

# PIG MEAT MARKET IN SELECTED EU COUNTRIES UNDER THE CONDITIONS OF ECONOMIC INTEGRATION: A COMPARATIVE ANALYSIS OF OLD AND NEW MEMBER STATES

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*ABSTRACT: The objective of the paper is to present the changes that have taken place in the EU pig meat market under the conditions of economic integration. The study aims to evaluate the gains and losses arising from EU accession for the Central and Eastern European countries and the so-called “old” EU countries. The authors adopted the hypothesis that those gains and losses are not uniformly distributed, - the EU-15 countries benefit, while the new member states lose out from the changes. The analysis covered five EU-15 member states, i.e. Germany, Spain, France, Denmark and the Netherlands, and four new EU members, i.e. Poland, Romania, Hungary and the Czech Republic. The material scope of the paper includes the changes in supply (pig stock and production), prices and foreign trade, while the temporal scope encompasses the period from 1995 to 2015. An evaluation of the trends in the pig meat market with respect to the changes in supply, prices, and foreign trade reveals that the “old” EU countries benefitted from the accession of new member states to the European Union.*

*KEYWORDS: pig market, supply, prices, foreign trade, European Union countries, economic integration.*

JEL CODES: Q13, Q17, F15

## **Introduction**

The meat market represents the key segment of EU agriculture due to the volume of raw material supply, high level of meat consumption arising from the culinary traditions of the continent's inhabitants and, through its links with the animal feed sector, its stabilising role in plant production. The net supply (including foreign trade) of all types of meat in the EU is 43-44 million tonnes (Kostrzyński and Siemieńska, 2014), with the vast majority of production, i.e. over 35 million tonnes, coming from the old EU-15 countries, and the remaining 7 million tonnes being produced by the new member states. With the internal consumption of 41 million tonnes, the EU self-sufficiency in meat supply exceeds 100% (it reached 106.6% in 2013), which translates into a positive foreign trade balance. The most popular type of meat in EU countries is pork, which accounts for approximately half of the total meat supply. It is followed by poultry (slightly below 30% in 2012), and beef (below 20%). Taking into account the last several years, the total meat supply in the European Union has remained relatively stable (with cyclical and seasonal fluctuations), but the product structure has slightly changed - there has been an increase in poultry production and a drop in beef production. The share of pig meat in the total meat supply has remained relatively constant. However, visible changes have taken place in the geographical structure of meat supply. Two groups of countries have emerged - those that are leaders in meat production and exports, and those that have lost their position in the EU market. Undoubtedly, one of the factors determining the trends in supply, prices and foreign trade was the enlargement of the European Union to include new member states.

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### **Research objective and methodology**

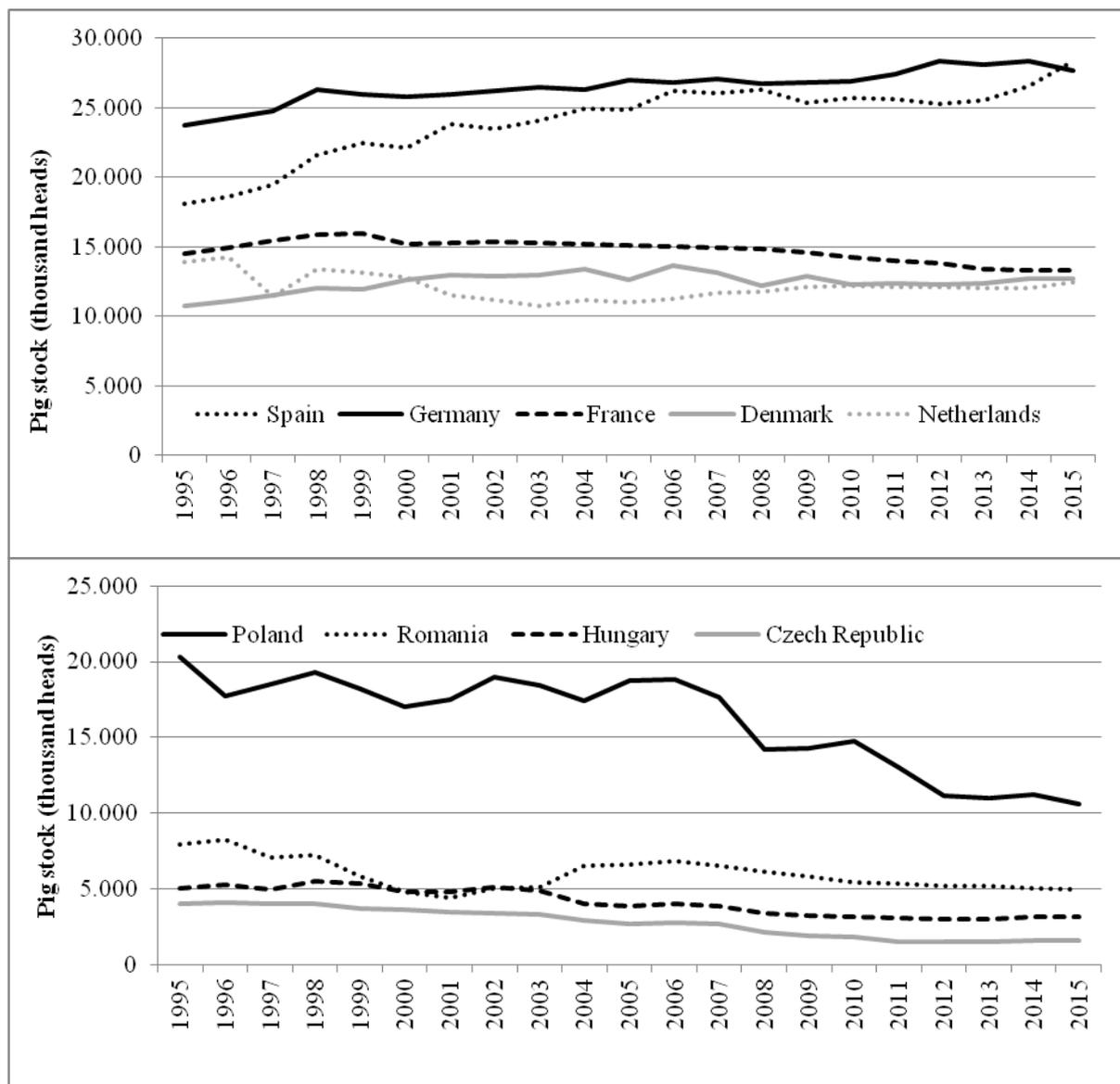
The objective of the paper is to present the changes that have taken place in the EU pig meat market under the conditions of economic integration. The study aims to evaluate the gains and losses arising from EU accession for the Central and Eastern European countries and the so-called “old” EU countries. The author adopted the hypothesis that the gains and losses are not uniformly distributed, with the EU-15 countries benefiting, and the new EU members losing out from the changes. Due to the alignment of pork prices (and to a certain degree also of production costs) on a supranational scale, the advantage of the “old” EU members results from the greater concentration and scale of production, higher efficiency of farming and institutional solutions in the sector, including mainly integration relations.

The analysis covered five EU-15 countries, which are major pig meat producers, i.e. Germany, Spain, France, Denmark and the Netherlands, and 4 new EU members, i.e. Poland, Romania, Hungary and the Czech Republic. The material scope of the study includes the changes in supply (pig stock and production), prices and foreign trade, while the temporal scope covers the period from 1995 to 2015. The statistical data was complemented by a description of the functioning of national markets. The following research methods were employed in this study: critical analysis of relevant literature, meta-analysis, reductionism and comparative analysis. The paper makes use of the Eurostat and FAO data, as well as industry reports and relevant literature.

### **Research findings - the pork market in the “old” EU countries**

Spain has the largest pig population of all EU countries (until 2014, Germany was the leader in this field), accounting for nearly 20% of the Union market. At the same time, Spain has a lower share in production than Germany because a major part of Spanish exports involves the sale of live animals (like in Denmark and the Netherlands), while Germany specialises in selling processed meat. The last several years mark a period of constant growth in pig stock and production, although with a certain slowdown in the years following the economic crisis of 2008-2009 (Fig. 1 and 2). Although the crisis led to short-term deterioration in the positive foreign trade balance, Spain was able to increase considerably its trade balance in the long term (see Fig. 3).

Spain owes its success mainly to the vertical integration of its pig farming industry with the feed sector and meat processors. The result is that the producers, on the one hand, reduce the costs of production, and on the other hand, follow the guidelines on production systems, feeds, and veterinary procedures to ensure the uniform quality of products, which makes it easier for meat processors to reach the desired market segments. The key factors driving the sector’s development include: high level of domestic consumption (owing to the large population), high level of per capita consumption (above 50 kg a year), and seasonally also the influx of tourists. The accession of new member states did not significantly affect the dynamics of exports, since the main consumers of Spanish meat are France (31% in 2014), Portugal (22%), Italy (14%), Germany (6.5%), Denmark and the Netherlands (slightly above 2.5%) (Valverde, 2015).



**Figure 1. Number of pigs in selected EU countries in the years 1995-2015**

*Source:* Own work based on the Eurostat data (<http://ec.europa.eu/eurostat/data/database>)

As previously mentioned, in 2015 Germany held the second position in the EU in terms of its pig population, although the year before it was in the first place. However, it has the largest share in pig meat production in the EU, and vastly outperforms Spain, which holds the second position in this field (Table 1). This results primarily from the relatively high turnover of animals, and secondly, from the fact that German pig farmers have specialised themselves in purchasing live animals for further fattening from abroad, mainly piglets (this is evidenced by the falling number of sows in herds) (Reynolds, 2010; [www.3trzy3.pl](http://www.3trzy3.pl)). The factors stimulating the growth of pig production include: favourable geographical position (access to sea ports, proximity to the countries from which raw material is imported – Denmark and the Netherlands), large domestic market and high per capita consumption of pork (about 55 kg a year), considerable area of agricultural land used for growing animal feed, mechanisation and specialisation of agricultural holdings (lower costs of capital and labour), favourable tax regime, well-organised processing industry and, last but not least, farmers' knowledge and experience.

Table 1.

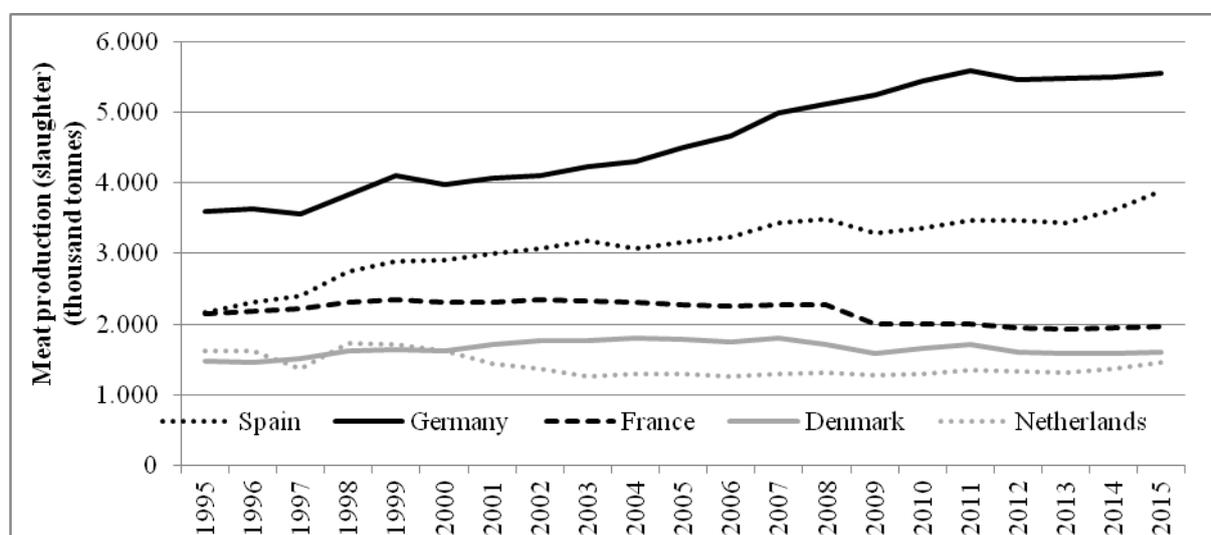
**The share of selected EU countries in Union pig stock and meat production in 2003 and 2015**

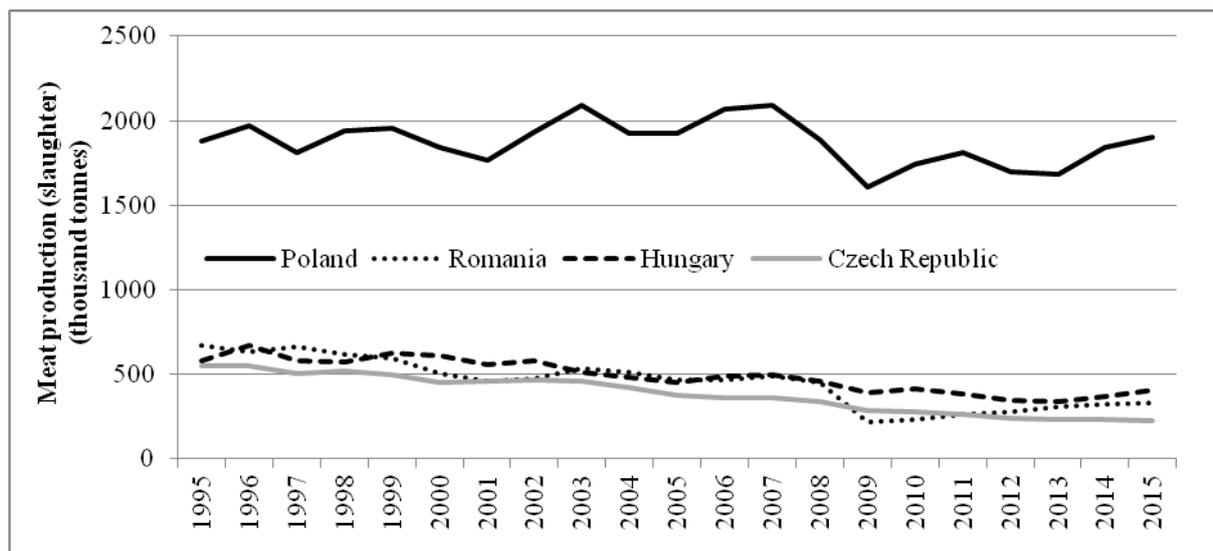
Country	2003	2015	Change 2015/03 (percentage points)	2003	2015	Change 2015/03 (percentage points)
Spain	15.1%	19.1%	+4.0	14.6%	17.0%	+2.3
Germany	16.6%	18.6%	+2.0	19.4%	24.2%	+4.8
France	9.5%	8.9%	-0.6	10.7%	8.6%	-2.1
Denmark	8.1%	8.5%	+0.4	8.1%	7.0%	-1.1
The Netherlands	6.7%	8.4%	+1.6	5.7%	6.3%	+0.6
Poland	11.5%	7.1%	-4.4	9.6%	8.3%	-1.3
Romania	3.2%	3.3%	+0.1	2.4%	1.4%	-1.0
Hungary	3.1%	2.1%	-1.0	2.3%	1.8%	-0.6
The Czech Republic	2.1%	1.0%	-1.0	0.8%	1.0%	+0.2

Source: Own work based on the Eurostat data (<http://ec.europa.eu/eurostat/data/database>)

Noteworthy is also the high level of integration of the German meat market which in some regions involves up to 60% of farmers. The integration is primarily visible in the organisation of pig sales. The two largest entities in that market (in North-West Germany) are Viehvermarktungs-genossenschaften (VVGs) which have the form of cooperatives, and Erzeugergemeinschaften (EZGs) which function as associations. On the other hand, the vertical coordination is less developed, and the predominant form of sales are spot transactions accompanied by informal long-term agreements and marketing contracts specifying the conditions of livestock sales and purchase (Stępień, 2009).

An evaluation of the trends in supply and foreign trade leads to the conclusion that Germany is a beneficiary of the European integration process. This is reflected in the constant growth of pig stock and pig meat production, as well as in the favourable changes in the foreign trade structure. Owing to its expansionary trade policy, Germany has become the largest EU net exporter of live pigs and pig meat, despite having recorded a negative trade balance in 2004 (Fig. 3). Particularly high dynamics of sales can be observed after 2004 when the new EU member countries became important export markets – in 2015, Poland was the second largest consumer of German pork, the Czech Republic held the fifth place, and Romania – the eighth place ([www.statista.com/statistics](http://www.statista.com/statistics)).





**Figure 2. Pig meat production (slaughter) in selected EU countries in the years 1995-2015**

*Source:* Own work based on the Eurostat data (<http://ec.europa.eu/eurostat/data/database>)

The third place in the EU in terms of pork production belongs to France. However, unlike in Spain and Germany, the pig stock and production in France do not show an upward trend. On the contrary, they even decreased after 2008. Foreign trade shows a slight positive balance, without greater fluctuations in successive years (except in 2007). French meat producers are faced with the problem of growing competition from Germany and Spain. Especially in Germany, the use of cheap labour force (also from Poland) in German holdings and processing plants contributed to a decrease in the market prices of processed pork across France's eastern border. Moreover, it is worth noting that unlike the other countries under study, France does not have such strong culinary traditions related to pork, which is reflected in a lower per capita consumption of that product (34 kg a year). One of the strengths of French pig farmers is the strongly developed cooperation – almost every pig producer in France belongs to some sort of a cooperative. According to various sources, there are between 130 and 180 such organisations in France, which are responsible for 85% of total sales. Members of those organisations are committed to joint purchase of production means, sales of meat and use of veterinary services. They also hold stakes in the slaughterhouses to which they supply their pigs (Fodgen, 2007). At the same time, however, small unintegrated farms go out of business, which leads to an increased density of pig stock – from 324 to 727 heads per farm in 2013, i.e. more than in the other two countries described above (Table 2).

A distinguishing feature of the Danish pork market is that it is dominated by a cooperative system of meat processing and distribution. Almost the entire pig production is slaughtered, processed and sold by cooperatives that handle nearly 90% of the produced pork. There are four cooperatives operating in the industry. The unquestionable leader is Danish Crown with a market share of 85% (data for 2010). The second place belongs to Tican with 8% market share, followed by DAT Schaub (5%) and Daka (2%) (Facts..., 2012). The cooperatives are owned and managed by pig producers. The generated profits are divided among the cooperative members, i.e. agricultural holdings, based on their participation in the cooperative. In this way, Danish farmers earn money not only by selling live animals, but also by selling the processed products, thus retaining the benefit, which would otherwise have “leaked out” to intermediaries.

Table 2.

**Density of pig stock (number of pigs per farm) in selected EU countries**

Country	2003	2005	2007	2010	2013	2013/2003
Spain	370.0	196.8	216.6	354.2	466.8	126%

Germany	255.7	302.9	340.7	458.8	584.0	228%
France	324.5	353.1	404.7	569.4	727.2	224%
Denmark	1177.2	1500.5	1903.4	2598.2	3128.4	266%
The Netherlands	1015.4	1167.3	1342.1	1743.2	2208.4	217%
Poland	28.9	25.3	27.9	39.2	40.6	140%
Romania	n.d.	2.8	2.8	3.2	3.3	117%*
Hungary	11.3	12.2	13.5	17.5	21.4	189%
The Czech Republic	86.4	206.9	252.5	477.0	312.4	361%

Source: Own work based on the Eurostat data (<http://ec.europa.eu/eurostat/data/database>)

Moreover, thanks to the competitive prices of pork carcasses, Denmark is gaining advantage in the international arena due to its successful foreign trade performance (Stępień, 2015). It suffices to mention that the per capita consumption of pork is 51 kg a year, whereas the domestic production is 315 kg (Statistics..., 2011). This clearly shows that a large proportion of the production has to be exported. Therefore, Denmark has the highest positive trade balance of all countries under study (Fig. 3). What is more, the balance rose steadily from 1995 to 2008 (it declined between 2009 and 2010 because of the global economic crisis) owing to, among other things, the growth of exports to Poland after its accession to the EU. In this sense, Danish farmers, like their German counterparts, are beneficiaries of the European integration process.

Denmark's success is attributable not only to the above-described form of market organisation, but also to the considerable farming efficiency achieved through the high level of specialisation and scale of production (the highest in the EU – see Table 2), as well as to the use of genetic improvements. Nevertheless, an excessive density of livestock poses an increasingly serious problem to the environment (e.g. the use of slurry). Another barrier impeding the development of pig farming are the high prices of agricultural land<sup>3</sup>. Therefore, raising piglets and weaners for exports has become the strategic direction for the development of Danish pig production in recent years. At the same time, Danish meat industry takes over the meat processing facilities in other EU countries to which animals are sold. An example of such practice is the acquisition of the meat processing plant Sokołów S.A. in Poland – since February 2014, the cooperative Danish Crown has held 100% of the shares in that company (<http://gospodarkapodkarpacka.pl>).

The last “old” EU member state to be discussed here are the Netherlands. Like Denmark, the Netherlands are characterised by a high concentration of production and positive indicators of farming efficiency, which translates into relatively low prices of live pigs and pig meat (Fig. 4) and, consequently, into good foreign trade performance. After 2004, an improvement in trade balance and a slight increase in pig population and production could be observed (Fig. 1,2,3). An analysis of the geographical structure of Dutch exports reveals that the improvement in foreign trade balance is the result of the growth of exports to the old EU countries (Germany, Italy, Great Britain), and to the countries outside the EU (Japan, China, South Korea) (<http://pork.ahdb.org.uk>). Although the new member states are not the main consumers of Dutch raw material, their incorporation into EU structures had an indirect effect on the volume of Dutch foreign sales by increasing the access to the German market (Germany is the largest buyer of the raw material from the Netherlands, and the raw material from Germany is, in turn, sold to Eastern and Central European markets).

It is also worth noting that the growing environmental requirements and restrictions in access to agricultural land have brought about changes in the country's export structure - piglets now represent an increasing share of Dutch exports (a situation similar to Denmark). Moreover, due

<sup>3</sup> For example, in 2010, one hectare of arable land in Denmark cost 19.900 euros, compared with 11.500 euros in Germany and 4.800 euros in Poland (Turek, 2013).

to the lack of sufficiently large agricultural area, pig farmers rely on imported feeds, which is facilitated by the access to large international seaports. As far as the organisation of the market is concerned, the relations between agricultural holdings, suppliers and consumers are dominated by *spot* transactions and informal contracts, whereas cooperatives are mainly engaged in feed production and meat processing.

### **Research findings – the pork sector in new member states**

Poland is the largest pork producer amongst the new member states and the fourth largest pork producer in the EU. At the same time, however, the country has recorded the biggest fall in pig stock – since the mid-1990s, the number of pigs has dropped by half, and the trend has accelerated after 2007. On the other hand, in 2015, the production (slaughter) figures were similar to those in 1995, and have been growing steadily since 2009, along with pork exports (Fig. 1 and 2). This indicates that the meat industry relies on imports of raw material; mainly from Germany and Denmark (the countries hold shares in meat processing companies in Poland). Importing meat from abroad is the result of the inability to buy large, uniform batches of products from Polish manufacturers (due to the small scale of production), but might also be attributable to the economic patriotism of the companies with foreign capital. It can therefore be stated that after accession to the EU, Poland has become an outlet for the “old” member states, and a place of investment for foreign-owned meat industry. The new circumstances associated with the inclusion of Polish agriculture in the CAP mechanism stimulated the growth of plant production, whereas the abolition of livestock intervention purchase and deterioration in the livestock-to-feed price ratio have led to a considerable decline in pig population (although not in meat production, as mentioned above).

Some of the weaknesses of the Polish meat sector are fragmented production (concentration processes are very slow – cf. Table 2) and poorly integrated market, both horizontally<sup>4</sup> (cooperation between farmers), and vertically (coordination of the supply chain). The formation of producer groups is hampered by the lack of confidence in business partners and lack of knowledge about the benefits of cooperation. The slow speed with which producer groups are created is also an expression of the reluctance of meat processing plants to engage in long-term cooperation with pig farms (Ziętara, 2012). Simultaneously, the reluctance of agricultural producers to enter into long-term agreements with buyers results from the fact that the contracts are often concluded for the benefit of the processor as a stronger actor in the market.

Romania has the greatest number of pig farms in the European Union. However, due to the small scale of production, which is the lowest in the analysed group of countries, its share in the total pig population in the EU does not exceed several per cent (3% and 1.4% in 2015, respectively – cf. Table 1). Moreover, Romania is characterised by an extremely fragmented agrarian structure. Pig production is dominated by peasant farms (subsistence farms) which keep only 1 or 2 heads of animals, and only a quarter of the production is intended for commercial purposes, i.e. for market sale. One of the problems faced by the Romanian pig market is the animals’ health status. There is a high risk of diseases, and swine fever is endemic in certain regions of the country (Hoste, 2008). The problem became particularly acute after Romania’s accession to the European Union, and the necessity of complying with additional sanitary and veterinary requirements. The lack of confidence in Romanian produce manifested itself in the form of a ban on the sale of pigs to other EU member states, introduced in 2003 (the ban was still in force in 2016) (Soare et al., 2015).

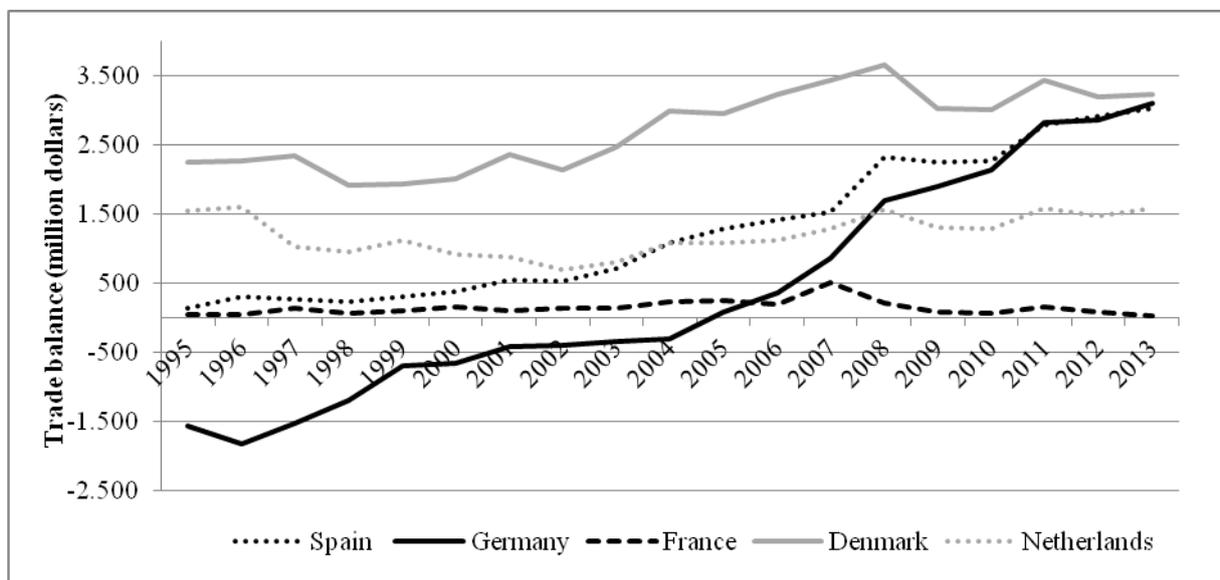
The new circumstances resulted in a substantial decline in pig stock and production after 2007 (Fig. 1 and 2). Some small-scale producers were eliminated from the market, although the relative decrease in the number of small farms was lower than in the other Central and Eastern European countries since many of those farms raise animals for their own use (or to meet the local

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<sup>4</sup> In mid-2012, there were 169 groups producing pig meat (including 98 in the Wielkopolska Province and 20 in the Kujawsko-Pomorskie Province) which had 4 thousand active members (in comparison to almost 300.000 pig farms totally in Poland) (Stępień 2015).

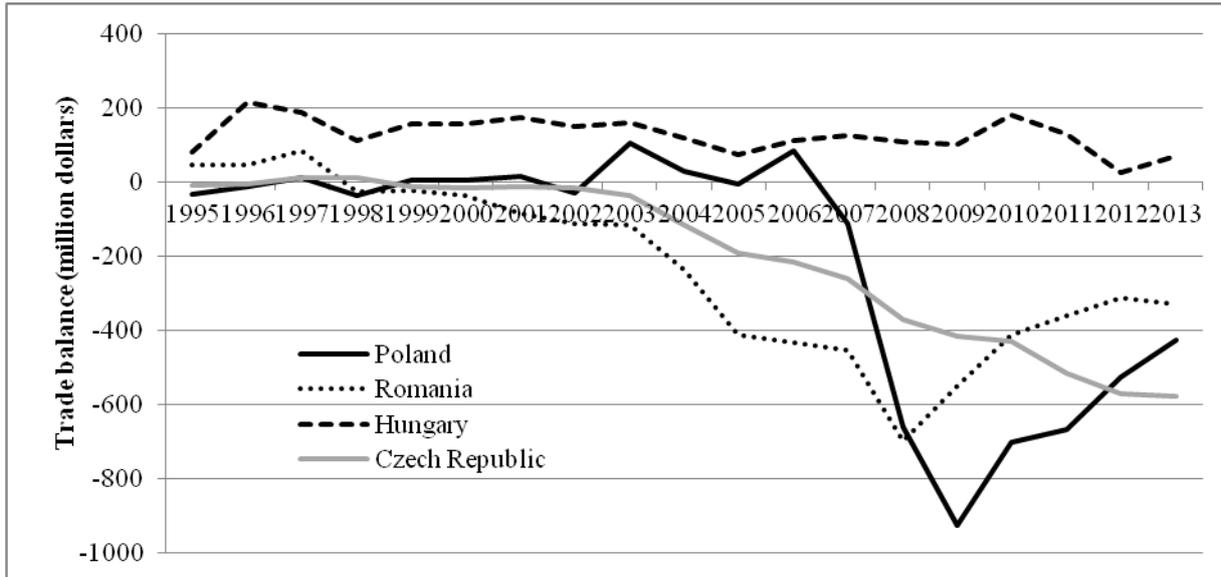
needs), and a change in the external economic conditions does not affect their activity to the same extent that it affects commercial enterprises. However, interesting changes took place in the ownership structure of large factory farms. The farms, which had previously been dominated by the local capital (state or private ownership), were bought out by foreign companies (Danish, American, Belgian, Italian) (Lapuste, 2012). The reason for those acquisitions was the lack of modernisation of old buildings and production facilities, while the creation of long-term action strategies based on state subsidies (later EU subsidies) turned out to be a mistake. On the other hand, the Romanian market presented significant growth potential for foreign investors because of the low costs of business activity (costs of labour, feed<sup>5</sup>, services), more lenient environmental standards, and, above all, the absorptive power of the domestic market with its 22 million inhabitants and the prospects of increase in the per capita consumption of meat (Dobrescu, 2015). It should be noted that like the Czech Republic, Romania is characterised by low levels of self-sufficiency in pig meat, which amounted to 45% in 2015 (this means that imports accounted for more than half of pork consumption).

After several years of integration with the EU, two groups of pig producers have emerged in the Romanian market: small-scale farms, which produce pigs for their own use or for the local market, and large factory farms<sup>6</sup>, mostly with foreign capital, which supply about 85% of all pig meat in the market (data for the year 2014). The latter usually function as part of an integrated chain together with the suppliers of agricultural equipment and services, slaughterhouses and meat processing plants. The influx of investment into the pig farming sector produced positive effects, such as an increase in pork production, recorded 2-3 after the accession, and reduction in the negative foreign trade balance (Fig. 2 and 3). However, the pig population experienced a steady decline despite production growth, which means that imported pigs represented an increasing proportion of all slaughtered animals. The data suggests that the imports of live pigs are dominated by animals below 50kg of weight, intended for further fattening. The main suppliers of this raw material are Germany, Denmark, the Netherlands, Hungary and Slovakia (Ionel, 2015).



<sup>5</sup> Contrary to Hungary and the Czech Republic, Romania has very good feed resources, the favourable climate conditions enable the cultivation of soya, which is used as a pig fodder.

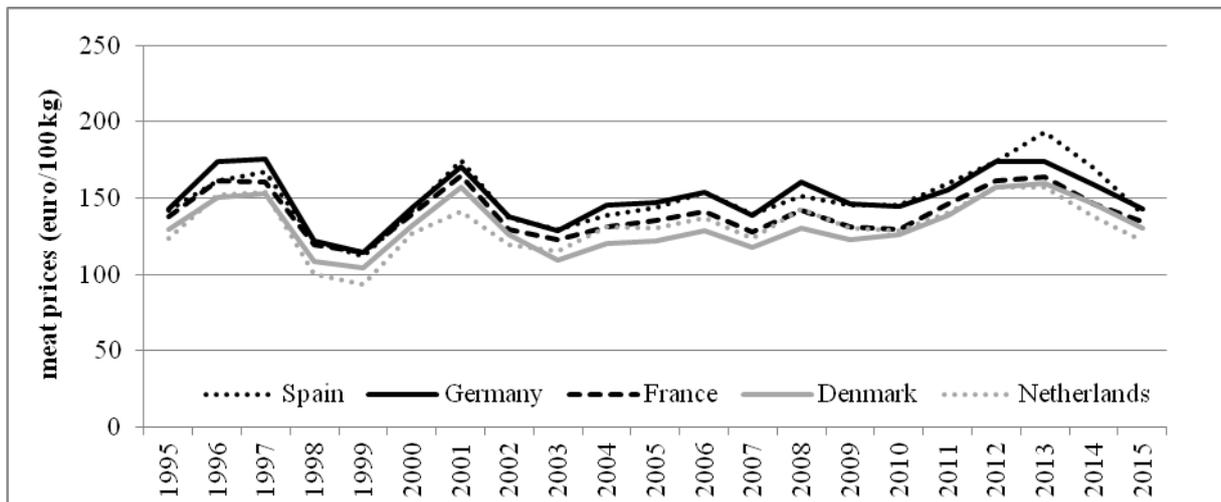
<sup>6</sup> In 2014, there were 218 authorised farms, which kept 1.8 million pigs, which means that livestock density per one holding was over 8,000 pigs).

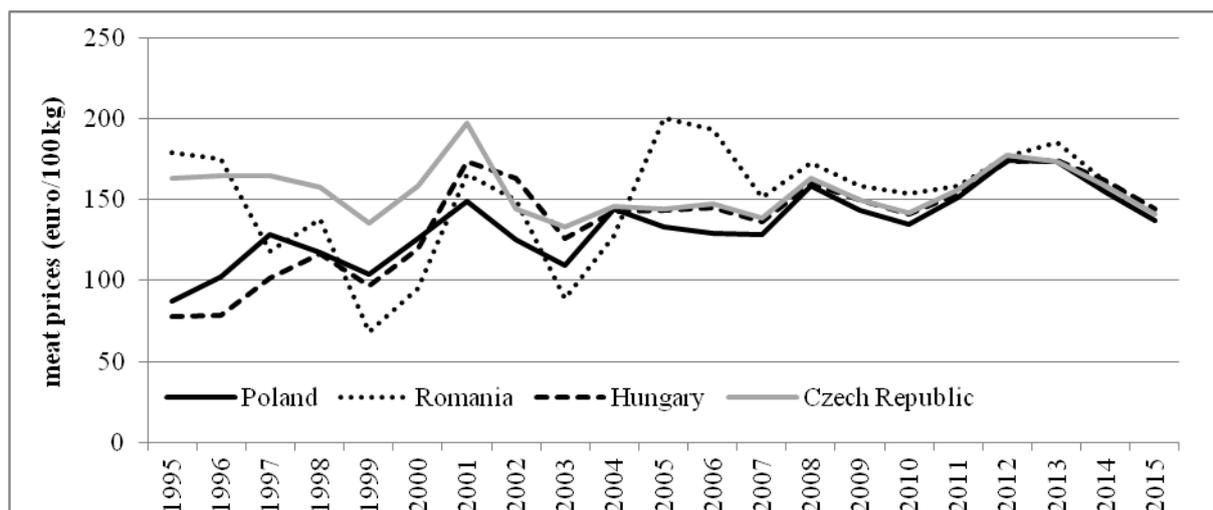


**Figure 3. Foreign trade balance of live pigs and pork meat in selected EU countries in the years 1995-2013**

*Source:* Own work based on the FAO data (faostat.fao.org)

The pig meat market plays an important role in Hungary due to the volume of production and the country's culinary traditions (Bartha and Nabradi, 2008). However, similar to Poland, the Hungarian market was affected by the results of political transformation. In the first half of the 1990s, the pig population decreased (by half compared with the late 1980s and early 1990s) and so did the number of producers, including state-owned companies (Balogh et al., 2009). In the following years, the number of pigs remained relatively stable, i.e. about 5 million heads, owing to, among other things, the significant role of state intervention (Bartha, 2007).





**Figure 4. Pig meat prices (carcass weight) in selected EU countries in the years 1995-2015**  
*Source:* Own work based on the Eurostat data and data of the Polish Ministry of Agriculture and Rural Development, 2015

Another shock for the industry was the accession to the EU and the fact that Hungarian farms and meat processing plants had to compete with Union entities. One of the results of the opening-up of borders was the gradual alignment of the low domestic prices with the prices in Western Europe, which led to increased imports of raw material and a deterioration in trade balance<sup>7</sup> (Fig 3 and 4). All the more so since the quality of Hungarian pork was lower than that of imported pork<sup>8</sup>. Furthermore, the domestic demand for pork was steadily falling - 10 years after accession to the EU, it dropped by about 40%<sup>9</sup>, which necessitated further reduction in pig population (Berezvai, 2014). In response to the unfavourable changes in the sector, the Hungarian government drew up a plan to reconstruct the pig farming potential in the period 2012-2020. The document aimed to increase the number of pigs by 1 million during the first 2-3 years of the program implementation, e.g. by boosting the exports to Asian countries (South Korea and Japan). However, the data suggests that from 2012 to 2015, the pig population increased only by 135,000 heads.

An analysis of the reasons for the difficult situation in the Hungarian pig market points to structural problems. They primarily include the fragmented agrarian structure, low level of concentration and specialisation of family farms, and the obsolete system of factory farming (former state-owned farms). On the other hand, the processes of (mainly horizontal) integration of pig farms are slow, which translates into their weak position in the supply chain in relation to the highly concentrated retail and foreign entities. Other factors include the low efficiency of pig farming and relatively high feed prices (lack of access to the sea increases the costs of imports of e.g. soya) (Hoste, 2008). A positive outcome of integration of the Hungarian meat market with the EU market was the growth of pig stock density, with a simultaneous drop in the number of pig farms. Consequently, the number of animals per one pig farm increased from about 11 heads in 2003 to over 21 heads in 2013 (Table 2), although the result was twice lower than in Poland and many times lower than in other countries under study (except Romania).

Of all countries discussed in this paper, the Czech Republic has the lowest share in the EU pork market, both in terms of its pig population and volume of pig meat production (only 1% in

<sup>7</sup> However, it should be highlighted that of the four new member states under study, only Hungary had a positive foreign trade balance of pork after EU accession.

<sup>8</sup> The content of lean meat in carcasses varies between 46-47%, as compared with 56-57% in Western European countries (Pork meat..., 2012).

<sup>9</sup> It currently stands at 25 kg/person a year (<http://www.globalmeatnews.com>).

2015). At the same time, the country's supply and demand structure is similar to that in Germany, Denmark or Poland. Pig production accounts for about 50% of the total meat production, and the demand exceeds half of the total consumption (Gebeltová, 2012), recently amounting to 43-45 kg/person a year (<http://www.statista.com/statistics/>). Moreover, the Czech Republic shares with other Eastern and Central European countries the experience of political transformation and EU accession, including all the consequences of those processes. Thus, the 1990s were characterised by a decline in pig population and the number of slaughters, mainly in the collectivised sector. The process was accelerated after the EU accession (Fig. 1 and 2), which, given the relative stagnation of the domestic consumption<sup>10</sup>, led to a drop in self-sufficiency in this sector from 96% in 2003 to about 50% in 2015 (Eurostat, 2016). The causes of the situation were similar to those in other Central and Eastern European countries under discussion. Among them were: the obsolete farming methods employed by both small and factory farms, reduction in state intervention and limited support from the EU (which was restricted to the activities under the second pillar of the CAP), growing costs of production (mainly of feeds<sup>11</sup>), low efficiency of farming, low investment capacity of pig producers (due to the lack of personal capital and limited access to external funding) and finally, the need to comply with EU requirements concerning environmental protection and animal welfare (Tamáš and Peterková, 2015; Gebeltová, 2012]. Those negative determinants were responsible for a considerable drop in the number of pig producers, which, in turn, increased the density of pig stock, the percentage increase being the largest of all countries under study (Table 2). At present, the Czech Republic compares positively with Poland, Hungary and Romania in terms of the average number of pigs per one farm, although the figure is still much lower than in Denmark or the Netherlands.

The decreased self-sufficiency in pork provided an impetus for the growth of imports of raw material, which, in turn, led to the elimination of pig farms. As a result, the Czech Republic turned from a country that had a favourable foreign trade balance in the late 1990s and early 2000s into a major importer of live pigs and pork (Fig. 3). The main suppliers of the products were Denmark, the Netherlands and Germany, despite the fact that until 2006 Germany was one of the main consumers of Czech pork<sup>12</sup>. The loss of the German market is only partly compensated by the exports of pigs to Hungary and Slovakia. Consequently, the negative balance in foreign trade is gradually increasing. One of the reasons for this situation is the fact that the meat industry is interested in buying large, uniform and standardised batches of products, which are more easily available abroad. The demand for domestic products might increase under the conditions of market integration, but the experience of recent years points to a limited scale of that process. During the first 2-3 years of EU membership, the number of producer organisations rose dynamically to 176 (this was the result of support received under the rural development programme 2004-2006), before falling to 85 in 2012. Although the number is relatively high, considering that the Czech Republic is a small country, the majority of those entities have a market share below 1% and function only on a regional or local scale (Ratinger et al., 2012).

### **Summary and conclusions**

An evaluation of the trends in the pig meat market with respect to the changes in supply, prices, and foreign trade reveals that the "old" EU countries benefitted from the accession of new member states to the European Union. The greatest beneficiaries were Germany and Denmark, which increased their participation in the Eastern and Central European markets through trade. EU enlargement also had indirect benefits for the Netherlands, which found a place for its products in

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<sup>10</sup> In 2003, the per capita consumption was 51.5 kg a year as compared with 45.6 kg a year in 2015.

<sup>11</sup> Like Hungary, the Czech Republic does not have direct sea access, which increases the costs of imports of soya feeds. The situation is further aggravated by the fact,

<sup>12</sup> Thanks to the strategy for the development of pig meat production, in 2007 Germany achieved excess of supply over domestic demand (self-sufficiency rate of 106%) and has since become an important exporter of pigs and pork.

Germany. A dynamic growth of supply and foreign sales was recorded in Spain, although in this case the success was largely the result of broadening the market for goods in the “old” EU countries, such as France, Portugal and Italy. France was the only country that did not record an improvement in the pig meat market because of economic integration. The stagnation in production and trade is due to the increased competition from neighbouring economies – Germany and Spain.

All new member states experienced a visible decline in pig stock during the analysed period, but the rate of that decline was even bigger after integration with the EU. Inclusion into the common market led to the alignment of pig meat prices among the old and new member states (this, to an extent, was also the case with costs, including the costs of feed), and competition on the basis of scale and efficiency of production put Western European countries in an advantageous position. Interestingly, the drop in pig population was not necessarily related to a decrease in production and deterioration in trade balance. It turns out that after 2009, both Poland and Romania recorded an increase in production and foreign trade balance, with a simultaneous decline in the number of pigs. This was due to the imports of piglets into those countries, and the subsequent fattening and slaughtering of pigs that were intended for exports. A key role in this process was played by transnational companies (e.g. Danish and German meat processing plants), which acquired stakes in the Polish and Romanian meat processing facilities and imported the raw material from their countries of origin. Such a situation undermined the position of the domestic pig producers who were forced to give up their activity. This raises the question of whether such a path of sector development will not increase the elimination of family farms to the detriment of the society (e.g. due to the lower quality of meat from factory farms). The author believes that there are at least two possible directions of action. The first one involves greater integration of pig producers and taking over the successive stages of the food chain, including a network of own processing plants and points of sale, since this is the only way to compete with much larger foreign producers. The other direction is associated with the growing consumer demand for traditional, local food. This, however, requires the establishment of suitable legislation that would favour such a form of production and direct sale.

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