Foreign Direct Investment and Competitiveness of Automotive Sector in Romania

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ABSTRACT
The paper approaches the automotive sector in Romania as a main branch of industry that contributes to the country's competitiveness. There is analysed in territorial plan the layout of foreign direct investment and domestic investment in the automotive sector and also the automotive clusters and the main investments made in this sector of the economy. The research also includes an analysis regarding the competitiveness of the automotive sector and presents its evolution in terms of production and exports. The results indicate that most of the investors are located in the west and south of the country, the sector is one of the most competitive areas of economy, contributing to around a quarter of the country's total exports.

KEYWORDS : *automotive, competitiveness, domestic investment, foreign direct investment, innovative clusters*

JEL CLASSIFICATION : *D24, F16, F21, F23, O30*

1. INTRODUCTION

The automotive industry represents one of the strategic sectors of the European economy, with a significant contribution to the worldwide EU competitiveness, being one of the engines of the European economy. The automotive sector has a high level of workforce occupancy, being strongly connected to multiple industrial sectors of the economy, both upstream and downstream.

The EU is an important player in the global market, being one of the largest automobile manufacturers in the world. Consequently all the states in its composition are manufacturing automobile, accessories and component parts, supporting the automotive industry through the annual productions of more than one brand of automobile. The sector is supported by large renowned companies around the world that annually allocate significant funds for R&D and Innovation in the field. These companies represent approximately 25% of the total number of companies engaged in research and development investments within the EU (European Commission, 2014).

Both in Europe and worldwide, the automotive industry is facing numerous changes due to the need to adapt supply to growing consumer demand for efficient new models based on non-polluting sources of energy, such as hybrid or electric vehicle development. These changes inevitably require increased investment in research and development and continuous innovation in the field. The question is, whether all automotive companies will face rapid

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changes in production to meet the new requirements and what will be the implications on production costs and economies of scale generated by this strategic sector (Bailey et al., 2010). It is essential in this case the intervention of governments and regional authorities through appropriate policies to support the car production (Rutherford & Holmes, 2014).

In Germany, for example, the largest carmaker in Europe, which contributes about 45% of the added value of the sector is experiencing a phase of restructuring affecting regions of the country where it is located the auto production, which led the German government to devise a high-tech strategy in the field to support an additional 16 branches of auto production and transport German companies, in order to maintain Germany's top position (Emons, 2010).

The automotive industry in the EU delivers nowadays (2016) 12.1 million jobs, accounting for 5.6% of employment in the EU, of which 3.1 million are highly skilled positions, designed for R&D and Innovation, which means 10.4% of the workforce in the corresponding sector (www.acea.be).

Europe is under pressure of increasing competition from Asian countries, especially China, which wants to impose on the European car market. Please note that by 2012 the EU has been a leader in terms of world production of cars. Starting next year, China has managed to overtake European production (OICA, 2012, 2013).

For the countries of Central and Eastern Europe (Czech Republic, Poland, Romania, Slovakia, Slovenia, Hungary) the automotive sector plays a very important role in the economics of the region by contributing to the economic growth. According to Coface study published in July 2015, the automotive industry at the level of 2013 generated about 850,000 jobs, representing 2.5% of total workforce employed (Coface, 2015). Of course, until now (March 2016) the employment volume occupied by the sector continued to increase, only in Romania, the number of employees in this field reached the number of 203,600.

The main reason for these positive developments is represented by the massive foreign direct investment (FDI) that the countries in the region have attracted, their main strengths being the relatively cheap and skilled employment, the geographical proximity to Western Europe, the improvement of the business climate. In this region there are 33 automotive factories producing both auto vehicles and commercial vehicles as well as engines or other component parts, most of them becoming after 1990 platforms for the production and assembly of foreign brands. However, two local brands, Skoda in Czech and Dacia in Romania, managed to survive in the global market, contributing to the competitiveness of those countries with exports of about 25% annually.

2. FOREIGN DIRECT INVESTMENT AND DOMESTIC INVESTMENT IN AUTOMOTIVE SECTOR

In Romania the automotive industry is one of the most dynamic sectors of the economy and has the highest level of competitiveness due to innovative technologies involved and exports generated both in EU and non-European areas.

The sector is supported by both large manufacturing companies such as Renault and Ford, as well as a multitude of suppliers and manufacturers of components for cars, from subsidiaries of multinational companies in joint-ventures or local providers with significant capital contributions.

Territorial arrangement plan of foreign direct investment in the automotive sector in the counties of Romania can be traced in Figure no. 1:

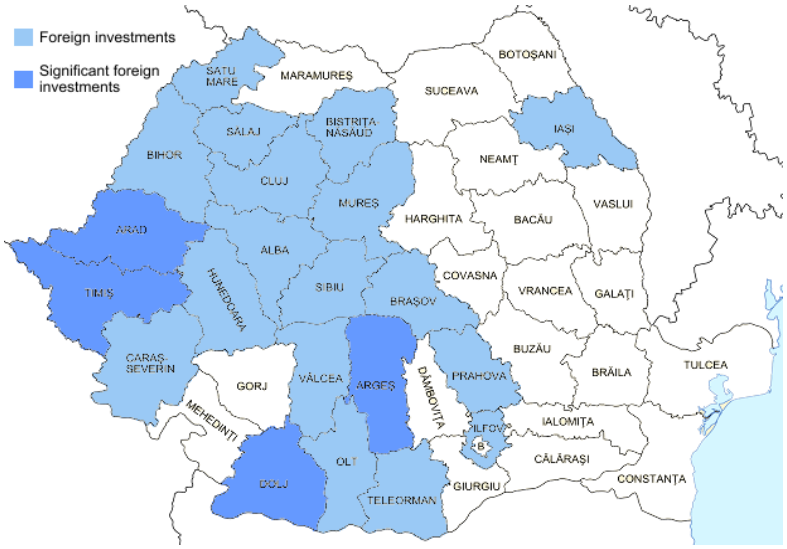


Figure 1. The territorial arrangement of foreign direct investment in the automotive sector in Romania

Source: After Studiu regional Particularităţi şi provocări privind sectorul automotive – Regiunea Vest, 2008 (Study regional Particularities and challenges on the automotive sector – West Region, 2008) and www.clustero.eu, 2016

There is a high concentration of foreign direct investment especially in the western half of the country, which is explained by its proximity to other EU countries and the prior existence of an infrastructure in this area in the counties in this part of the country. The largest foreign investment in the automotive sector are concentrated in Timis, Arad (where is a large proportion of suppliers, both domestic and foreign), Dolj (where the company Ford Romania is located), Arges (where Renault Romania office is found).

Among the major foreign investors auto parts in South West Oltenia we remember the following companies: Continental, Pirelli, Ford, Ambiente Eco Technology etc.

In the West region we find investors such as: Daimler, Yazaki Component Technology, Bos Automotive Products Romania, Takata-Petri Romania, Alcoa Fujikura, Delphi Packard Romania, Ert Group Automotive, Jurgen Armaturen, International Lighting Technology, EKR-Elektrokontakt Romania etc.

South Region is well represented primarily by Renault Technology at which we can add a number of investors such as Automotive Complete Systems, Johnson Controls Romania, Lear Corporation Romania, Dow Automotive, Euro Auto Plastic Systems, Energy Automotive System, Valeo Electrical Connective Systems etc.

With regard to local investors in Romania we find a large number of local companies operating in the automotive sector competitiveness, outlined in Figure no. 2:

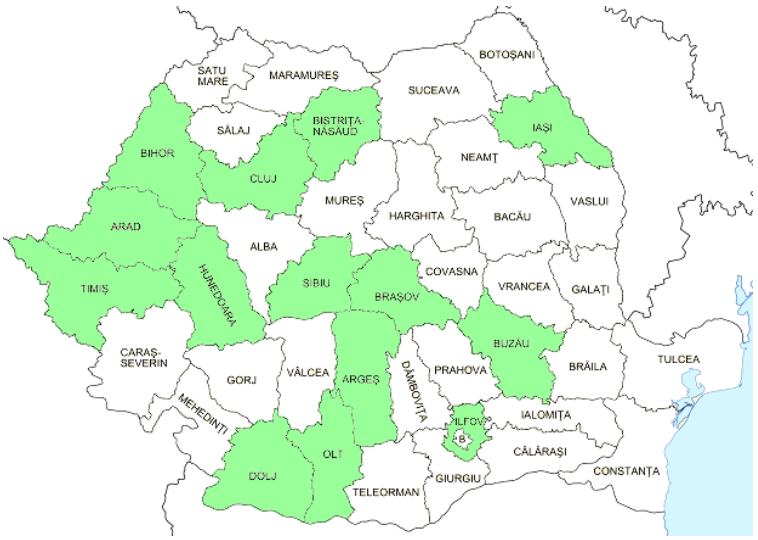


Figure 2. Distribution of domestic investments in the automotive area in Romania
Source: After Study regional particularities and challenges on the automotive sector – West Region, 2008 and www.clustero.eu, 2016

It may be noted that domestic companies are also located mostly in the western and southern regions being concentrated around large foreign investors, being the suppliers of parts and subassemblies for them in the production process. The competitiveness of the sector has led to the development and specialization of many local companies competing in Romania. This confirms that the auto industries tend to cluster in areas where foreign companies are located and new firms in these regions are attracted to localization externalities (Lengyel, 2010).

Starting from 2000 the foreign companies in particular, along with the Romanian companies have made important investments in production units and services in Romania, in units of expanding the already existent infrastructures or there were made greenfield investments. What attracts the foreign investors is the fact that Romania is a competitive country in terms of low taxation compared to other European countries, the exemption from taxation of the reinvested profit, the relatively easy process for implementing a new business and the labour costs rather cheap compared to other countries.

Also, one of the key factors of the investment decision is represented by the various schemes of state aid for stimulating investments with significant impact on the economy, including for creating employment, since the automotive sector is a strategic sector of the Romanian economy, which is supported by the State. In this regard, the State granted in the period 2005-2015, overall economy, nearly 100 of such grants to companies that wanted to invest in Romania, in total amount of 778 million euros. The State schemes funded in particular the projects proposed by companies in the automotive sector - about 36% of the largest 50 state aid schemes (www.cursdeguvernare.ro). These government grants have been awarded for the companies that made greenfield investments or for the expansion of the production infrastructures. We can mention that after 2009 there were approved State aids in the amount of 182 million euros for 18 large projects.

The top of the largest State aids granted in the past 10 years to the companies in the automotive sector, together with the investments made by these the companies can be seen in table no 1:

Table 1. Top 10 Accomplished foreign direct investment and the grants awarded for their implementation

No	Company	Shareholder structure	FDI (mil. euros)	Government grants (mil. euros)	Products	Total jobs created
1	Pirelli Tyres	Italian	104,7	63,33	Tyres	2700
2	Robert Bosch	German	142,3	60,7	Electronic subassemblies, gear boxes	1840
3	Star Assembly (Daimler Benz)	Romanian-German	240,0	37,4	Automatic transmissions, gear boxes	1200
4	Automobile Dacia	Romanian-French	141,2	34,83	The factory automation, introduction the production of Dacia Duster automobile	14000
5	Renault Technologie Romania	Romanian-French	98,1	28,12	Greenfield project for building a test centre	2100
6	Delphi Diesel Systems	American	200,0	24,77	Fuel injection pumps for Diesel engines	12000
7	Renault Mecanique România	Romanian-French	48,9	24,4	Gear boxes	660
8	Federal-Mogul Friction Products	American	150,0	16,01	Brake pads	2000
9	Glasscorp	Turkish	38,4	17,45	Automobile glasses	312
10	Continental Automotive Products	German	27,23	11,75	Tyres, subassemblies, electronic components	15000

Source: Ministry of Finance, www.cursdeguvernare.ro, on-line media

The majority of the government grants were awarded for projects aimed for increasing the production capacity, jobs creation and export for most of the resulting products. However, the magnet that attracts the foreign investors in Romania in this sector is represented by the labour cost still at low levels, compared to other European villages, about 4.9 euros/ hour or 7700 euros/ year.

The companies with most employees are Continental Automotive Products, that reached in March 2016 the number of 16,500 employees in the seven companies that are present in Romania, Dräxlmaier with over 14,000 employees in its five factories, Dacia Automobile

with 14,000 employees in the four companies owned, Delphi Diesel with over 12,000 employees in four factories in the country.

In Romania, in the field of automotive, there are currently operating over 600 companies with about 203,600 employees. They are present in Romania about 158 international suppliers of automotive parts with production subsidiaries, and some of them are conducting in the country research and development activities in this field through the research centres that they own.

Among its strategic objectives there are included: increase security in the operation of auto vehicles, reducing fuel consumption, reducing vehicles pollution, creating "green vehicles", increase of the interactivity between vehicles and environment.

3. CLUSTER OF THE AUTOMOTIVE SECTOR

As a result of studies conducted over more than 10 years made by a number of researchers (Ferrari, 1999; Ionescu, 1999; Guth & Cosnita, 2010) or carried out within European programs, in Romania were identified several potential areas for the creation and development of clusters in various fields , including the automotive industry.

The regions of Romania where it was planned to establish innovative clusters in the field of automotive industry were located in the country areas from south, west and northeast. However, in the year 2016 there are actually four clusters territorially distributed slightly different from the initial forecasts, meaning that they all are found in the south and west of the country, where there were located most of the producers of components and subassemblies along with the two largest producers of cars, namely the Renault and Ford companies.

The territorial distribution of clusters in the automotive sector can be followed in Figure no 3:

Figure 3. The automotive clusters location
Source: Data processed by the authors

In 2010 Southern region presented the greatest potential to establish at least one cluster in the automotive industry due to the existence in the area of the French Renault investor that took over the local Dacia factory. The Western region is the location of a high concentration of suppliers of automotive components and automotive subassemblies, both as a result of some

important FDI, and thanks to many domestic investors. In the Northeast region of country there has been identified a potential automotive cluster due to the existence of a large number of domestic suppliers of automotive parts and components in the area that were grouped around the foreign investor Siemens, to which later were added the companies of Delphi Diesel Systems, Continental Automotive and others.

However, it is noted that by 2016 all automotive clusters in Romania are clustered in the south and south - west of the country. The novelty is the presence of automotive cluster in South West region, with the main actor the foreign investor Ford, who took over in 2008 Daewoo Craiova assets.

We conclude that the Romanian automotive industry clusters were formed due to the existence of large foreign investors, car manufacturers or suppliers of automotive parts and components, around which were grouped many domestic investors, suppliers of parts for foreign car manufacturers. Going with further reasoning, we can say that the main actors in clusters are foreign investors, which stimulates the sector through large investment and maintain its competitiveness. It stimulates, in turn, smaller firms, training them in the production process through continuous efforts to increase the quality and the performance.

It is expected that in the near future to find an automotive cluster in the North East, perhaps even in other parts of the country, because potential exists.

The four clusters of the automotive area in Romania have been established since 2007, although they were operational before its official establishment and receiving the cluster status. These can be found in Table no 2:

Table 2. The clusters from the automotive sector in Romania

Custer name	Year of establishment	Companies number	Employees number	Location
Auto Muntenia Competitiveness Pole	2012	23	22000	South Muntenia region
SPRINT - ACAROM	2013	16	1963	South Muntenia region
Automotive Sud Vest Oltenia Pole	2012	21	12000	Sout-west Oltenia region
Automotivest Regional cluster	2007	4	1711	West region
TOTAL	-	64	37674	-

Source: Clusters Association in Romania, www.clustero.eu

Auto Muntenia Competitiveness Pole cluster was officially established in 2012 and is the most advanced in terms of research and development and innovative technologies in the automotive sector in Romania. The main role in the cluster is held by the firms Renault Technologie Roumanie and Auto vehicles Dacia, around which were coagulated a range of providers in the manufacture of auto parts and accessories and also the manufacture of electrical and electronic equipment for motor vehicles that completes the value chain of the cluster.

The main activities and products of the cluster are designing, testing and production of vehicles and automotive components and, of course, research and development in this area.

The second cluster of South Muntenia region, SPRINT - ACAROM, formally established in 2013, has as main objective the design and production of metal and plastic components for the automotive industry. Firms in its composition have as objective the manufacture of modules, equipment and auto parts and also provide after-sales services related to car maintenance. The main market is Romania, being suppliers for Renault Romania.

In the South West region, the cluster Automotive South West Oltenia Pole, created in 2012, has as its field of activity manufacture of motor vehicles, trailers and semi-trailers. The main actor of the cluster is the manufacturer of cars Ford Romania, around which concentrated their activity 20 other local companies with foreign capital or producing car parts and subassemblies. The cluster is meant to ensure sustainable development of the automotive sector in the region by supporting entrepreneurship in the region, reducing unemployment and increasing employment of labour, thereby contributing to economic and social development of the region.

Automotives Regional Cluster is the cluster of West Region in the automotive industry which comprises both local companies and foreign investors constituting in the producers of a wide range of auto parts, with the markets both Romania and other countries. The cluster has created a central platform of services for car parts suppliers in the region, managing to specialize a number of local companies in the field.

The four current clusters from Romania are formed from 64 companies which is about a percentage of only 10.66% of the approximately 600 companies that conduct business in the automotive industry.

We can advance herein two situations, namely: 1) it is possible that in the next period of time to witness the creation of new clusters in this area; 2) there will be kept the current number of clusters, but these would gain new members from the companies providing automotive parts and components. In this respect we remember that in European Union countries where the networks of clusters are well stabilized and the clusters are in the phase of maturity and in full activity, the national and regional policies are oriented towards supporting and strengthening the already existent clusters rather than create new ones (Ketels, 2013).

4. COMPETITIVENESS OF THE AUTOMOTIVE SECTOR IN ROMANIA

The Romanian industry in the automotive sector is supported by two automotive manufacturing companies, Renault and Ford, along with several multinational companies or joint ventures producing automotive components and several smaller local companies. The Renault multinational is present in Romania since 1999 when it took over the Dacia factories from Pitesti, Arges, conducting massive investments in new technologies, construction of technical centres for car tests, research and development centres and a centre for the production of gearboxes for Renault and Nissan auto vehicles, following the alliance concluded between the two companies. The main auto vehicles sold in the domestic market and, especially, on the external market are Dacia Logan, Sandero and Duster. To these there were added starting with 2012 the B-Max auto vehicles produced by the Ford Craiova multinational.

The Romanian vehicles have won the international market since 2008, in full economic and financial crisis, due to the competitive prices that gradually gained new markets both in

Europe and on other continents. The two auto manufacturers achieve together a production of nearly 400,000 units and a combined turnover of nearly 6 billion euros annually.

As regards the automotive component manufacturing, Romania has attracted increasingly more investors in this segment, which meant increasing its turnover. In Romania there are currently produced components for about 80% of an automobile.

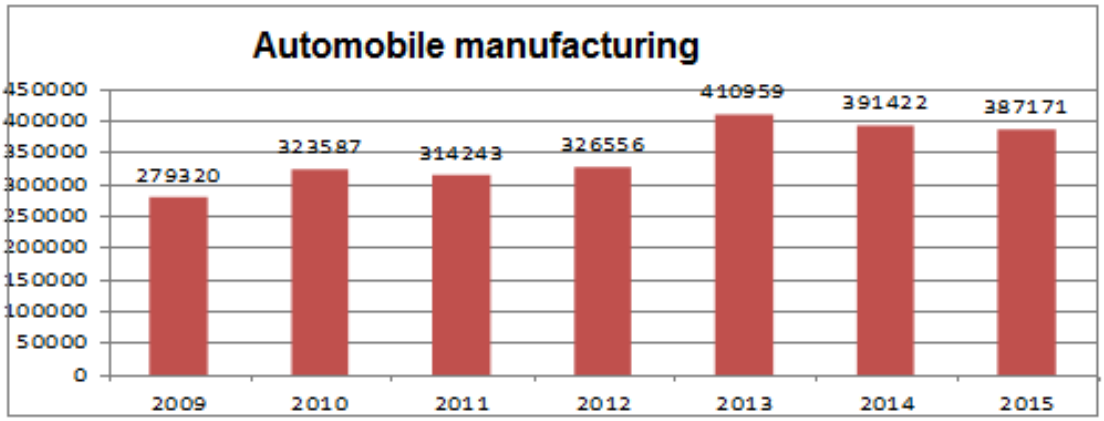
There are several data suggestive for the automotive sector's evolution: in 2009 the turnover was 8 billion euros, in 2011 by 11.14 billion euros, of which 3.5 billion went to automobile manufacturers and 7.64 billion to the component suppliers, year when the automotive sector has represented 7.5% of GDP. In 2012 the turnover increased to 13.27 billion euros, and in 2013 has reached 15.9 billion, of which 5.2 billion went to the automotive production, and the difference of 10.7 billion was covered by the component suppliers. Finally, in 2014 the turnover achieved by companies in the automotive industry was of 18 billion euros, of which 12.6 billion were assigned to the automotive sector, while the contribution of the automotive industry to GDP has reached 12% (www.apia.ro).

The evolution of the automobile manufacturing and of the total vehicle production as well as its share in the total exports of automotive of Romania as from 2009 can be viewed in Table 3 and in graphs 1 and 2:

Table 3. The evolution of the automotive industry in Romania (units)

Indicators	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Automobile manufacturing	279320	323587	314243	326556	410959	391422	387171
Commercial vehicle manufacturing	17178	27325	24989	11209	38	12	6
Total production (automobile + commercial vehicles)	296498	350912	339232	337765	410997	391434	387177
Automotive total exports	258893	314661	304924	330942	362869	364251	355297
Exports (% of total production)	87,31	89,66	89,88	97,97	88,28	93,05	91,76

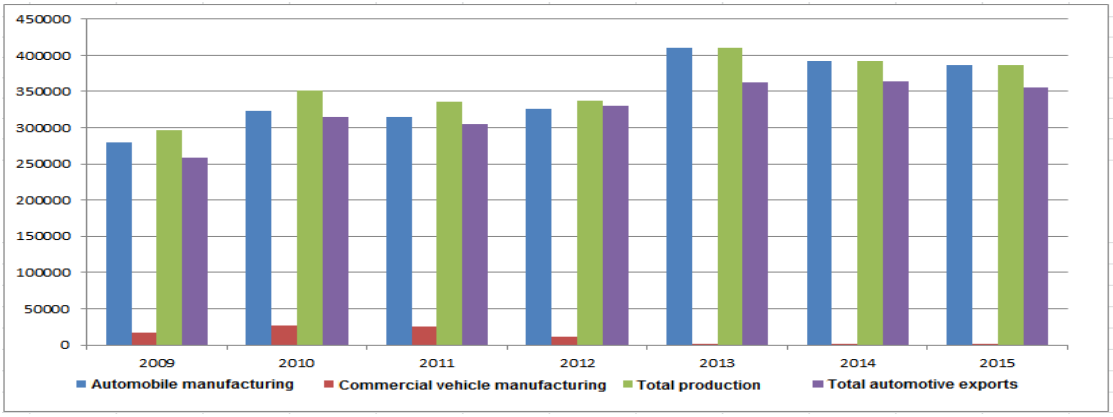
Source: www.oica.net, www.apia.ro, on-line media



Graphic 1. The evolution of the automobile manufacturing (units)
Source: Data processed by the authors

The presented data reveal a growing total production throughout the review period, with slight variations from one year to another. In terms of automotive production, it is noticeable that

the largest number of automobile in production was recorded in the year of 2013, year when Romania entered the top 10 producers in Europe (Scutaru & Prelipcean, 2015). The production of commercial vehicles is continuously decreasing, reflecting a drastic reduction of the demand both in the domestic market as well as in the international market.



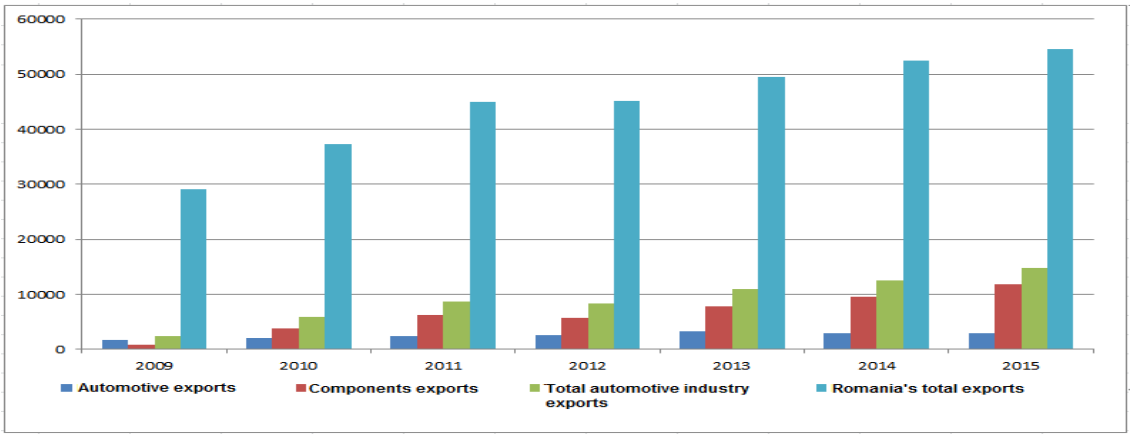
Graphic 2. The evolution of the automotive industry in Romania (units)
Source: Data processed by the authors

The Graphic no 2 reflects the fact that automotive production is almost entirely exported. The share of production in the total vehicle exports is about 90%, with minor variations from year to year. The maximum peak in terms of export was achieved in 2012, with a percentage of 97.97%.
Regarding the values of auto vehicles and automotive components exported, these are also growing. The value of the exported vehicles has increased since 2009 and has stabilized since 2013 at around 3 billion euros annually, the difference being awarded to the export of automotive components which is growing, as can be seen in Table no 4 and Graphic no 3:

Table 4. The exports evolution of vehicles and automotive components (mil. euros)

Indicators	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Automotive exports	1692,7	2056,5	2377,9	2542,7	3203,6	3010,4	2940,7
Components exports	764,8	3822,0	6309,4	5737,7	7787,5	9501,4	11870,8
Total automotive industry exports	2457,5	5878,5	8687,3	8280,4	10991,1	12511,8	14811,5
Romania's total exports	29116,3	37293,5	45040,8	45056,2	49564,2	52459,8	54598,3
Automotive exports (% of total exports)	8,44	15,76	19,28	18,37	22,17	23,85	27,12

Source: Data processed by the authors after www.dce.gov, on-line media



Graphic 3. The exports evolution of vehicles and automotive components
Source: Data processed by the authors

The maximum value of imported automobiles was reached in 2013, while the export of components had a slight rebound in 2012 with an increasing return by the end of the analysed period. The total exports of the automotive industry registered increasing values during the entire period, with the exception of 2012, about when it had a slight setback. This happened owing to the fact that, as indicated by the numbers, the value of components exports has decreased, even if the value of automotive exports has increased in the same year.

As regards the share of the automotive sector exports in the total exports of Romania, it can be seen that it has increased over the entire analysed period, with the exception of 2012, when it slightly declined.

In conclusion, the automotive sector contributes about one quarter of the total exports of Romania, being one of the most competitive sectors of the economy.

4. CONCLUSIONS

The paper analyses the automotive industry in Romania as the main branch of the economy, which is also one of the strategic sectors of the European economy contributing to the economic competitiveness. The automotive industry holds 5.6% of the jobs of EU, of which 3.1 million are highly skilled positions, intended for research & development and innovation. For the countries in Central and Eastern Europe (Czech Republic, Poland, Romania, Slovakia, Slovenia, Hungary) the automotive sector plays a very important role by contributing to the regional economic growth.

The dynamics of the automotive sector in this region, after 1990, was driven by the foreign direct investment conducted by the large international companies, attracted by the potential for development in these countries.

The paper analysed, from the territorial perspective, the layout of the foreign direct investment and of the domestic capital in the automotive sector from Romania and also the automotive clusters, as well as the crucial investments made in this sector of the economy.

The Romanian industry from the automotive sector is supported by two automotive manufacturing companies, Renault and Ford, along with numerous companies producing

automotive components. Renault multinational is present in Romania since 1999 when it took over Dacia Pitesti factories by making massive subsequent investments.

The Romanian vehicles have won the international market since 2008, in full economic and financial crisis, due to the competitive prices thus, it has gradually gained new markets both in Europe and on other continents.

Regarding the automotive component manufacturing, Romania has attracted increasingly more foreign investors in this segment, so currently there are produced components for about 80% of an automobile. Such developments have increased the turnover of the sector from 8 billion euros in 2009 to 18 billion in 2014.

Automotive production is almost entirely exported, its share in the total exports of the country's automobiles being about 90%. The value of the exported vehicles has stabilized since 2013 at around 3 billion annually, while the value of the automotive components export is increasing.

The automotive sector represents about a quarter of the total exports of Romania, being one of the most competitive sectors of the economy.

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