in this sector. Germany, positioned at the forefront, exhibits an increase in revenue, reflecting a robust industry. France, while trailing Germany, also displays revenue growth. Spain, notably, has seen the most significant percentage increase in meat processing revenue, suggesting expansive industry development.

Italy demonstrates a healthy rise in revenue figures, while Poland's substantial growth could signal an increase in production and export activity. Romania, placed 13th, has a smaller share of EU revenue but shows potential for growth within the meat processing industry.



Fig. 3. Turnover of the companies operating in the meat processing industry in 2020
Source: Own representation based on data available on Eurostat, 2024 [4].

In the fiscal landscape of 2020, the revenue performance of the meat processing sector in the EU illustrates resilience and growth, despite the global challenges presented during the year. Germany not only retained its lead but also grew its revenue, reinforcing its status as an industry powerhouse. France and Italy also registered increases, with France's revenue indicating steady growth and Italy displaying resilience in the sector.

Spain stands out with remarkable revenue growth in 2020, the most significant among the top five nations, possibly indicative of strategic industry advancements or a successful navigation of market conditions.

Poland, while also growing, did not match the percentage increase of Spain, but the positive change in revenue suggests robust sector health and competitiveness.

Romania, though holding a minor share within the EU's revenue for meat processing companies, also experienced an uptick in 2020. The growth, while modest, reflects an industry that is managing to hold its ground and exhibits potential for future development amidst larger European counterparts.

The data presented in Figure no. 5 tracks the turnover of meat processing businesses with 0-9 employees across the top five European

countries and Romania, measured in millions of Euros from 2011 to 2020.

Overall, the EU27 witnessed a significant decline in turnover by 56.37% during this period, indicating the sector was heavily impacted, with the trade sector being the most affected. Despite a decrease in the number of small businesses in Germany, there was a substantial 72% increase in turnover, which underscores Germany's dominant market position with a 37.87% share.

France's trend is notably downward during this decade. The year 2011 stands out, with a subsequent decrease of 93.35% in turnover by 2020, showing significant fluctuation in the sector.

Poland showcases a dramatic growth, over fivefold, which could reflect an impressive sectoral expansion or improvement in business performance.

Italy's figures hover around the same initial mark, with a turnover that slightly decreased by 14%, which may reflect relative stability in the market size of small meat processing companies.

Spain's turnover decreased by around 16%, whereas Romania showed an improvement, with an increase of approximately 105%, albeit starting from a much smaller base compared to the others.

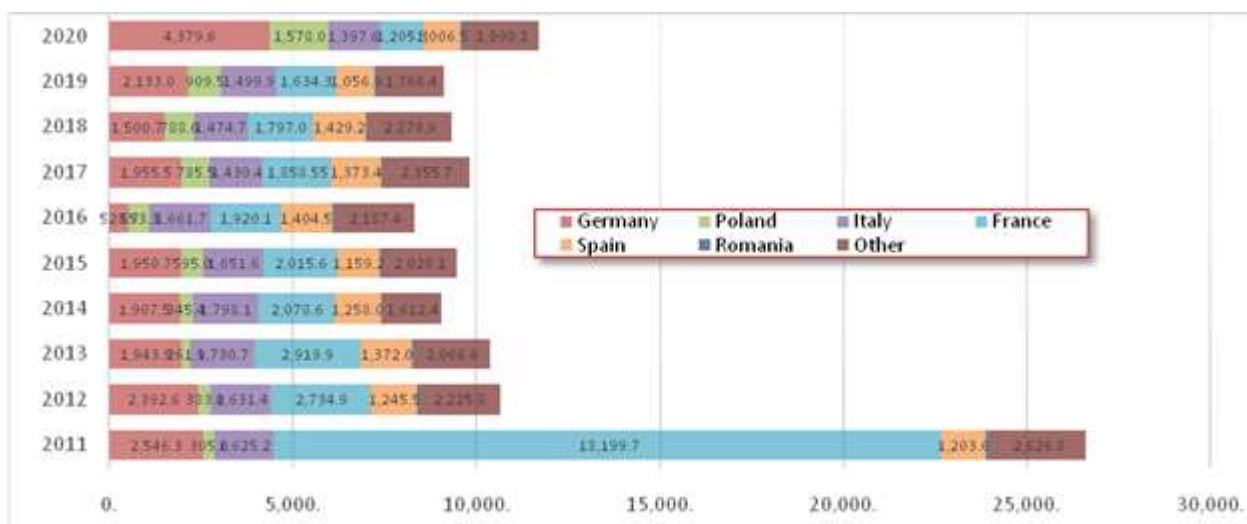


Fig. 4. Top 5 European countries by turnover of meat processing companies with 0-9 employees - million euros
 Source: Own representation based on data available on Eurostat, 2024 [4].

The European meat processing industry's financial snapshot for companies with 10-19 employees reveal a diverse fiscal health across

the continent in 2020. Germany, even after a significant decline in revenue since 2011, holds the majority market share. Italy defies

the general downtrend by not only maintaining but increasing its turnover, hinting at strategic industry strengths or market gains.

On the other hand, France and Spain, alongside the collective EU market, have faced a downturn, with Spain's figures notably

contracting. Poland emerges as the outlier with substantial fiscal growth.

Romania, despite a decrease in turnover, accounts for a minimal share of the EU market, underscoring a potential area for industry development and growth.

Table 5. Top 5 European countries by turnover of meat processing companies with 10-19 employees (million euros)

No	Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020/2011	Share %
	EU27	11,741.9	11,122.7	10,623.4	9,808.3	11,030	10,779.1	11,286.8	9,975.3	9,375.9	8,910.0	75.88%	100
1	Germany	4,276.7	3,331.5	2,568.0	1,824.5	2,303.6	2,695.0	3,629.9	3,020.5	2,754.8	2,382.2	55.70%	26.74
2	Italy	1,696.2	2,092.2	2,095.0	2,363.6	2,421.0	2,526.5	2,324.6	2,162.1	2,136.0	1,958.1	115.44%	21.98
3	Spain	1,596.1	1,253.6	1,223.9	1,139.0	1,740.8	1,399.6	1,615.0	1,051.4	999.8	1,044.8	65.46%	11.73
4	France	1,276.1	1,578.9	1,595.2	1,547.4	1,544.2	1,195.9	1,050.8	905.7	908.0	939.1	73.59%	10.54
5	Poland	468.8	498.2	510.8	528.1	497.1	451.3	470.3	764.0	738.5	781.5	166.70%	8.77
14	Romania	81.9	87.9	149.5	144.4	110.7	92.5	128.9	126.6	115.6	62.4	76.19%	0.70

Source: Eurostat, 2024 [4]

The data reflects the growth in business revenue for meat processing companies with 20-49 employees in the year 2020 compared to the base year 2011.

Germany leads the growth at 139.69%, indicating a vigorous expansion in the revenue of medium-sized companies in the meat processing industry over this period. Italy is also notable, with an increase of 130.85%, showing significant development in the industry.

Spain, while lower, still shows an increase of 68.07%, which might indicate a positive trend in revenue growth, albeit at a more moderate pace compared to Germany and Italy.

France's growth is at 54.41%, suggesting a more gradual increase in the revenue of its medium-sized meat processing companies, possibly reflecting different market dynamics or economic factors.

Poland exhibits a robust increase of 110.97%, which is indicative of a strong expansion in the sector's revenue within this company size range.

Romania, although lower in the ranking, demonstrates a notable increase of 118.12%, indicating that its medium-sized meat processing sector has seen substantial revenue

growth, surpassing the average EU growth rate.

This data collectively points to a general upward trend in the revenue of meat processing companies of this size in Europe, with varied growth rates highlighting the diverse economic health and development strategies of each nation's sector (Fig. 5).

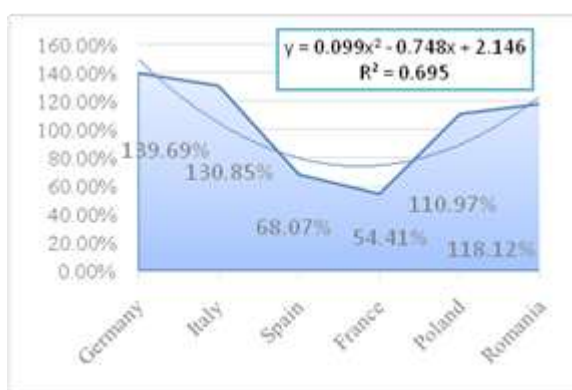


Fig. 5. The growth of turnover for meat processing companies with 20-49 employees in the year 2020 compared to the base year 2011

Source: Own representation based on data available on Eurostat, 2024 [4].

The R² value ranges from 0 to 1, where 0 indicates that the model does not explain any of the variability of the response data around its mean, and 1 indicates that the model explains all the variability of the response data

around its mean. An R^2 value of 0.6953 in the context of our dataset indicates that about 69.53% of the variance in the business revenue of meat processing companies with 20-49 employees in the year 2020 relative to 2011 can be predicted by the model used to fit this data.

It implies a reasonably strong linear relationship between the years and the revenue changes.

While this is a significant proportion, it also means that there is another 30.47% of the variance that is not explained by the model. This unexplained variance could be due to other factors not included in the model, such as market conditions, management practices, technological advancements, regulatory changes, and broader economic trends that may have affected the meat processing industry differently in each country.

The growth percentages for Germany, Italy, Poland, and Romania suggest that, for these countries, the meat processing sector for

companies with 20-49 employees has generally fared well over the period, growing beyond the levels seen in 2011. On the other hand, the relatively lower percentages for Spain and France suggest a more modest growth or more significant challenges faced by these countries in this sector during the same period.

Initially leading with €15,452.4 million, Germany's turnover declined to €9,209.6 million by 2020, indicating significant market changes affecting its meat processing industry. Contrary to Germany, Italy's sector showed growth, starting at €6,215.3 million and rising to €8,139.2 million. Spain's turnover reduced from €6,752.7 million to €5,507.9 million, while Poland's turnover grew from €3,719.1 million to €5,021.7 million, reflecting distinct market dynamics in these countries. Starting from a lower base of €910.5 million, Romania demonstrated considerable growth, with turnover increasing to €1,186.6 million.

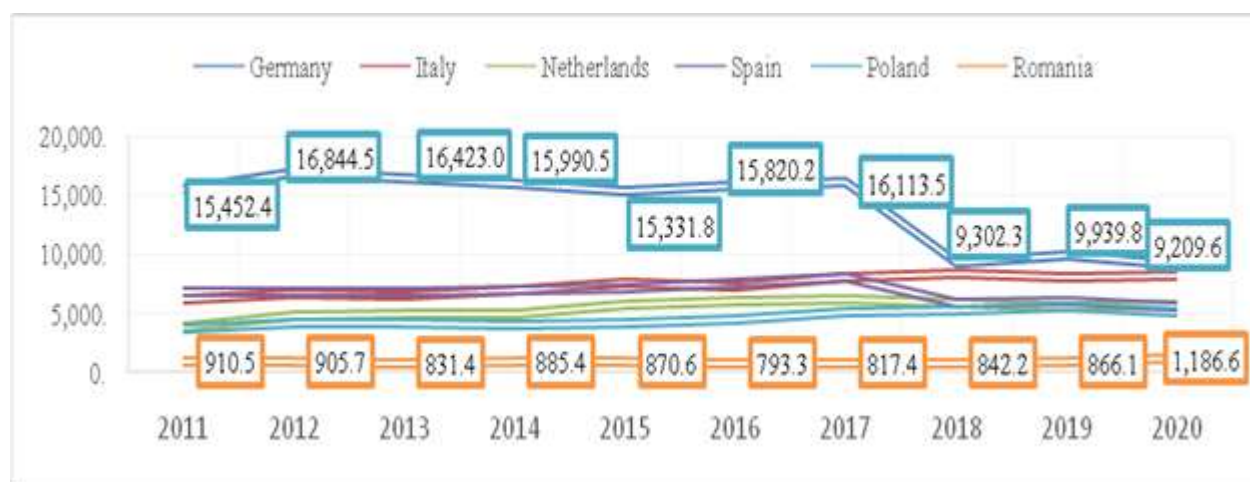


Fig. 6. The growth of turnover for meat processing companies with 50-249 employees (million euros)
 Source: Own representation based on data available on Eurostat, 2024 [4].

The decade-long overview of turnover for meat processing companies with over 250 employees reveals shifting economic landscapes within the EU's sector. From the start of the period in 2011 to the end in 2020, there's been a discernible change in the financial throughput of these companies, indicating broader industry trends, market adaptations, and shifts in consumer demand and production efficiency across member states.

The EU27's turnover saw a notable increase, indicating a healthy sector with growing demand or improved productivity. Germany, from €19,347 million in 2011, sustained its lead, witnessing a growth in turnover to €34,736.3 million by 2020. France showed an extraordinary increase, multiplying its turnover to €29,296.9 million. Spain's turnover grew to €20,739.3 million, nearly tripling, an indication of substantial expansion within its meat processing industry

with more than 250 employees. Italy's turnover had less fluctuation, ending at €9,753.9 million, while Poland observed a rise to €8,971.2 million, demonstrating their industry's resilience and growth. Romania, positioned at 14th in the ranking, despite a

smaller overall share, displayed a significant increase in turnover to €1,946.7 million, a positive indicator of its industry's growth trajectory, proportionally outpacing some larger economies (Table 6).

Table 6. Top 5 European countries by turnover of meat processing companies over 250 employees (million euros)

No	Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020/2011	Share %
	EU27	70,714.6	88,765.1	93,678.7	95,056.4	94,138.8	94,813.1	113,853.8	132,270.9	138,552.5	137,560.0	194.53%	100.00
1	Germany	19,347.0	20,700.3	21,636.1	21,592.9	21,530.9	21,972.5	23,870.2	32,560.2	35,216.7	34,736.3	179.54%	25.25
2	France	5,277.6	18,962.6	19,185.9	19,753.0	19,520.9	19,349.9	29,904.3	30,214.4	27,457.1	29,296.9	555.12%	21.30
3	Spain	7,304.4	7,799.5	9,090.0	9,462.6	9,440.2	10,077.9	11,177.7	16,511.4	20,471.5	20,739.3	283.93%	15.08
4	Italy	8,215.6	8,206.2	8,625.0	7,784.5	7,846.6	6,744.1	8,843.0	9,251.5	9,791.3	9,753.9	118.72%	7.09
5	Poland	6,655.2	7,627.2	8,114.5	8,430.6	8,741.9	8,905.8	10,027.3	11,073.6	11,892.7	8,971.2	134.80%	6.52
6	Romania	1,294.0	1,438.0	1,564.9	1,472.1	1,613.7	1,733.7	1,909.0	2,042.6	1,908.8	1,946.7	150.44%	1.42

Source: Eurostat, 2024 [4].

The data on employment within the meat processing industry serves as a valuable barometer for understanding economic vitality and labor market dynamics within the broader agri-food sector in the European Union.

Given that, Germany consistently leads the rank in employment numbers within the industry, peaking in 2019 with approximately 227,762 workers.

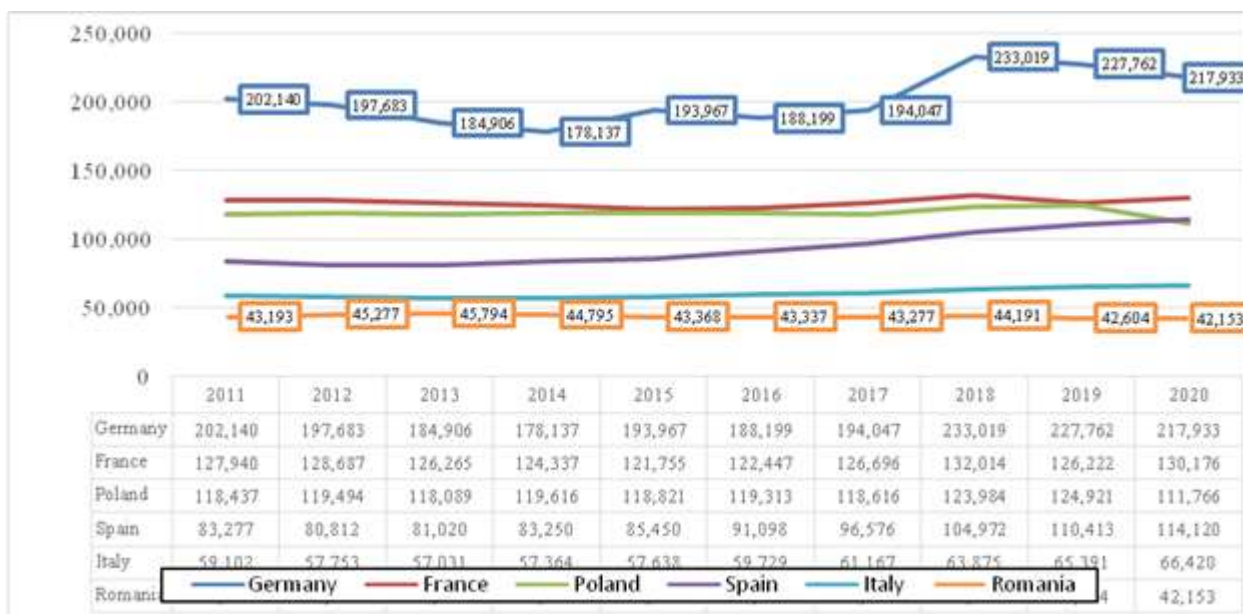


Fig. 7. Ranking of the first 5 countries according to the number of employed people and Romania's position
 Source: Own representation based on data available on Eurostat, 2024 [4].

France and Poland exhibit similar employment figures, with slight annual fluctuations but generally maintaining a steady labor force. Spain shows a notable upward trend in employment, starting from

83,277 employees in 2011 and rising to 114,120 by 2020. Italy also follows a growth pattern, albeit starting from a lower base compared to Spain, with employee numbers gradually increasing

from just over 59,100 in 2011 to 66,420 in 2020.

Romania, ranked sixth, displays a slightly different trend with a marginal decrease in employment numbers, starting from 43,193

employees in 2011 to 42,153 in 2020, suggesting either improvements in operational efficiencies or other market dynamics impacting employment.

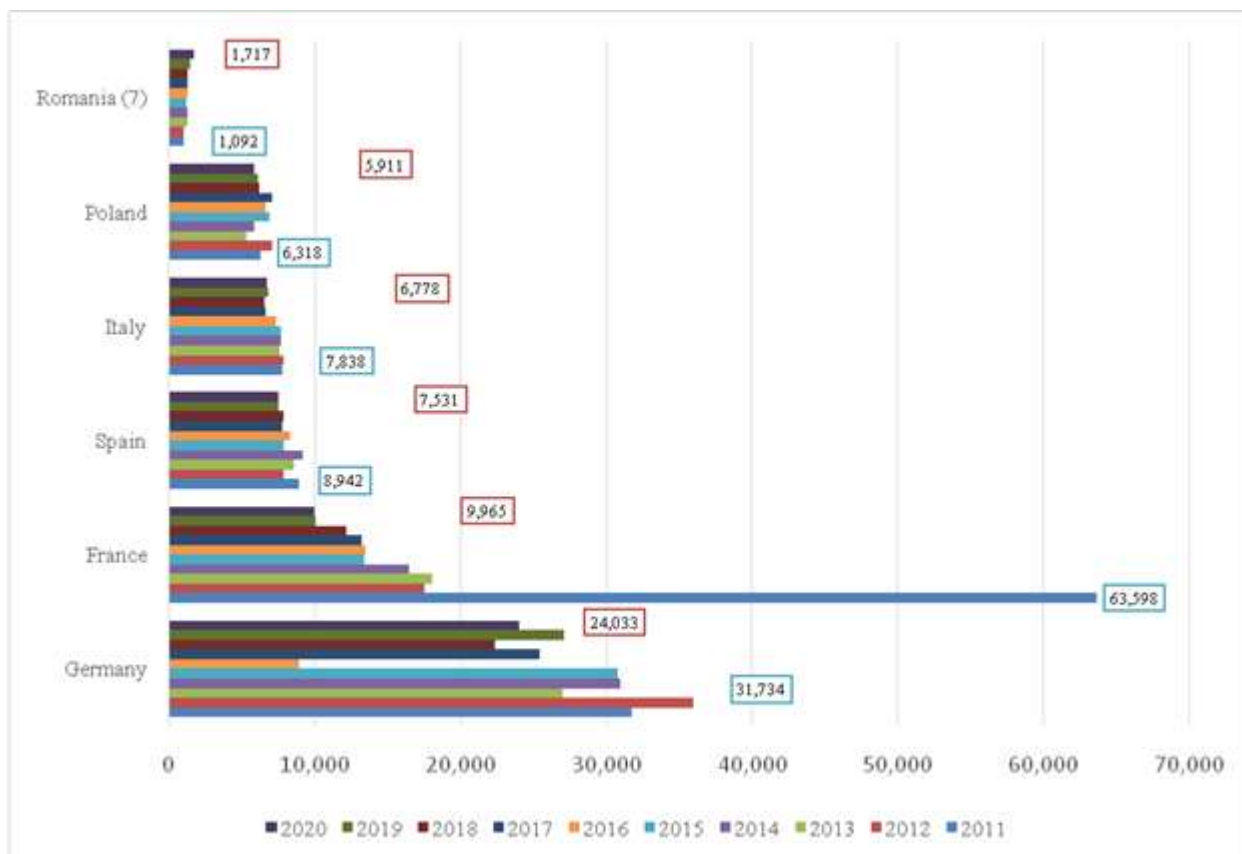


Fig. 8. Ranking of top European countries by number of employees in meat processing industry: companies with 0-9 employees and Romania's position

Source: Own representation based on data available on Eurostat, 2024 [4].

In the ranking of European countries by the number of employees in the meat processing industry for companies with 0-9 employees, Germany leads, although it saw a decrease from 31,734 employees in 2011 to 24,033 in 2020. France, starting with 63,598 in 2011, experienced a significant drop to 9,965 by 2020. Both Spain and Italy have smaller numbers of employees in this sector, with Poland following a similar pattern. Romania, at 7th place, increased from 1,092 employees in 2011 to 1,717 in 2020, showing growth in this employment category (Figure 8).

From 2011 to 2020, there's a notable shift in the labor force of the meat processing sector within five top European countries plus Romania which is on seventh place for businesses with 10-19 employees. Germany's

labor force has decreased to 71.30% of its initial size. Contrastingly, France saw an increase to 116.17%, and Poland's labor force grew significantly to 142.64%. Italy and Spain experienced moderate reductions to 89.17% and 84.21%, respectively. Romania's labor force witnessed a decline to 75.49% of its 2011 figure. These figures underscore the varying trends in industry employment across these nations (Figure 9).

The ranking of European countries based on the number of employees in meat processing companies with 20-49 employees shows Germany with a notable decrease from 2011 to 2020, yet it maintains the highest numbers. Spain and Poland both experience a reduction in their labor force in this category, with Poland rebounding slightly towards the end of

the decade. France shows fluctuations, ultimately reducing its numbers. Italy also sees a slight decrease over the years.

Romania, ranking eighth, has a relatively stable number of employees, with a slight decrease by 2020.



Fig. 9. Evolution of the number of employees in meat processing companies with 10-19 employees and Romania's position (2020/2011)

Source: Own representation based on data available on Eurostat, 2024 [4]

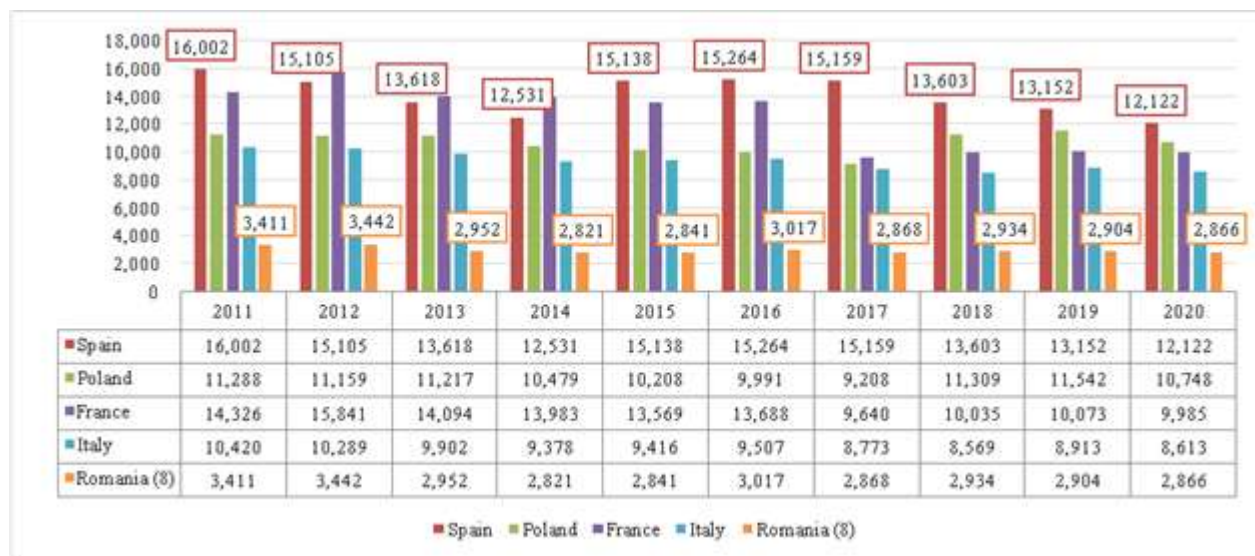


Fig. 10. Evolution of the number of employees in meat processing companies with 20-49 employees and Romania's position

Source: Own representation based on data available on Eurostat, 2024 [4].

In 2011, Germany's labor force in meat processing companies with 50-249 employees was at 52,976, decreasing to 49,530 by 2020. Poland also experienced a reduction, from 36,025 employees in 2011 to 30,395 in 2020. Romania, ranking fifth, saw a decline from

15,693 employees in 2011 to 10,707 in 2020, reflecting a contraction in the labor force within this sector over the decade.

In the meat processing industry of the EU, the labor force in larger companies saw mixed changes from 2011 to 2020. Germany

experienced a significant increase in its laborforce, and Spain's more than doubled, marking the highest growth. Italy and

Romania also demonstrated substantial increases, with Romania ranking fourth.

Table 7. Evolution of the number of employees in meat processing companies over 250 employees

No	Country	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2020/ 2011
1	Poland	60,622	61,298	63,431	65,853	65,446	64,583	65,597	68,268	70,118	58,744	96.90
2	Germany	43,205	43,306	42,690	42,606	44,226	50,551	55,097	78,747	78,009	74,402	172.21
3	Spain	28,949	29,482	31,662	35,603	35,632	39,036	42,807	55,549	60,665	64,276	222.03
4	Romania	21,471	23,870	25,312	23,865	23,780	25,267	25,335	26,516	25,683	25,711	119.75
5	Italy	20,761	18,793	19,028	18,767	19,039	20,072	24,063	26,627	27,253	28,580	137.66

Source: Eurostat, 2024 [4].

Conversely, Poland observed a slight decrease. The labor force growth rates - Germany at 172.21%, Spain at 222.03%, Italy at 137.66%, Poland at 142.64%, and Romania at 119.75% - reflect varied industrial strategies and market conditions across the EU (Table 7).

CONCLUSIONS

This study, utilizing extensive employment data from Eurostat, offers a thorough analysis of the meat processing industry in the European Union, a very important sector to the EU's economy for its significant contribution to employment, food production, and overall economic vitality. Data spanning from 2011 to 2020 across a spectrum of company sizes, from micro-sized firms with 0-9 employees to large-scale enterprises with over 250 employees, were examined.

The analysis, through a quantitative approach, assessed the annual changes in the labor force, employing comparative techniques to uncover trends and variations in labor sizes across different EU nations. This allowed for an in-depth understanding of the dynamic labor landscape, noting significant growths and declines, and shedding light on the factors influencing these changes, with a special focus on Romania.

Importantly, the study underscores the meat processing industry's role in the EU's economic framework. The companies within this sector not only provide substantial employment opportunities but also significantly contribute to the EU's food

security and trade balance. By examining the labor trends, the research highlights the industry's adaptability and responsiveness to economic and regulatory changes, indicating its resilience and strategic importance in the EU market. This comprehensive view offers valuable insights for policymakers, industry stakeholders, and researchers, emphasizing the need for continued support and development of this vital sector.

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