

EUROPEAN INDUSTRY POLICY IN THE CONTEXT OF THE NEW
GLOBAL CHALLENGES: A REGIONAL APPROACH

Romeo-Victor IONESCU*

Abstract

The paper deals with the idea that at present, the EU is more a region which faces great challenges and disparities. Such disparities are those related to the EU industries and industrial policy. The analysis in the paper is focused on the main EU industries and points out the disparities across the region.

The analysis is carried out in three steps: first, a comparative analysis, second, a regression one, in order to quantify disparities, and, third, a cluster analysis. The main conclusion is that currently, the EU is divided in countries with three speeds of industrial development.

Keywords: *regional industrial disparities, regional industrial clusters, regional industrial dispersion, impact of innovation on industry*

1. General approach

According to the EU's point of view, the European industry faces the following challenges related to: competitiveness, R&D, production under sustainable and socially responsible way, environment protection, better internal market, enterprise and industrial goods internationalization and protection of intellectual property rights (European Commission 1, 2016).

The European industry covers 80% from the EU' exports and supports the greatest number of jobs. According to Europe 2020 Strategy, the industry contribution to the EU GDP has to increase from 15.1% in 2015 to 20.0% in 2020 (see Figure 1).

* Ph.D.Professor, "Dunărea de Jos" University of Galati, Faculty of Juridical, Social and Political Sciences, e-mail: romeo.ionescu@ugal.ro. Prime-Vice-president of the Romanian Regional Science Association (RRSA); Member of the European Regional Science Association (E.R.S.A); Member of the Regional Science Association International (RSAI).

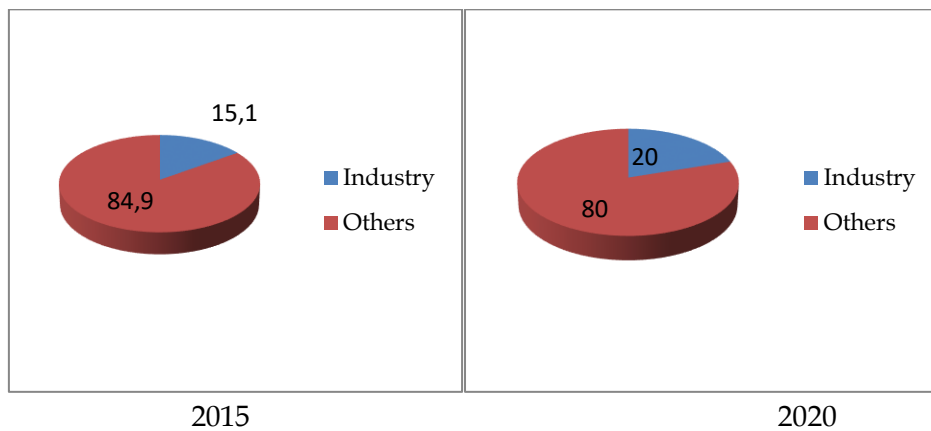


Figure 1: Industry's contribution to EU GDP (%)

The above positive trend of the industry will be possible only with the support of R&D inside the new Innovation Union. This Innovation Union asks for 3% of EU GDP for R&D in 2020 and forecast annual GDP increase by 795 billion euros by 2025 (European Commission 1, 2015).

On the other hand, the industry development across the EU has to be realized in a sustainable way with the support of innovation and R&D. The innovation impact on the EU industry is pointed out using the connections between national and supranational involved actors (Ionescu & Moga, 2011).

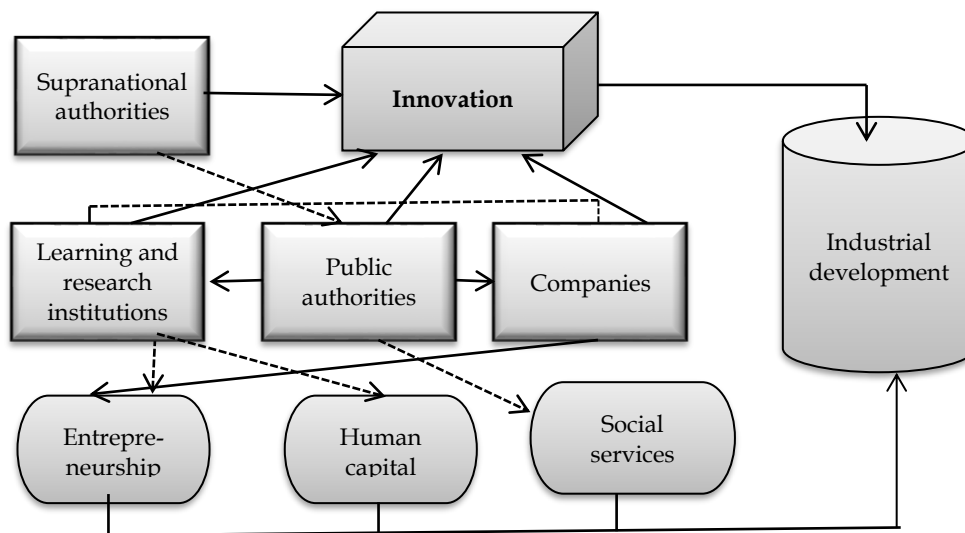


Figure 2: Innovation's impact on EU industry

Unfortunately, EU faced lower allocations for R&D compared to USA, Japan and South Korea during 2007-2014 (Eurostat, 2017).

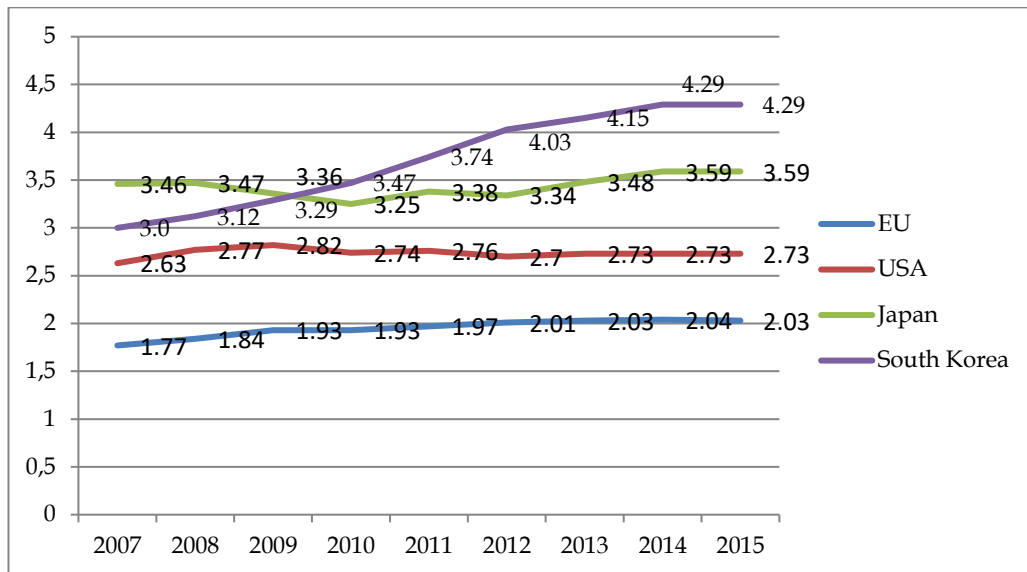


Figure 3: Innovation allocation trend (% of GDP)

According to Figure 3, EU's allocations for R&D are the lowest compared to the other three global economic actors. South Korea achieved the 1st world rank related to this indicator. It is followed by Japan and USA.

On the other hand, the R&D financing flows achieved the same level in 2015 as in the previous year, excepting EU where decreased by 0.01%.

Moreover, the target (3% of GDP) for 2020 is not realistic for many Member States. As a result, only 10 Member States reached this target for 2020. The other 18 asked for lower levels (see Figure 4).

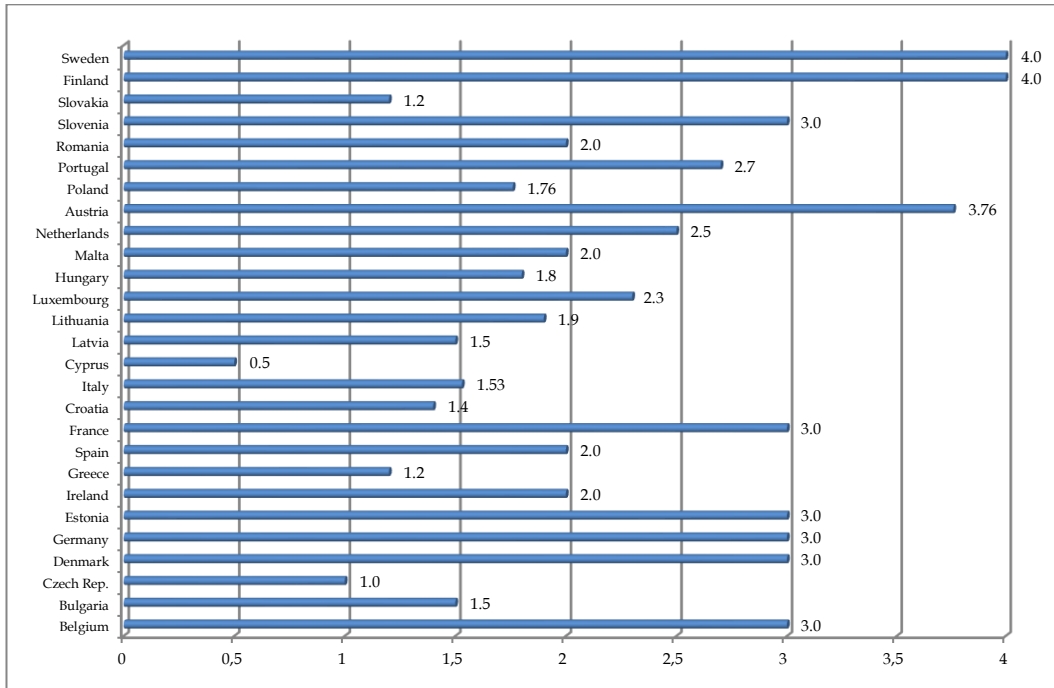


Figure 4: Innovation's allocation targets in 2020 (% of GDP)

On the other hand, the Euro area achieved better results in financing R&D than the EU during 2002-2016, even that some economies as Greece, Spain, Cyprus were subjected to economic recession (Eurostat, 2017).

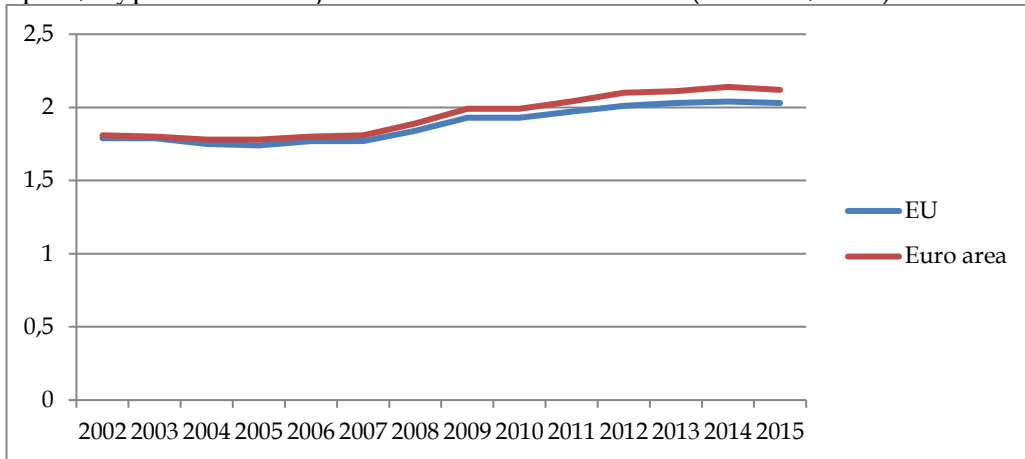
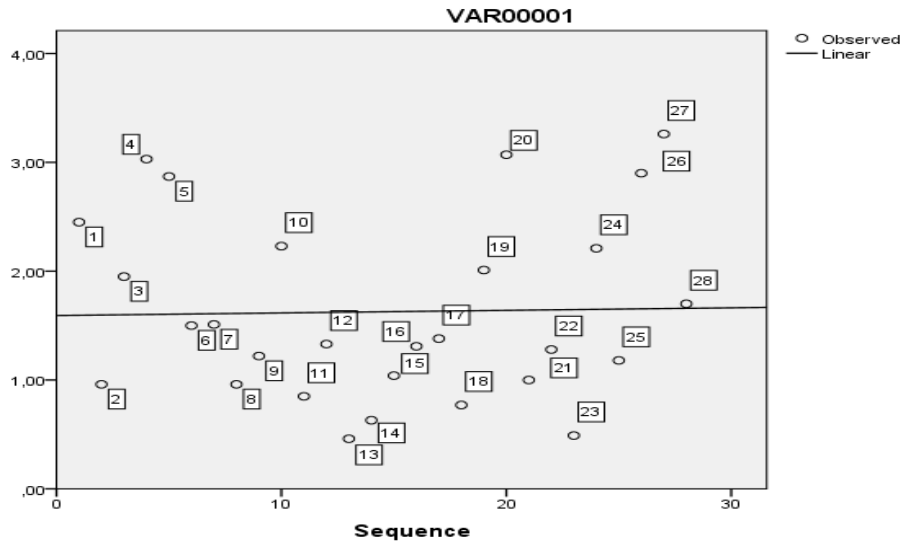


Figure 5: Innovation's allocation trend (% of GDP)

There are great disparities related to R&D financing between the Member States. A regression analysis is useful in order to point out these disparities (Figure 6).



1. Belgium; 2. Bulgaria; 3. Czech Republic; 4. Denmark; 5. Germany; 6. Estonia; 7. Ireland; 8. Greece; 9. Spain; 10. France; 11. Croatia; 12. Italy; 13. Cyprus; 14. Latvia; 15. Lithuania; 16. Luxembourg; 17. Hungary; 18. Malta; 19. Netherlands; 20. Austria; 21. Poland; 22. Portugal; 23. Romania; 24. Slovenia; 25. Slovakia; 26. Finland; 27. Sweden; 28. UK.

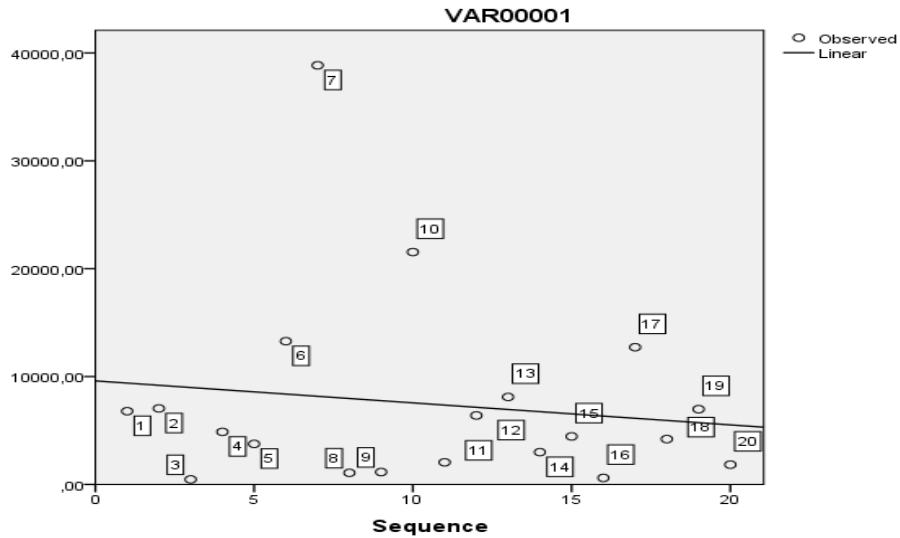
Figure 6: Innovation's disparities across the EU in 2016 (% of GDP)

According to Figure 5, two well defined clusters can be built using the innovation allocations. These differences have direct impact on European sectorial industries' development, as well.

2. EU steel industry in the new global context

EU succeeded in maintaining the 2nd rank in the world steel production. The first world steel supplier is China. On the other hand the EU's steel output has dealt with many difficulties, especially in the latest five years. This is why the European Commission adopted a dedicated action plan (European Commission, 2013).

This action plan was not enough to support a positive trend in the EU steel output. As a result, the latest official statistic data talk about a decrease in the steel output during 2015-2016. Moreover, the contributions of the Member States to the EU steel output vary a lot (see Figure 7).



1. Austria; 2. Belgium; 3. Bulgaria; 4. Czech Republic; 5. Finland; 6. France; 7. Germany; 8. Greece; 9. Hungary; 10. Italy; 11. Luxembourg; 12. Netherlands; 13. Poland; 14. Romania; 15. Slovakia; 16. Slovenia; 17. Spain; 18. Sweden; 19. UK; 20. Latvia+Portugal

Figure 7: Steel output's disparities across the EU in 2016 (% of GDP)

Only 21 Member States produced steel in 2016. Croatia stopped its steel production in 2016, as well. Six countries succeeded in achieving great steel outputs in 2016: Germania, Italy, Spain France, Poland and UK (EUROFER, 2017). These countries can form a separate cluster. The two clusters approach for the EU steel industries is supported by a two-step cluster analysis (see Figure 8).

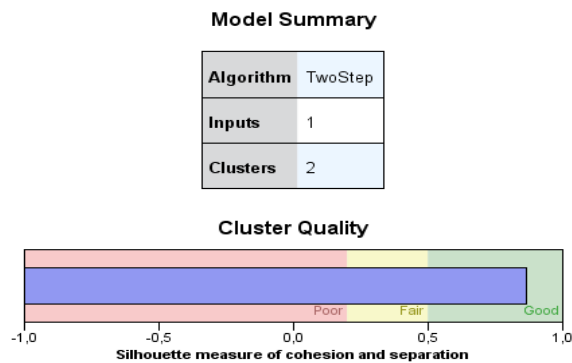


Figure 8: Steel outputs' cluster approach for 2016

The cluster quality is very good (0.9). This means that the approach focused on two clusters for the steel outputs is fair.

As a result, the European Commission has taken into consideration the need of recovery for the EU steel industry. On the other hand, the same Commission analyzed the challenges for the EU steel industry: unfair trade practices, global overcapacity, increasing competitiveness, modernizing the steel industry by investing in people and focused policies in areas like competition, energy, emissions trading (European Commission, 2016).

3. EU shipbuilding industry in the new global context

120000 people are employed by approximately 150 EU shipyards. 40 such shipyards are active on the global market.

On the other hand, the EU shipbuilding industry faces great competition, especially from China and South Korea. This EU industry suffered from the absence of effective global trade rules and state supported over investment (European Commission 2, 2017).

The world trend of this industry is not stable. More stable seems to be the industry's trend in EU (see Figure 9), even that the specific output represents less than 10% compared to the global output (Sea Europe, 2016).

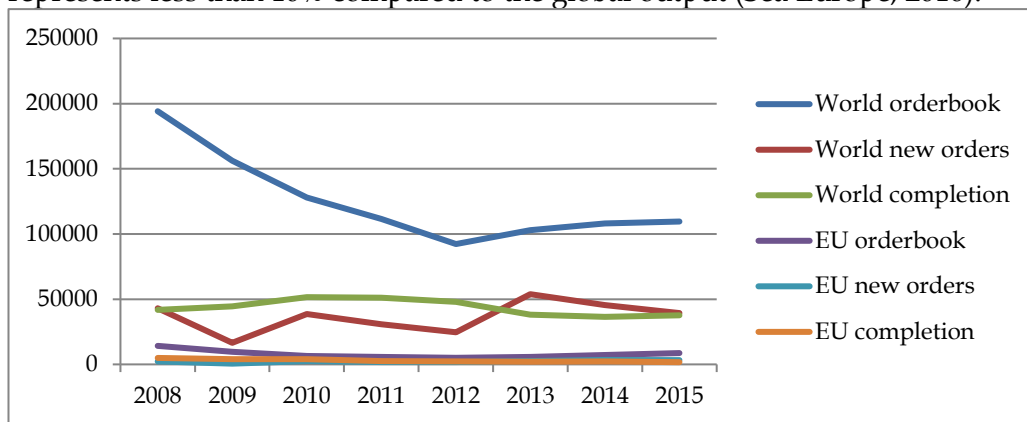
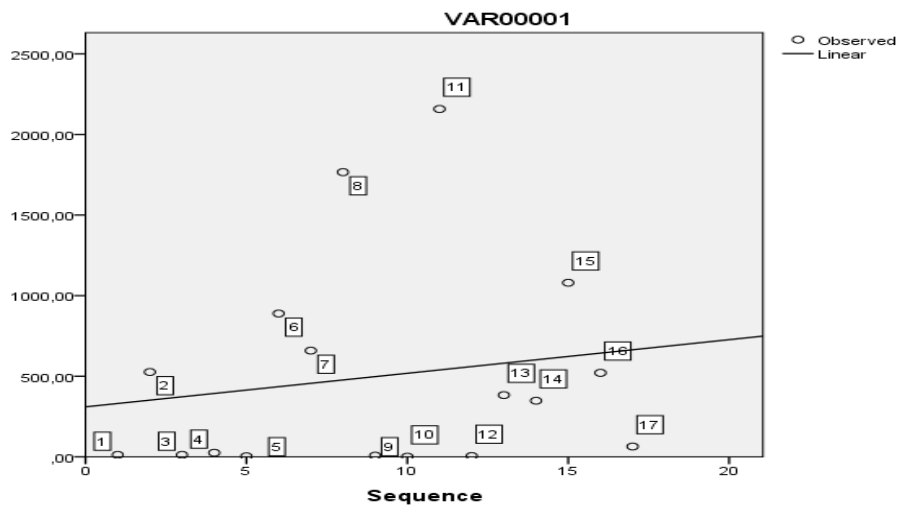


Figure 9: Global shipbuilding industry's trend (CGT)

The impact of the global crisis is still present across the EU shipbuilding industry. This is why the EU orderbook (441 vessels) covered only 7.3% from world total orderbook (6039 vessels) in 2015.

Moreover, there are great disparities between Member States related to shipbuilding output. Using the above orderbook criteria, the regression analysis leads to the following situation (see Figure 10):



1. Bulgaria; 2. Croatia; 3. Czech Republic; 4. Denmark; 5. Estonia; 6. Finland; 7. France; 8. Germany; 9. Greece; 10. Ireland; 11. Italy; 12. Latvia; 13. Netherlands; 14. Poland; 15. Romania; 16. Spain; 17. UK

Figure 10: Shipbuilding output’s disparities across the EU in 2016 (1000 CGT)

It is more than obvious that the “classic” two clusters approach can be used in the analysis of the EU shipbuilding disparities, as well. Moreover, the quality of such cluster approach is good (0.8), as in Figure 11.

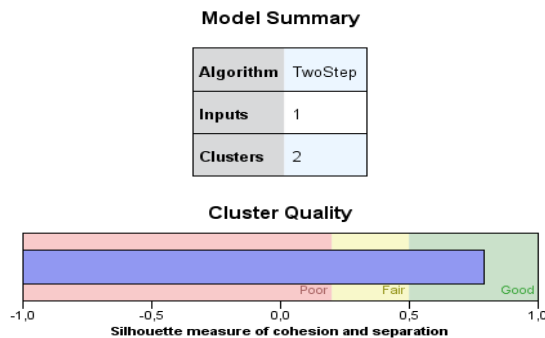


Figure 11: Shipbuilding outputs’ cluster approach for 2016

In order to improve the policy related to the shipbuilding industry, the European Commission carried out analyses and studies focused on specific components of the market, companies and customer bases (European Commission, 2014).

On the other hand, the European Commission implemented LeaderSHIP 2020 Initiative, which was focused on: improving leadership in

selected maritime market segments; continuing to drive and protect innovation; strengthening customer focus; improving industry structure and implementing a network driven operating model; emphasizing production optimization and shift towards a knowledge based production (European Commission, 2013).

Moreover, the reviewed Initiative defined in 2015 asked for new maritime technologies able to support the achieving of the Europe 2020 Strategy (European Commission 2, 2015).

4. EU textiles and clothing industries in the new global context

Both industries are important because they cover 1.7 million jobs which and a turnover of 166 billion euros. Moreover, these industries belong to SMEs, especially with less than 50 employees.

The greatest challenges for these industries come from powerful competition from the Asian companies and other developing countries and the production price index increasing in the EU companies.

Despite these, the EU textile and clothing exports covered 30% of the world market in 2015 (EURATEX, 2016).

The European Commission supported the implementing of the World Trade Organization agreements regarding textile and clothing trade. The Free Trade Agreements (with USA, Japan, Vietnam, Canada, South Korea, Ukraine and Moldova) were implemented, as well.

In order to attenuate the competition from Mediterranean countries, the Euro-Mediterranean Dialogue on the textile and clothing industry was extended.

Nowadays, EU faces a negative trade balance for textile and clothing goods. In order to decrease this balance's deficit, EU started bilateral dialogues with China and Columbia.

Moreover, the production indexes in 2015 represented 94.7% (textiles) and 84.5% (clothing) compared to 2010 (see Figure 12).

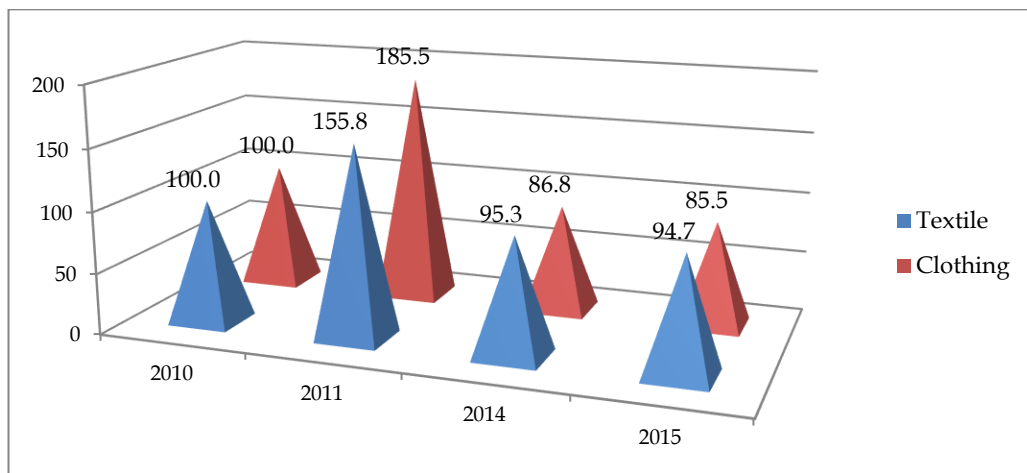
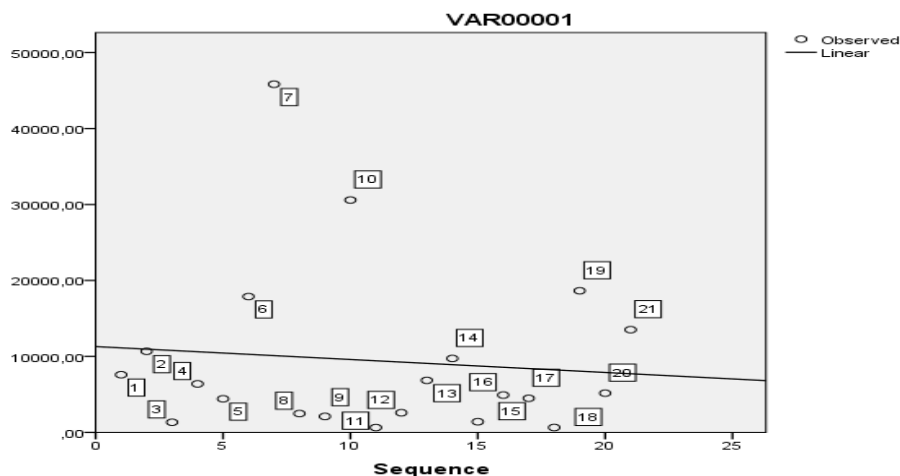


Figure 12: EU textile and clothing industries' production indexes (2010 = 100%)

Starting from 2012, the European Commission did not analyze these industries' output on Member States as a result of the great disparities between them. The latest official statistical data related to textile and clothing industries' output in million euros lead to the following disparities (see Figure 13):



1. Austria; 2. Belgium; 3. Bulgaria; 4. Czech Republic; 5. Finland; 6. France; 7. Germany; 8. Greece; 9. Hungary; 10. Italy; 11. Latvia; 12. Luxembourg; 13. Netherlands; 14. Poland; 15. Portugal; 16. Romania; 17. Slovakia; 18. Slovenia; 19. Spain; 20. Sweden; 21. UK

Figure 13: Textile and clothing output's disparities across the EU (million Euros)

It is obvious again that at least two clusters can be built using the Figure 13. This is the result of the greatest disparities between Member States

related to these two industries. A two clusters approach is based on a good cluster quality (0.8) (see Figure 14).



Figure 14: Textile and clothing outputs' cluster approach

5. EU aeronautics industries in the new global context

EU28 achieved the 1st world rank as production of civil aircrafts and the 2nd world rank as revenues and employment in airspace industry in 2015 (AeroSpace and Defence Industries, 2015).

The optimistic forecasts for these industries lead to the idea of important positive changes on the global aircraft market (see Figure 15).

The EU is interested in maintaining its position on this market and started to build a new approach able to ensure a continuous positive trend of the industry until 2050. As a result, the development of the EU aircraft industries will be based on five targets: meeting societal & market needs; maintaining and extending industrial leadership; protecting the environment and the energy supply; ensuring safety and security; and prioritizing research, testing capabilities & education. These five objectives cover specific goals (European Commission, 2011).

On the other hand, EU will continue to introduce new standards for environment protection, safety and security. Basically, the introduction of the latest R&D activities' results in aircraft production becomes the main EU competition instrument on the global market.

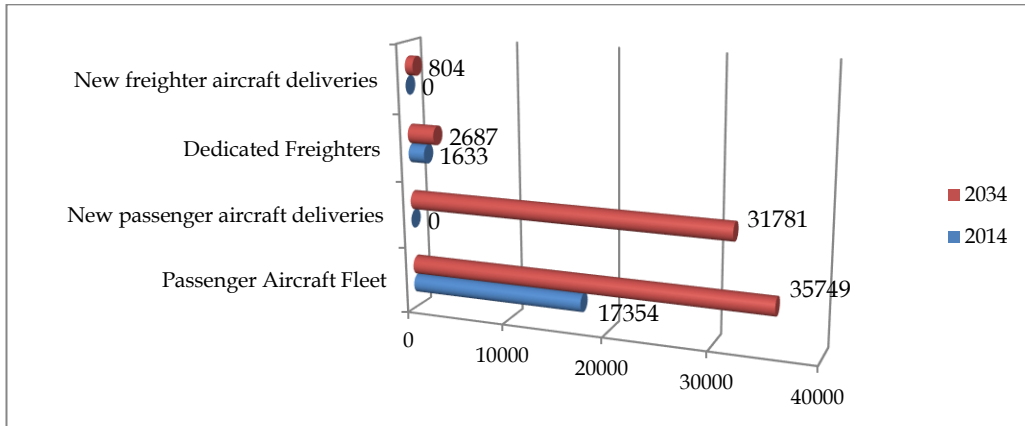


Figure 15: Global aircraft market's forecast

Nowadays, the disparities between Member States related to the air fleets increased (General Aviation Manufacturers Association, 2015). Only 20 Member States are taken into consideration as actors in the EU air fleet (see Figure 16).

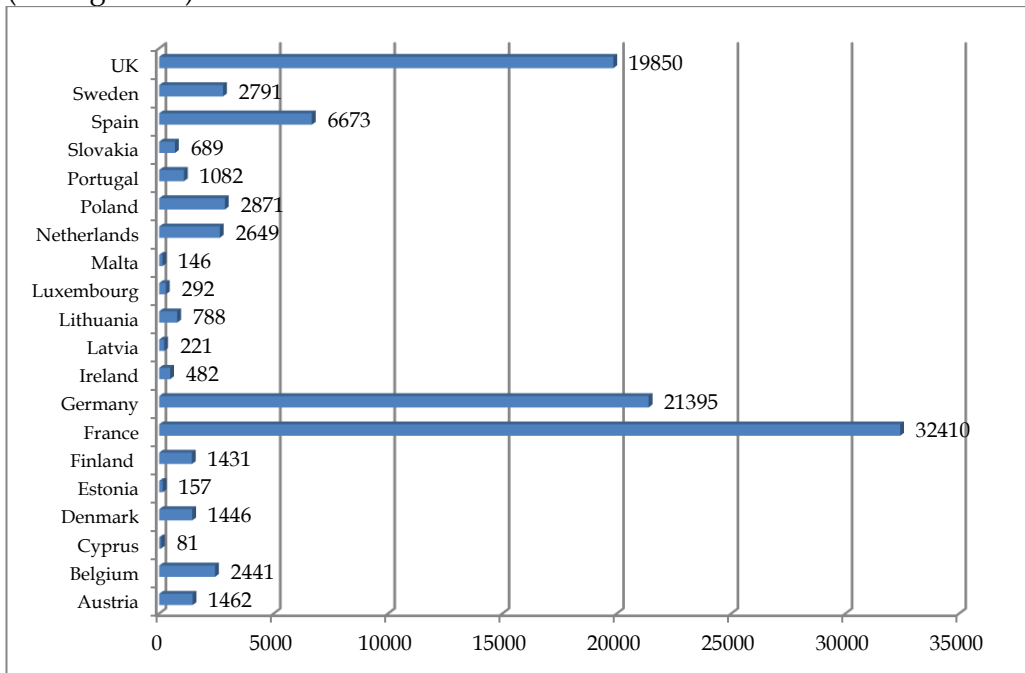
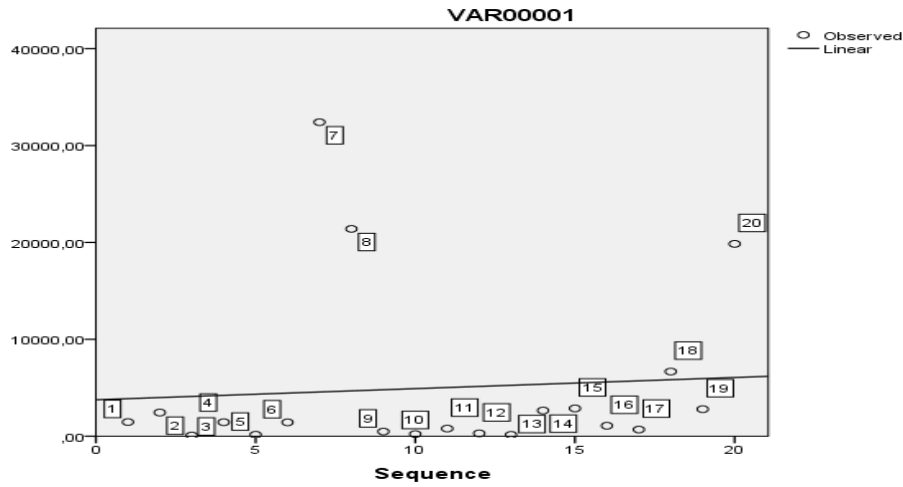


Figure 16: EU aircraft fleet

Figure 16 supports the data for a regression analysis, in order to point out the disparities between the Member States (see Figure 17).



1. Austria; 2. Belgium; 3. Cyprus; 4. Denmark; 5. Estonia; 6. Finland; 7. France; 8. Germany; 9. Ireland; 10. Latvia; 11. Lithuania; 12. Luxembourg; 13. Malta; 14. Netherlands; 15. Poland; 16. Portugal; 17. Slovakia; 18. Spain; 19. Sweden; 20. UK

Figure 17: Aeronautics industries output’s disparities across the EU

The Member States in the figure above have positions able to support again the two clusters approach. Such approach is characterized by a very good cluster quality (0.9) as in Figure 18.

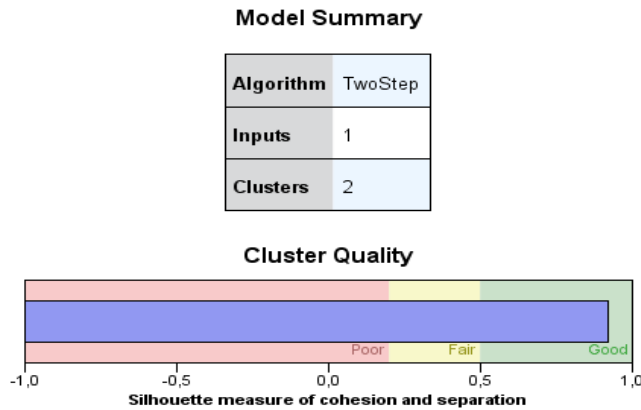


Figure 18: Aeronautics outputs’ cluster approach

6. EU automotive industry in the new global context

EU covers 21% of the world car output (15 million units). 17 Member States are listed as main automotive producers in the world. There are great disparities between Member States related to the different outputs for cars

and for commercial vehicles (Organisation Internationale des Constructeurs d'Automobiles, 2016).

EU automotive industry supports the trade balance surplus (95.1 billion euros) and 5.6% of whole EU employment. Moreover, an important component of the R&D is defined and implemented in the EU automotive industry.

In order to maintain high efficiency and jobs in this industry, EU decided to keep the car manufacturing base in the EU, as an effect of the recent global crisis.

The output of cars and commercial vehicles varies between states, across the EU (see Figure 19).

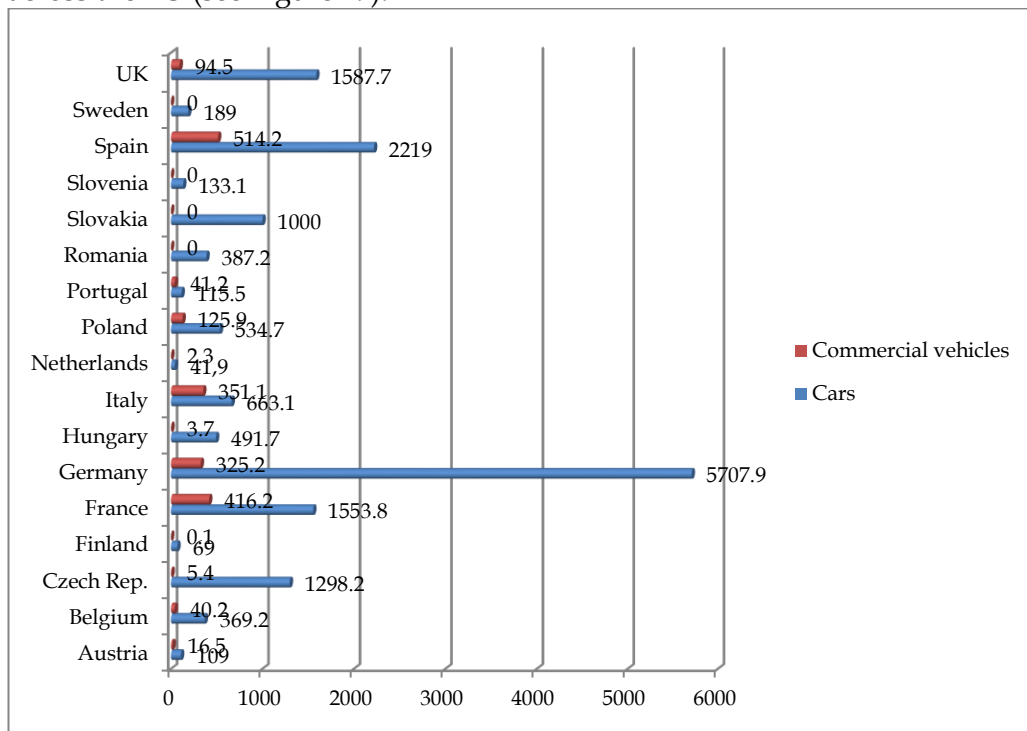
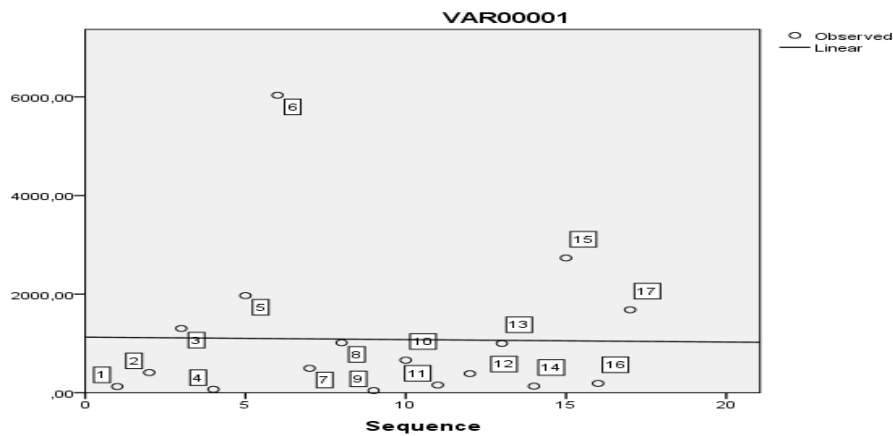


Figure 19: EU vehicles producers (1000 units)

The regression analysis of the EU vehicles output on Member States is presented in Figure 20.



1. Austria; 2. Belgium; 3. Czech Republic; 4. Finland; 5. France; 6. Germany; 7. Hungary; 8. Italy; 9. Netherlands; 10. Poland; 11. Portugal; 12. Romania; 13. Slovakia; 14. Slovenia; 15. Spain; 16. Sweden; 17. UK

Figure 20: Automotive industry output’s disparities across the EU in 2015

It is no doubt that the EU automotive producers can be easily grouped into two clusters. This industry supports the above two clusters approach (see Figure 21). The cluster quality is very good (0.9).

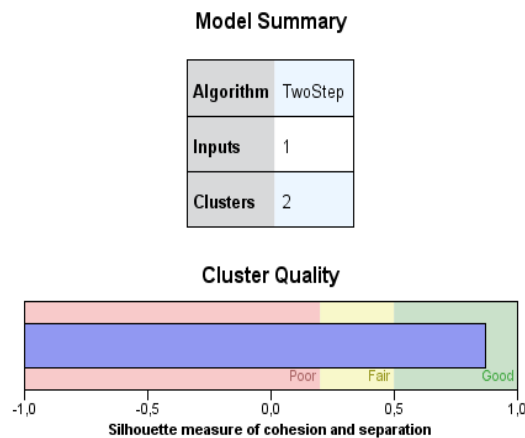


Figure 21: Automotive outputs’ cluster approach

7. EU pharmaceutical industry in the new global context

EU is one of the greatest world pharmaceutical suppliers, which covers 85% from the market (World Health Organization, 2016).

The most important European pharmaceutical retail sales companies are presented in Figure 22 (The Statistics Portal, 2016).

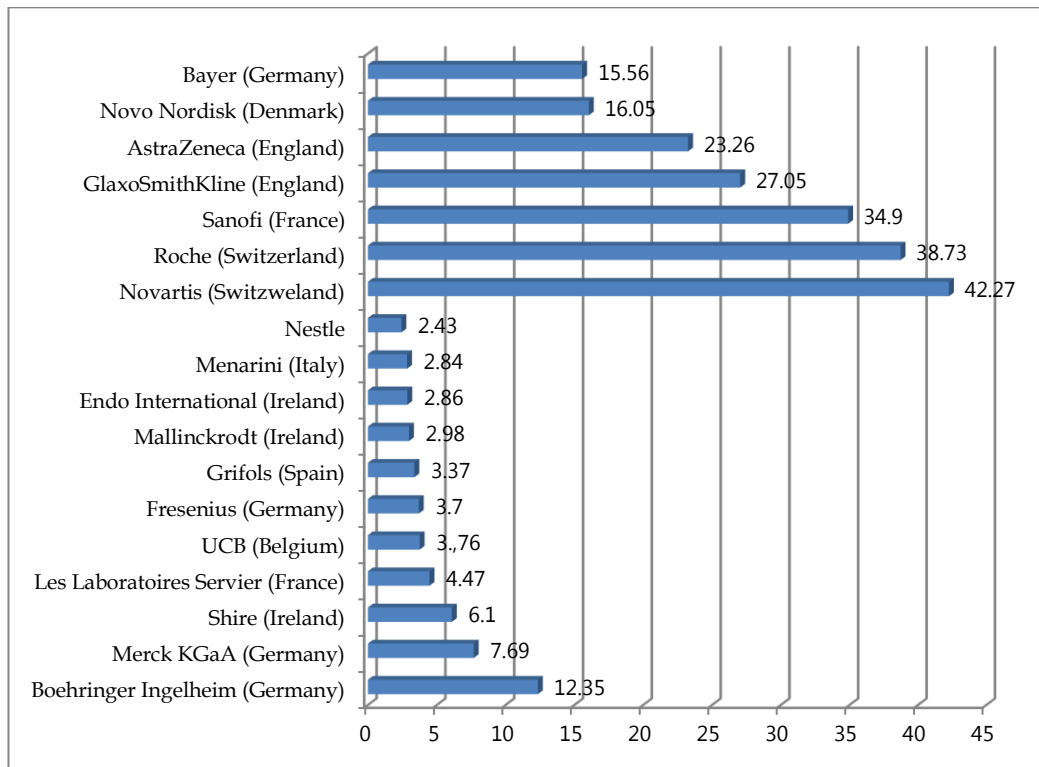
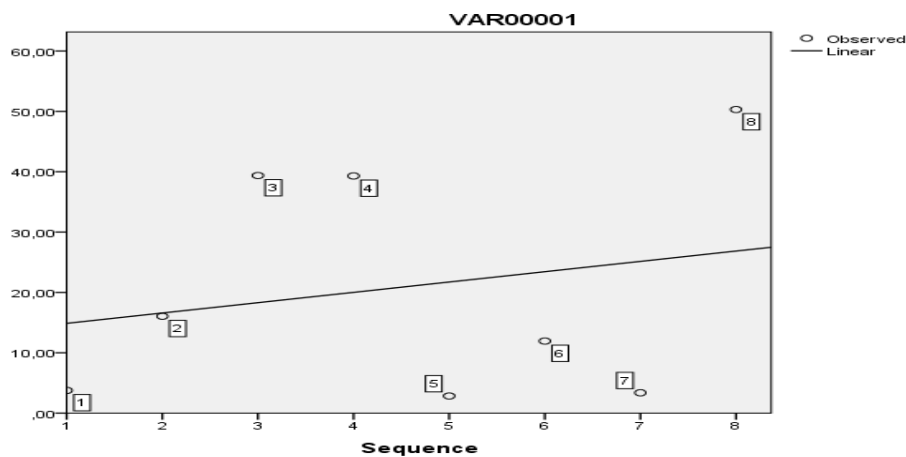


Figure 22: European pharmaceutical companies by retail sales (billion USD)

15 companies from Figure 22 belong to Member States. UK, France and Germany are the most important actors on the pharmaceutical market. Even if a few Member States are involved in this industry, the disparities between them are huge (see Figure 23).



1. Belgium; 2. Denmark; 3. France; 4. Germany; 5. Italy; 6. Ireland; 7. Spain; 8. UK

Figure 23: Pharmaceutical industry output's disparities across the EU

The pharmaceutical sector analysis covers only 8 states, but the disparities lead again to the classic two clusters. Moreover, even the cluster quality's value is the classic one: 0.9 (see Figure 24).

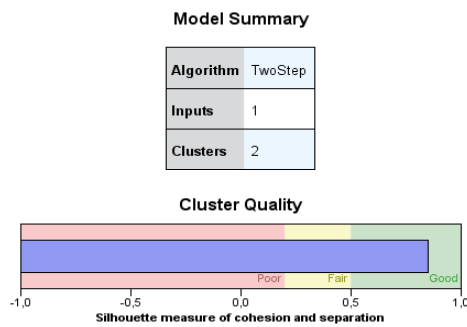


Figure 24: Pharmaceutical outputs' cluster approach

8. EU energetic industry in the new global context

EU is not a major actor on the world energetic market. It covers only 5.8% from this market and manifests an important energetic dependency on the imports of gas, oil and solid fuels.

Moreover, the EU energetic output decreased constantly during the latest two decades (see Figure 25).

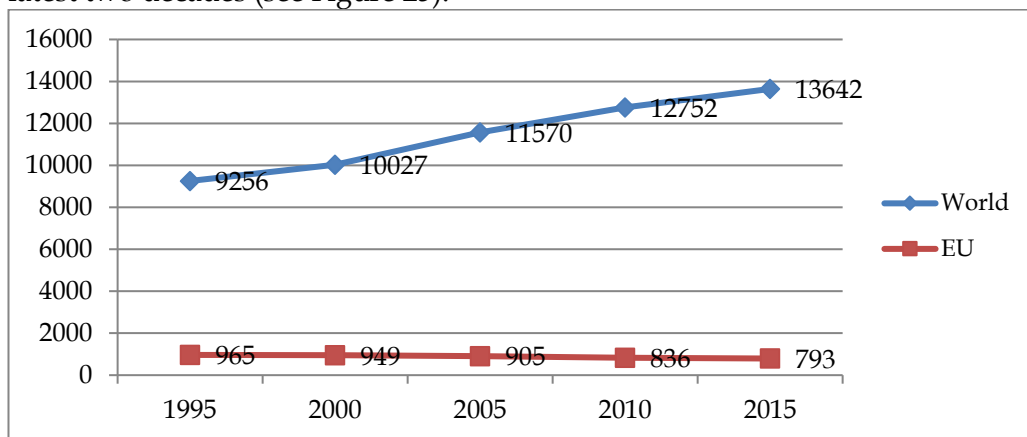


Figure 25: Energy production's trends (Mtoe)

On the other hand, there are great disparities related to energy output between Member States (see Figure 26).

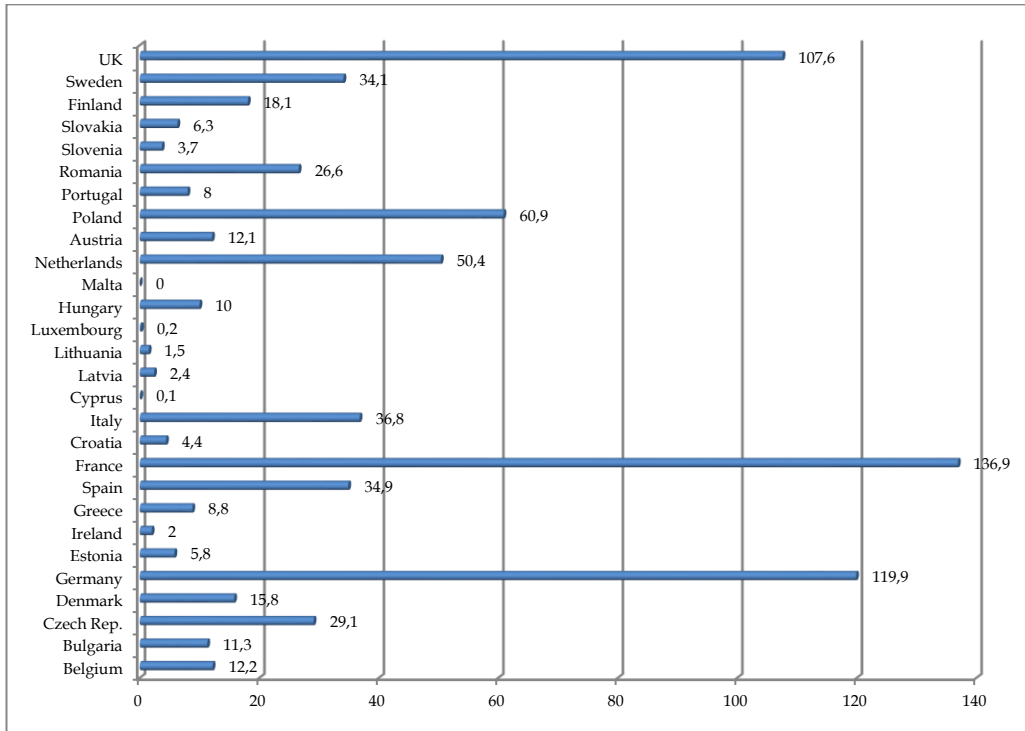
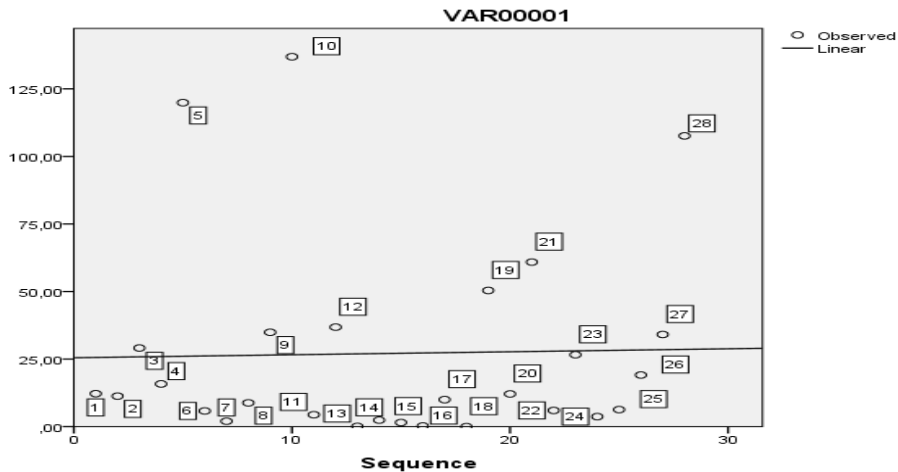


Figure 26: Energy production on Member States (million tons of oil equivalent)

According to Figure 26, France, Germany and UK are the greatest energy producers (Eurostat, 2016). There is a huge gap between energy production in Malta and France, which supports the idea of disparities between Member States (see Figure 27).



1. Belgia; 2. Bulgaria; 3. Czech Republic; 4. Denmark; 5. Germany; 6. Estonia; 7. Ireland; 8. Greece; 9. Spain; 10. France; 11. Croatia; 12. Italy; 13. Cyprus; 14. Latvia; 15. Lithuania; 16.

Luxembourg; 17. Hungary; 18. Malta; 19. Netherlands; 20. Austria; 21. Poland; 22. Portugal; 23. Romania; 24. Slovenia; 25. Slovakia; 26. Finland; 27. Sweden; 28. UK

Figure 27: Energy output’s disparities across the EU in 2016

Figure 27 covers all Member States and points out the same two possible clusters. This is why the cluster quality is high 0.9 (see Figure 28).

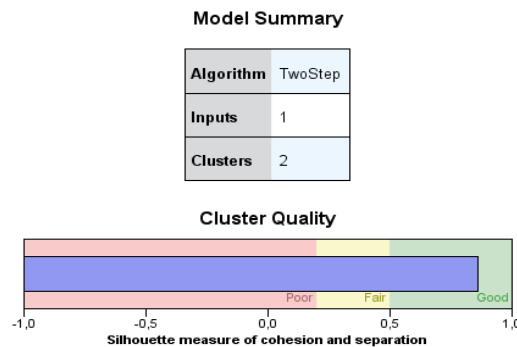


Figure 28: Energy outputs’ cluster approach

In order to decrease these energetic disparities, the European Commission defined and started implementation of the new Energy Union Strategy (European Commission 3, 2015). This strategy supports the partial integration (10%) of the EU energy market until 2020 and promotes increasing electricity from renewable energy sources.

9. Discussion and conclusions

The above analysis covered the most important industrial sectors. It leads to the conclusion of the existence of industrial leaders and peripheral Member States.

This situation makes possible the grouping of the Member States into specific clusters. These clusters point out the great disparities between Member States related to their industrial development.

Using the results of the previous analysis, the next step is to make up a top list of the Member States according to their industrial development. All 28 states will be ranked in this top, using value 28 for the 1st rank, 27 for the 2nd rank and so on. The results of this new analysis are presented in Table 1.

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Table 1: Member States' ranking according to their industrial development

State	Innovation	Steel	Shipbuilding	Textiles	Aeronautics	Automotive	Pharmaceutical	Energy	Σ
Belgium	23	21		23	21	19	23	16	146
Bulgaria	7	9	17	10				14	57
Czech Republic	19	19	17	19		24		20	118
Denmark	26		4		19		25	17	91
Germany	24	28	27	28	27		26	27	187
Estonia	16		13		11	28		9	77
Ireland	17		12		14		24	5	72
Greece	7	11	15	13				12	58
Spain	11	25	22	26	25	27	22	22	180
France	22	26	24	25	28	26	27	28	206
Croatia	5	8	23					8	44
Italy	14	27	28	27		23	21	23	163
Cyprus	1				9			2	12
Latvia	3		14	9	12			6	44
Lithuania	9				16			4	29
Luxembourg	13	14		14	13			3	57
Hungary	15	12		12		20		13	72
Malta	4				10			1	15
Netherlands	20	20	21	20	22	12		24	139
Austria	27	22		21	20	14		15	119
Poland	8	23	20	22	24	21		25	143
Portugal	12			11	17	16		11	67
Romania	2	15	26	17		18		19	97
Slovenia	21	10		10		16		7	64
Slovakia	10	18		16	15	22		10	91
Finland	25	16	25	15	18	13		18	130
Sweden	28	17		18	23	17		21	124

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UK	18	24	19	24	26	25	28	26	19 0
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The EU Member States are characterized by great disparities related to their industrial development. The most industrialized countries are those which achieved a general score greater than 150 in Table 1. They can create a distinct cluster which covers: France, UK, Germany, Spain and Italy. This cluster represents the most developed industries.

The second cluster is formed by countries with industrial scores between 100 and 150. It covers: Belgium, Poland, Netherlands, Finland, Sweden, Austria and Czech Republic. These countries have some developed industries, but not all.

Finally, the third cluster covers economies with less developed industries: Bulgaria, Denmark, Estonia, Ireland, Greece, Croatia, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, Portugal, Romania, Slovenia and Slovakia. Unfortunately, this last cluster has the greatest number of economies.

As a result, at present, the EU covers economies with three speeds in their industrial development. This conclusion contradicts the goals of the Cohesion and Regional Policies. EU is a Europe of industrial disparities and has to solve many challenges, on both short and medium terms.

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