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## **WILL EUROPE'S INDUSTRY SURVIVE THE CRISIS? COMPETITIVENESS, EMPLOYMENT AND THE NEED FOR AN INDUSTRIAL POLICY**

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# **Will Europe's industry survive the crisis?**

## **Competitiveness, employment and the need for an industrial policy**

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### **Abstract**

This paper examines the state of Europe's industry and competitiveness in the current crisis and provides the rationale for a new industrial policy at the European level. Section 1 documents the decline of EU industry and the losses in output resulting from the crisis started in 2008. Section 2 investigates the issue of competitiveness, an issue at the top of the EU Commission policy agenda. Competitiveness is seen at the heart of economic growth and in the current crisis much of the policy advice from Brussels has focused on ways to restore the competitiveness of weaker countries. Mainstream notions of wage-driven price competitiveness as a determinant of export success of EU countries are not convincing. Rather it is technology, product quality, immaterial capabilities and the characteristics of goods and sectors that are crucial factors explaining the dynamics of productivity and competitiveness in Europe. Section 3 is devoted to the employment dimension. During the recession the job creating potential of product innovation has been lost leaving space to process innovations and job losses that have hit hardest craft and manual workers. A process of skill, job and wage polarisation has characterised the European employment structure leading to increasing inequality and poverty. Not all European countries have been affected in the same way, leading to a centre-periphery polarisation in terms of unemployment and productivity. Section 4 concludes with a specific proposal for a new European industrial policy that could orient structural change towards environmental sustainability, ICT applications and health and welfare systems. In these fields the employment impact is likely to be significant also in terms of skills and wages of the workforce.

### **Sintesi**

In questo lavoro si argomenta la necessità di una politica industriale a livello europeo sulla base dell'analisi della competitività e dell'occupazione dell'industria europea nell'attuale fase recessiva. La sezione 1 documenta il declino dell'industria europea a partire dalla caduta del valore aggiunto a seguito della crisi del 2008. Nella sezione 2 si pone l'attenzione sulla competitività dell'industria su cui la Commissione Europea ha focalizzato la sua attenzione negli ultimi anni in termini di "competitività di prezzo" delle esportazioni dei paesi dell'Unione europea sui mercati esteri. Tuttavia la tesi della competitività trainata dai bassi costi non è convincente, piuttosto è la tecnologia in termini di qualità del prodotto, capacità immateriali e caratteristiche dei prodotti a dover ricevere maggiore attenzione. La sezione 3 è dedicata agli effetti occupazionali della crisi che ha duramente colpito i lavoratori poco qualificati accentuando un processo di polarizzazione della struttura occupazionale. Inoltre, la crisi non ha colpito tutti i paesi europei in modo omogeneo, ma ha aggravato le dinamiche centro-periferia sia in termini di produttività che di disoccupazione. In ultimo, la sezione 4 conclude presentando una proposta di politica industriale europea capace di favorire il cambiamento strutturale verso attività legate alla sostenibilità ambientale, alle applicazioni delle ICT e ai sistemi sanitari e di welfare.

***JEL codes: J3, L60, O25***

***Keywords: Competitiveness, Employment, Industrial Policy, Europe***

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### **1. Industry in Europe<sup>1</sup>**

In Europe's long stagnation, major imbalances concern not only government budgets, public debts and unemployment rates; the structural imbalances that are emerging in the real economy are likely to have a dramatic impact on EU countries in terms of their productive capacity and of their ability to maintain balanced current accounts. With one quarter of industrial production being lost in countries of the EU periphery since 2008, a debate is now emerging on how industrial capacity could be reconstructed.

Industrial production in Europe is becoming increasingly polarised, as shown in Table 1. With 2008 values for industrial production equal to 100, in 2013 only Germany, Austria and the Netherlands had an index that had suffered limited slumps during the recession and had returned to pre-crisis levels. Progress was made by Poland alone, reaching 118. Ireland has returned to a 2013 value of 99 after dramatic losses in the midst of the crisis. Most countries in Central and Northern Europe failed to recover; France, the UK, Sweden, and Denmark have 2013 values equal to 89, Finland is at 83 (in Finland and the Netherlands GDP has been falling in 2012 and 2013). Southern Europe has experienced a dramatic loss of industrial production; 2013 values are 88 for Portugal, 79 for Italy, 76 for Spain, 73 for Greece. As a result of the prolonged European crisis, a permanent loss of production capacity is taking place in most industries and most countries, with a major destruction of economic activities in the Southern "periphery". A parallel polarisation has emerged in unemployment and other economic variables.

The process behind these figures is rooted in the concentration of economic activities and power in the "centre" - Germany and few neighbouring countries integrated in its production system.<sup>2</sup>

With a prolonged stagnation, Europe is likely to develop a more polarised industrial structure; "weak" countries, regions, industries and firms are becoming weaker; the "centre" may be negatively affected by lower demand; all countries will end up with a reduced ability to develop new technologies and economic activities. Without growth, change is more difficult; Europe as a whole could be stuck in its traditional economic trajectory – with sluggish markets, a heavy environmental burden, cosmetic attention to climate change, and growing inequality.

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<sup>1</sup> Valeria Cirillo is the author of section 3; Dario Guarascio of section 2, Mario Pianta of Section 1 and 4.

<sup>2</sup> Analyses of the recent evolution of European industries and production networks include WIIW (2013); Simonazzi, Ginzburg and Nocella, (2013); Reinstaller et al. (2013); Amador et al. (2013), Aiginger (2014). The evidence on the growing fragmentation of production in complex, cross-border value chains suggests that Germany has been a main beneficiary; some Eastern European countries have benefitted from extensive outsourcing; Southern European countries have experienced a weakening of their industrial capacity.

**Table 1. Industrial production and Youth unemployment in Europe**

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<b>Countries</b>	<b>Industrial Production</b> 2013 values in real terms Pre-crisis data for 2008 = 1	<b>Youth Unemployment</b> Change in the % 2013-2008	<b>Youth Unemployment</b> (15-29 years) Percentage in 2013
Germany	98	-2.3	7.3
Austria	101	1.4	8.0
Netherlands	99	5.4	9.5
Poland	118	6.9	18.9
Ireland	99	10.9	20.5
Denmark	89	5.6	11.9
Finland	83	3.1	15.1
Sweden	89	2.8	17.2
France	89	4.8	18.4
United Kingdom	89	3.7	14.8
Italy	79	14.3	29.6
Portugal	88	15.3	28.5
Spain	76	24.2	42.4
Greece	73	32.5	48.7

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Industrial production is defined as Real output in mining, manufacturing, public utilities.  
Construction is excluded. Source: Eurostat, Unece.

Source: Pianta (2014).

## 2. Europe's competitiveness

Introducing the last *European Commission Competitiveness Report*, the Director General of DG Enterprise and Industry stated: "This year's European Competitiveness Report coincides with the first preliminary signs that Europe is finally joining the rest of the world on the path to steady recovery, leaving the worst years of the crisis behind..". Despite these hopeful beliefs, the everyday chronicles as well as the sequence of figures daily reported by Eurostat (In the EU-27 GDP growth was flat in the second quarter of 2014 compared with the first one and that translates into 0.2% growth in annualized terms) depict a situation of never ending depression with also the "core" countries (the group of countries following the slow recovery of German exports) beginning to suffer manifestly<sup>3</sup> due to the chronic stagnation of the "periphery" (European Competitiveness Report (ECR) - Enterprise & Industry DG , 2013).

In this context, a deeper understanding of the concepts of *growth* and *competitiveness* - as the two has been promoted in Europe so far and as they can be alternatively interpreted- appears crucial to disentangle both the route which brought to the present crisis as well as the failures of the policies adopted until now to achieve the recovery. Moreover, the mission of enhancing competitiveness is at the top of EU Commission's political agenda as it is considered at the hearth of a strong and sustained economic growth (European Commission, 2013). To complete the picture, the role and the health conditions of European manufacturing industries must be pointed out now that their fundamental role as drivers for competitiveness, growth and innovation is widely and officially recognized (see the Report "*A manufacturing imperative in the EU: Europe's position in global manufacturing and the role of industrial policy*", WIIW June 2013).

The industrial policy proposals of the EU Commission address the present situation in Europe as if it were a *price competitiveness* problem, neglecting to consider the crucial role of innovation and *technological competitiveness* (for an extended analysis of the Schumpeterian distinction between competitiveness strategies see Pianta, 2001). Such strategy of competition - *technological competitiveness* - should be, on the contrary, one of the major European challenges for the next years.

Reviewing jointly the European Commission's official reports on *competitiveness* and *industrial policy* as well as the most recent contributions in the related scientific literature, this work aims to answer to four key questions: i) What does traditional and advanced indicators of industrial competitiveness tell us about the strengths and the weaknesses of European industries? ii) What kind of structural change took place in Europe and which relations are detectable between the European "growth model" and the present condition of *stagnation* and *polarization* across the EU economies after twenty years of tempted economic integration iii) Which kind of industrial policy agenda is proposed by the EU Commission and which coherence is recognizable between the latter and the evidence provided by the data? iv) Which are the proposals on the ground for an alternative European Industrial Policy that will not only provide a recovery but could also shift our economies towards a sustainable and convergent growth path?

### *The competitive performance of EU industries*

Our analysis of European competitiveness focuses on the industry level looking first at the dynamics of *technological competitiveness* and then at that of *price* or *cost (labor) competitiveness* (Montobbio, 2003; Soete, 1981).

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<sup>3</sup> German GDP shrank an annualized 0.6% since the beginning of 2014 and it felt by 0.2% in the second quarter. The other core countries haven't performed better in the same period with Austrian GDP growing only of the 0.2%, Poland at the 0.6% and Czech Republic stagnating at a 0%.

Using traditional (as the Revealed Comparative Advantages (RCA) indicator<sup>4</sup>) indicators to measure European industries competitiveness<sup>5</sup>, the ECR finds that the European Union as a whole has comparative advantage in most of the manufacturing sectors. Such sectors include such vital *high tech* and *medium tech* sectors as pharmaceuticals, chemicals, vehicles, machinery, other transport equipment (which includes aerospace) but also low and medium tech sectors as food, beverages, tobacco, paper and plastic. This is the state of play of competition in broad categories of industries grouped according to technology intensities. Taking the analysis further down to product level, however, Europe seems to be in a much better position globally. In 2010, 67% of European exports had revealed comparative advantages, while China had comparative advantages in 54% of products, and US and Japan 43% and 24% respectively (European Commission, 2013 p. 8). In order to deepen the analysis of European industries competitiveness a step forward is needed. Another component of competitiveness in trade is related to the degree of complexity of products. Such product complexity allows firms to better defend themselves from imitation ensuring at the same time a technological leadership. Moreover, competitiveness of an industry in a certain country is expressed through its ability to produce relatively sophisticated products. (European Commission, 2013; Reinstaller, 2013).

**Table 2: Revealed comparative advantages by technological intensity, manufacturing industries 2011**

	High tech	Medium high tech	Medium low tech	Low Tech
EU	0.85	1.14	0.89	1.01
Japan	0.73	1.59	0.86	0.16
US	0.88	1.22	0.96	0.68
Brazil	0.32	0.76	0.87	2.50
China	1.56	0.72	0.85	1.29
India	0.40	0.49	1.93	1.33
Russia	0.08	0.45	2.74	0.49

Source: UN COMTRADE

Source: European Competitiveness Report, 2013 p. 22

Using a recently developed set of indicators (a wide methodological review of those indicators is in Reinstaller, 2013) the ECR shows that the higher share of complex and sophisticated products belongs to high-tech manufacturing sector (the role of manufacturing as a crucial driver for innovation in the whole economy is deeply stressed by WIIW Report, 2013). The ECR shows that in most of the sectors where European industries have a comparative advantage the products are characterized by more than average complexity. It is shown that quite a high share of product with  $RCA > 1$  like machinery and equipment n.e.c. (NACE 29), office machinery and computers (NACE 30) and motor vehicles (NACE 34) are products of higher than average complexity. For example, more than 90% of the products for which the manufacturing industry medical, precision and optical instruments (NACE 33) have revealed comparative advantages are more complex than the average

<sup>4</sup> The RCA index traditionally compares the share of a sector's exports with the share of the same sector's exports in the total manufacturing exports of a group of reference countries. A value higher than 1 means that a given industry performs better than the reference group and has comparative advantage, while a value lower than unity indicates comparative disadvantage. In the ECR the RCA index is computed for both export and patent data.

<sup>5</sup> A methodological issue must be pointed out here. Using RCA as a tool to measure industries and countries competitiveness could be misleading. RCA is an indicator looking at a relative weight of industries in each country actually comparing the relative sectoral specializations (in the case of the ECR it could be appropriate to use also the RCA to measure technological competitiveness since the country aggregates are quite homogeneous in terms of dimensions).

products sold on world markets by the same industries in other countries (European Commission, 2013 p. 24).

Another remarkable result emerges from the review of the European Competitiveness Report. Apparently, the “myth” related to the need of pushing wages downward due to the unsustainable competition performed by the emerging economies – namely, the BRICS - is unconfirmed.

**Table 3: Domestic and foreign value added content of gross manufacturing exports by source country in 1995 and 2009 (%)**

	EU		CHINA		JAPAN		KOREA		US	
	1995	2009	1995	2009	1995	2009	1995	2009	1995	2009
Domestic	91.1	85.6	82.7	73.6	93.3	85.4	73.3	61.3	86.9	84.5
Foreign	8.9	14.4	17.3	26.4	6.7	14.6	26.7	38.7	13.1	15.5
EU	–	–	2.8	5.1	1.2	1.8	4.4	5.2	3.7	3.3
CHINA	0.3	2.3	–	–	0.4	2.4	1.7	6.7	0.4	2.5
JAPAN	1.0	0.7	3.8	3.3	–	–	6.3	4.7	2.2	0.9
KOREA	0.3	0.4	2.0	1.8	0.5	0.5	–	–	0.6	0.4
US	2.3	2.4	2.0	3.4	1.4	1.6	5.1	3.8	–	–
AUSTRALIA	0.2	0.2	0.5	1.3	0.3	0.9	1.1	1.8	0.1	0.2
BRAZIL	0.2	0.4	0.1	0.6	0.1	0.2	0.3	0.4	0.2	0.3
CANADA	0.4	0.4	0.4	0.5	0.3	0.3	0.7	0.5	1.8	2.0
INDONESIA	0.1	0.2	0.5	0.4	0.3	0.6	0.6	1.2	0.1	0.1
INDIA	0.1	0.3	0.1	0.3	0.1	0.1	0.2	0.3	0.1	0.3
MEXICO	0.1	0.2	0.0	0.2	0.1	0.1	0.1	0.2	0.7	1.2
RUSSIA	0.8	1.5	0.3	0.7	0.1	0.4	0.4	1.0	0.2	0.3
TURKEY	0.1	0.3	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1
TAIWAN	0.2	0.2	1.8	1.8	0.3	0.4	0.6	0.9	0.5	0.3
Rest of world	2.8	5.0	2.9	7.1	1.7	5.2	5.4	11.9	2.4	3.8

Source: WTO/D

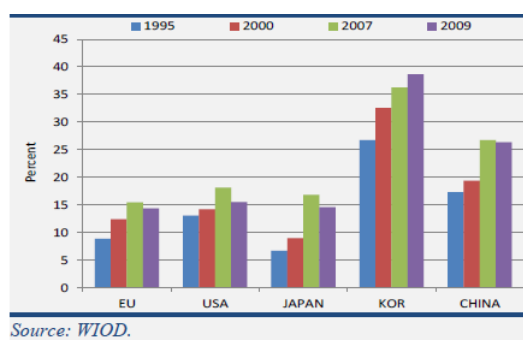
Source: European Competitiveness Report, 2013 p. 25

Even though industries in the BRIC countries managed to upgrade their products considerably between 1995 and 2010, the majority of industries in these countries still produce less complex products than their counterparts in the EU. In fact, manufacturing industries in the EU have a relatively higher degree of complexity. This is further confirmed by the observation that the EU exported about 67% of products with revealed comparative advantage in 2010. In comparison, the US only has a comparative advantage in 43% of products, China in 54% and Japan in 24%. products. Chinese manufacturing industries are however still predominantly competitive in product categories with lower complexity (European Commission, 2013 p. 26).

Reinstaller et al (2013) show that EU exporters, together with those in the US, Japan and South Korea are more able to capture larger shares of the world market by offering more exclusive products which rely on a broader knowledge base.

Continuing to enlarge the picture regarding the ability of European industries to compete on the side of quality and innovation another issue appears to be relevant. The issue of separating the domestic content of production from foreign content is related to the increased international fragmentation of production which gives rise to increased intra-industry trade in intermediate goods. Using a measure of value added content in trade closed to the one proposed by Hummels (2001) the ECR reports *foreign value added embedded in gross exports* distinguishing it by source. This will show whether countries and their industries succeed in selling intermediate inputs to be used in the gross exports of other countries. Between 1995 and 2009 when Chinese exports increased dramatically, EU value added in Chinese manufacturing exports increased more than that of industries from other parts of the world. Japanese and Korean value added in Chinese manufacturing exports decreased during the same time (European Commission, 2013 p. 26).

**Figure 1: Lower extent of foreign value added embedded in EU manufacturing**



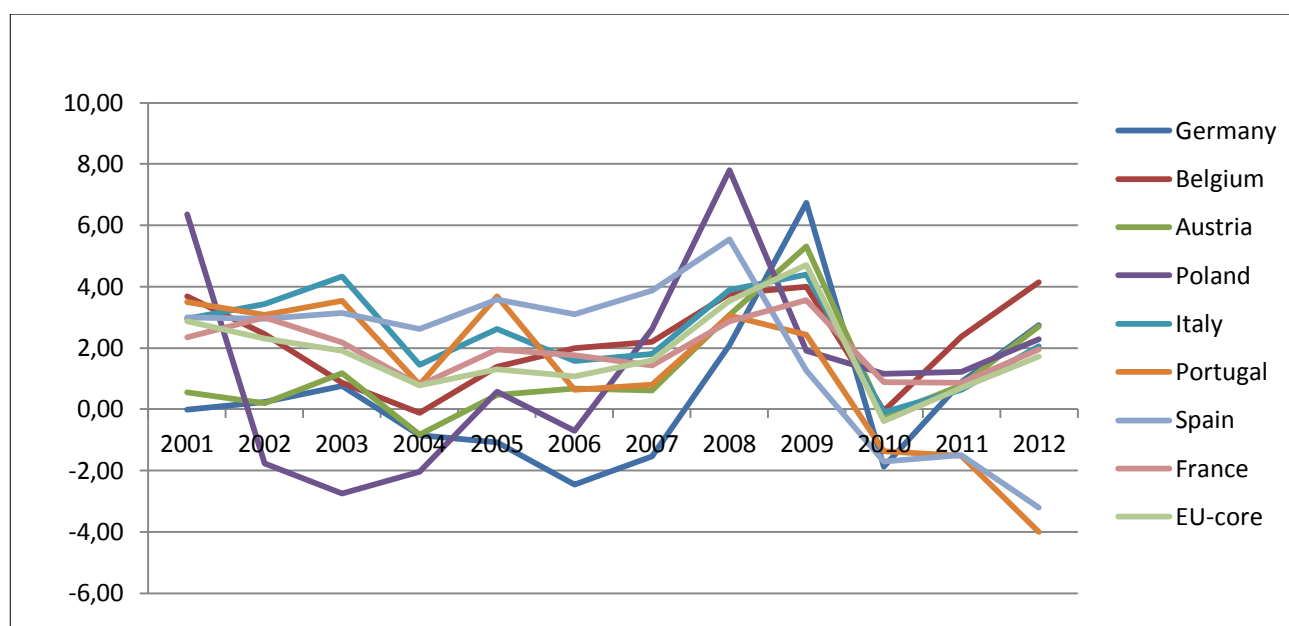
Source: European Competitiveness Report, 2013 p. 26

One reason for a relatively lower foreign content of EU manufacturing gross exports is that most of the value chains in which EU firms participate are regional, i.e. within the EU.

The importance of a strong manufacturing sector as a base to guarantee competitiveness appears clear from the evidence provided. The tradability of manufactured goods as well as the natural role of the manufacturing industries as innovation *loci* constitutes the traditional arguments in favor of the *manufacturing imperative* (European Commission, 2013). A recent literature has also pointed out how a strong and technologically advanced manufacturing base is a fundamental driver to spread out innovation also towards the service sector (see among the others WIIW Report, 2013).

Considering those results the arguments of those who suggest wage compression and labour flexibilization as a strategy to compete with the main emerging economies are hardly sustainable. The following figure (Fig. 2) depicts the dynamics of Unit Labour Cost (ULC) across the European Member States.

**Figure 2: Unit Labour Cost dynamics across the major EU economies**



Source: Own calculation on OECD data



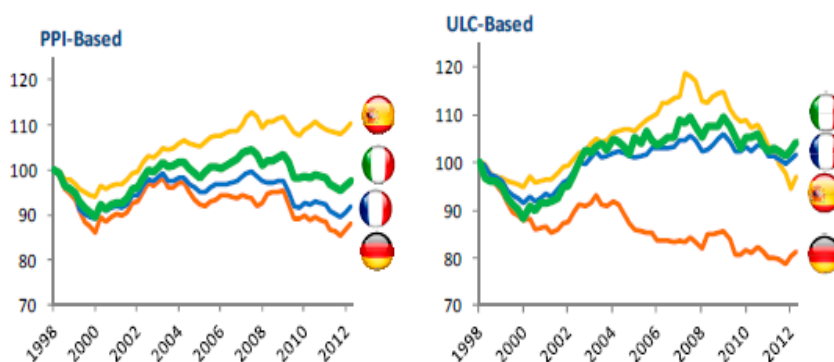
The trend shown in Fig. 2 depicts a dramatic divergence – partly narrowed during the crisis era with the exception of Spain and Portugal where unemployment exploded - in terms of ULC between Germany – and to some extent Poland and Austria - and Southern EU economies. If this evidence could explain a part of the of the polarization across core and periphery, it could also bias a deep understanding of competitiveness dynamics across the EU.

Moving to a new kind of recently developed ULC indicators (Bayoumi et al., 2011) – alternatively to the standard CPI ones, these indicators are computed using Wholesale Price Indexes and Export Unit Prices (PPI) - the picture appears quite different (see Fig. 3). Using a PPI-based measure the gap between core and periphery countries is considerably narrower. Italy, for example, is not materially less competitive than it was in 1999 (Tiffin, 2014). As depicted above relatively to export-based indicators, also the *price-cost competitiveness* picture could change if the complexity of current systems of production and trade is taken into account through proper indicators.

Therefore, labor-cost measures may present an incomplete picture, and should perhaps be complemented. Part of the discrepancy between the different types of measures may again reflect the changing nature of global production. In an era of globalization and international supply chains, the share of domestically employed labor in total production costs is decreasing, albeit to a different degree in different countries

With respect to the *cost or price competitiveness* dimension the results of the ECR are possibly more striking. Considering the fundamental role of European firms operating on medium and high tech sectors, providing sophisticated and complex goods and competing mainly on technology and quality the EU Commission analysts state: “..Unit Labour Cost (ULC) may however not be a good competitiveness indicator for firms producing goods with some characteristics that allow them to have some room of adjustment to set the prices themselves. Such firms producing goods with higher value added are more frequently found in high-tech and medium-high-tech manufacturing industries. Their goods are often combined with some kind of services aiming at satisfying demand for differentiated goods in high income segments of different markets. Labour normally constitutes a smaller proportion of total costs and input factors for such firms, rendering the ULC less useful as a measure of competitiveness..” (European Commission, 2013 p. 26).

**Figure 3: Comparison between Unit Labour Cost dynamics across the major EU economies using different ULC indicators**



Source: Tiffin A. (2014) European Productivity, Innovation and Competitiveness: The Case of Italy. IMF Working Paper Strategy, Policy and Review department

The ECR finally points out the importance of an healthy high tech manufacturing industry working as a pillar for the present and the future of European competitiveness. Considering this, the present distribution of such industries across and within European countries must be analyzed. Given the

polarization and the strong loss of productive capacity – which interested mainly the manufacturing industries of the periphery – due to both the unbalanced growth before and the recession after the 2008 crisis, this feature should be extremely relevant.

From this point of view, a partial good news is founded in two recent IMF reports (Lissovlik, 2008; Tiffin, 2014) analyzing the competitiveness of the Italian manufacturing industries before and after the crisis. Tiffin (2014) tries to explain why Italian manufacturing exports have held up relatively well until recently despite a constant shrink in labour productivity. According to the author: “..Italy still maintains a high-quality export mix, and the adaptability of Italian firms is still a source of strength..” (Tiffin, 2014 p.15). The role of technology, product quality, immaterial capabilities and peculiar characteristics of Italian goods and sectors are recognized in the final section of the IMF paper as crucial factors for explaining the observed dynamics in productivity and competitiveness. Thus, technology and high-end products – where wages have to be higher - do play a role in preserving export markets. And the role of innovation is indeed important, so much so that the IMF paper suggests that for Italy the “small firm size is becoming less of an asset” (id. p.1) because small firms rarely have the resources for carrying out R&D and innovation.

So, the picture of the Italian economy – strongly paradigmatic for the whole EU periphery - is one of a country which resists thanks to a preexistent strong and dynamic manufacturing base. Nevertheless, in the conclusion the author recognizes that the losses experienced in Italy after the 2008 could be a serious threat for this residual ability to resist.

The take home message of this section could be synthetized as follows:

- Despite the effect of the austerity regime adopted by the European authorities after the 2008 crisis – which increased the polarization between core and periphery widening also the productivity gap between EU and US – the legacy of a strong and technologically advanced production base in the European Union allowed to maintain important positions in the international markets
- Technological competitiveness matters and continues, despite the impact of the crisis, to remain one of the main strength of European industries
- There is a manufacturing imperative in the EU: manufacturing industries remain the main drivers of innovation and technology diffusion
- Unit Labour Cost dynamics explain a marginal part of the competitiveness performance of European Member States

### *Structural change across the European Union*

The development of an economy is strongly linked with the composition and the evolutionary path of its structure. The opportunity to produce the same goods and services at higher levels of productivity or to produce new ones depends mainly on changes in technology and skills (the main references in this field are Pavitt, 1984; Dosi, 1988; Malerba 2002 and 2004 among the others). At the same time, consumer demand and derived demand for intermediate goods and services could contribute to shift the economy towards different sets of goods (Pasinetti, 1981). This process of long-lasting changes in the set of goods and services produced and in the composition of capabilities – the physical and human capital base as part of the factors of production – is called structural change.

Structural change – in terms of output and employment composition of sectors – could also affect the growth potential of the economies. Change in the share of sectors within an economy are mainly due to the fact that the long-term growth potential of industries is strongly heterogeneous. However,

it is important to note that the structure of the economy can also change with no positive impact on economic growth, if structural change increases the share of sectors with low growth potential. Growth-enhancing structural change is thus associated with increased capabilities and with the well-known Schumpeterian process of “creative destruction” (Schumpeter, 1942). Advanced economies would tend to produce sophisticated products with a high degree of complexity replacing the old industries. Nevertheless, shifting towards more advanced sectors requires always a specific knowledge-base as well as a peculiar specialization of the economy (European Commission, 2013). The ECR contains a dedicate chapter to structural change across European member states (European Commission, 2013 p. 47-66). It emerges a rising disparity across the EU-27, for both the employment and value-added share of manufacturing industries (see Tab.4). Also at the EU-15 level a reduction in disparity – heterogeneity in sectoral composition across Member States - of services shares, along with an increase in disparity for the production sectors, especially manufacturing both in terms of employment and the value added share. The evidence provided by the EU Commission Report confirms a considerable heterogeneity in economic development across Member States.

As recognized at the end of the chapter (European Commission, 2013 p. 61), the differences for the manufacturing sector are striking, showing a polarization process with an increasing disparity across Member States (see Tab. 5). As already pointed out, a continuous trend of contraction in the share of the manufacturing and tradable sectors is observable in the periphery where at the same time services like finance and insurances are grown remarkably.

**Table 4: Dynamics of structural change in the EU-27, 1995-2011**

	Employment shares					
	Share 2011	Change 1995–2005	Change 2005–2011	Inequality 2011	Change 1995–2005	Change 2005–2011
Agriculture	5.8	-2.6	-0.6	39.6	2.9	1.1
Mining and Utilities	1.3	-0.5	0.0	31.8	-2.1	-0.2
Manufacturing	15.3	-3.2	-1.9	16.6	4.0	1.4
Construction	7.1	0.8	-0.7	9.6	2.2	-5.0
Distribution	26.6	1.1	0.5	7.5	-0.3	1.5
Personal Services	6.1	0.5	0.3	18.3	-0.9	1.1
Business Service	14.6	3.0	1.7	18.9	-1.8	-1.4
Non-market Services	23.1	1.0	0.7	10.1	-1.5	-0.6
	Value added shares					
	Share 2011	Change 1995–2005	Change 2005–2011	Inequality 2011	Change 1995–2005	Change 2005–2011
Agriculture	2.7	-2.2	-0.1	30.3	-1.5	0.9
Mining and Utilities	3.7	-0.5	0.5	26	2.4	1.7
Manufacturing	16.8	-3.0	-0.8	18.2	5.2	1.7
Construction	5.6	0.6	-0.9	14.4	2.8	1.1
Distribution	23.3	0.9	-1.1	8.9	2.0	-1.1
Personal Services	4.3	0.4	0.4	20	-0.1	8.1
Business Service	25.3	3.3	1.3	11.7	-0.3	-1.4
Non-market Services	18.3	0.6	0.6	10.3	1.2	0.5

Source: WIFO calculations, Eurostat, National Accounts.

Note: unweighted averages; inequality is measured using the Gini Index across countries.

Source: European Competitiveness Report, 2013 p. 60

Landesmann (2013) has shown that the model of growth adopted in Europe before the crisis impacted in a relevant way on the industrial structure of Eastern and Southern European countries. The data provided by Landesmann (2013) show that manufacturing and manufacturing-related services started to reduce their contribution to the overall GDP in South and Eastern Europe – with the exception of those countries as Czech Republic, Poland, Hungary and Slovakia strongly integrated in the German value chain – many years before the crisis. The reduction in the manufacturing share has been accompanied by a rise of the non-tradable service sectors such as finance and insurances (NACE 65).

**Table 5: Heterogeneity of structural change in the EU-27, 1995-2011**

	Employment share		Value added share	
	Inequality 2005	Change in inequality 1975-2005	Inequality 2005	Change in inequality 1975-2005
Agriculture	38.5	1.8	29.4	-0.6
Mining and Utilities	32.0	9.2	24.3	1.0
Manufacturing	15.2	7.6	16.5	7.8
Construction	14.6	7.0	13.3	5.4
Distribution Services	6.0	1.7	10.0	3.9
Personal Services	17.2	-2.3	11.9	-3.1
Business Services	20.3	-2.4	13.1	-2.7
Non-Market Services	10.7	-5.8	9.8	-3.5

*Source: WIFO calculations, EU KLEMS*

Notes: Inequality is measured using the Gini index  
Source: European Competitiveness Report, 2013 p. 60

The dimension of such reduction in manufacturing share is more remarkable in the Southern European countries which after the crisis reached level of contraction near to 25% (as in the case of Italy and Spain). However, looking at the period immediately preceding the crisis break (2005-08), there is evidence for the contribution of manufacturing declining quite strongly in a range of Eastern economies (Estonia, Latvia, Lithuania, Hungary) while that of construction and market services increased significantly.

Thus, if the contraction of the industrial base in the South has been increased by the effect of the economic recession – a substantial contribution to this contraction has also been given by the austerity measures aiming to fiscal consolidation – the overall phenomena of structural change must be linked to the model of growth originally adopted in European Union.

The European integration and growth model has been founded on a high degree of liberalization of external economic relations. Trade relations were strongly liberalized and there was a commitment to free international capital movements. From this point of view to different models of growth could be identified from the beginning of the European integration until now (Stockhammer, 2014). The first one – defined as a debt-driven growth – is based on rising household debts: A substantial increase in financial deregulation – thanks also to the activism of the EU Commission - a massive flow of financial flows coming from the core fuelled housing and speculative bubbles in peripheral countries like Spain or Ireland. The second model – the export led one – based on the fixed exchange rate and on the aggressive wage moderation policy adopted in Germany contributed to produce the dramatic trade imbalances between core and periphery. Both the two models produced

– beside their negative macroeconomic impact observed after 2008 – relevant consequences in terms of a perverse structural change – mainly identifiable with the loss of production base - occurred in the periphery (Landesmann, 2013).

Furthermore, behind the scene of those two unbalanced growth models there is also the story of the huge industrial reorganization started in Europe with the German reunification. Ginzburg and colleagues (Ginzburg et al., 2012) emphasized the role of German industrial reorganization in shaping the divergent pattern between core and periphery in the European Union. Their analysis moves from the consideration that in the first decade after the German reunification the economic performance of the country was remarkably poor (in particular, between 1999 and 2005 the average growth rate was 1.1%) while on the other side a strong activism in terms supply side policies was observable in that country. In particular, they firstly emphasized the huge labour market flexibilization which – as Carlin and Soskice (2009) pointed out – brought since the late nineties to a strong segmentation between insiders and outsiders in the German labour market.

However, despite such labour market reforms – favored by the fundamental collaboration of German Unions, as correctly noted by Ginzburg et al. - are strongly relevant in order to explain German exports boom at the end of the nineties, they constitutes only a part of the whole picture. The German export boom – in particular the incredible performances observed after 2005 – could be properly explained only considering a long term reorganization of production which leads to a major role of *non-price competitiveness*.

The authors – referring to a previous work by Danninger and Joutz (2007) – have identified five critical factors explaining, on the German side, the incredible export boom and, on the European side, the explosion of unbalances and divergence between core and periphery: “..the main determinants of the German export boom can be identified in four circumstances: (i) improved cost competitiveness through wage restraint; (ii) linkages with high-growth markets of emerging countries (especially China and India) through an appropriate mix of products or the use of previous established links; (iii) an increase in exports of capital goods in response to the increased investment in emerging countries; and (iv) formation of a regionalised pattern of supply by relocating abroad (offshoring) part of the production..as a fifth point, the evolution of German income distribution (characterized by a substantial wage compression), set a general framework helpful in explaining—at an aggregate, national account level—the persistent accumulation of German current account surpluses after the introduction of the euro..” (Ginzburg et al., 2013 p.7).

Considering the aim of this work – which is to disentangle the concept of competitiveness in a stagnant and polarized Europe – the iv and v points deserve to be stressed a bit more. With respect to the fourth point (iv), the thesis putted forward by the authors is twofold: on one side Germany benefited from cultural ties and closer borders – as well as by the legacy of production and trade networks of the former GDR with the rest of the Socialist States – managing to enlarge its value chain towards the East; on the other side, the German value chain enlargement produced a weakening of the previous ties with the Southern Europe impoverishing the matrix of production and the trade network of those countries (Italy among the others) (Ginzburg et al., 2013).

The consequences of such a reorganization at the continental level – having Germany as a gravity center – assumed the form of a dangerous structural change in those areas – Southern and Eastern European countries - defined by Ginzburg “two peripheries”. The Eastern countries (Czech Republic, Poland, Slovakia among the others) turned out to be the providers of most of the medium and low tech intermediate inputs in the German value chain; Southern Europe (in particular Italy and Spain) increased enormously the imports from Germany without finding alternative outlets for their exports within and outside the Eurozone (The Italian case, as shown by Tiffin (2014), demonstrates, however, that what has been shown is an ongoing process with part of the Italian comparative advantages continuing to resist despite the effects of such a perverse mechanism).

Referring to the fifth point (v), Ginzburg et al. (2013) stressed that another important reasons for the current account imbalances after 2001 considered as a crucial turning point for the process of polarization across Europe. The reason could be found in the sharp fall in domestic private

investments over the German GDP while a strong flow of foreign direct investments (FDI) started to grow in those Eastern countries (as the Czech Republic, Poland or Slovakia among the others) joining the new German system of production.

Beside this, savings increased due to corporate profits while German households started to substitute their consumption with precautionary savings. Ginzburg et al. (2013) noted that in the same period German household not only started to save more than before but also switched part of their consumption to low cost and low quality goods imported from China and other emerging countries.

The evidence provided in this section highlights the dangerous road on which Europe is positioned. Deepening the structural dimension of the crisis and unveiling the role of the European “growth model” – ideologically born in a strong neoliberal framework as the policy measures adopted until now to counteract to the crisis – could give some hints about the kind of *Copernican revolution* we need in Europe today.

### *The EU Commission policy response on competitiveness*

The ECR policy conclusions move from the evidences which call for urgent and well-targeted industrial policy measures to build on the identified strengths and upgrade the competitiveness of EU manufacturing (European Commission, 2013 p. 11). Recognizing the relevance of *non-cost competitiveness* – quantitatively assessed through the indicators shown in the previous section – the Report underlines the need for an upgrading of EU comparative advantages through the diffusion of knowledge intensive product and services.

However, the focus of the ECR is mainly on the dynamics – considered weak with respect to the US one - of private R&D investment. The level and the dynamics of private R&D investment is retained at the root of the better performance of the US in terms of high tech patents as well as a primary cause of the widening of EU-US productivity differentials. Nevertheless, the ECR policy conclusion seems to neglect a number of relevant contributions (Mazzucato, 2013; Pianta, 2014) which rediscovered the fundamental role of the State – or of the public intervention in general – as an essential driver of innovation and growth-enhancing structural change.

In the *Policy implications of structural change* (European Commission, 2013 p. 12) the orthodoxy of the EU Commission’s Report don’t seems to diminish. Once stated the crucial role of institution to positively shape economic structural change, the set of measures proposed don’t make a move from the well-known supply side field. Following the EU Commission, the core of the policy implications derived after a deep analysis of structural change are: “ .. Microeconomic evidence suggests that credit market imperfections are important sources of differences in productivity across countries. Market frictions can also hinder structural change due to the existence of regulations and administrative burdens that inhibit the reallocation of resources across sectors and firms. Many factors can be identified such as certain types of taxes, labour market regulation, size-dependent policies or trade barriers in addition to regulations and costs of doing business in the formal sector..The centrality of institutions and policies in the process of structural change leads to a view that the general quality of institutions is important to structural change. Policies that foster structural adjustments should therefore be conceived in a broad way and cover such different areas as education, research, technology and innovation policies, while also focusing on the general quality of governance..” (European Commission, 2013 p. 13).

As usual, what clearly emerges apart from a number of vague claims - like the need for a better education system or a wider diffusion of technology – is a mono-directional market oriented view where all the policy issues collapse into the need for a market with less “barriers” and “frictions”. In particular, labour market deregulation seems to obsess European commissioners despite all the evidences suggesting that the roots of European competitiveness problems are elsewhere.

The official Commission’s document named “Labour Market Developments in Europe 2012” (Labour Market Developments in Europe (LMR) – European Commission, 2012) points out clearly

one of the main policy strategies of the European institutions in order to enhance competitiveness across the Member States. An enlightening synthesis of the “Policy Priorities and Plans Looking Forward” paragraph could be the following: “.Member States are recommended to ensure that their wage setting mechanisms appropriately reflect productivity developments, so as to boost competitiveness and support labour market adjustment..While some countries have introduced far-reaching reforms of their wage setting systems in this direction (e.g. Greece, Spain, Portugal), limited progress has been made in others, where the functioning of certain wage setting and wage indexation systems has been identified as a possible threat to competitiveness (Belgium, Cyprus, Italy, Luxembourg, Malta). In other countries, a balance needs to be struck between ensuring that minimum wage levels are not too high to discourage the recruitment of the young and low-skilled but not as low as to risk creating in-work poverty (Bulgaria, France and Slovenia)..” (European Commission, 2012 p. 52). In this statement we can find, on one side, the settled assumption among European Commissioners that the way towards competitiveness passes through further labour market deregulation; on the other, the belief that the aggressive labour market deregulation implemented in Spain and in Greece after the 2008 crisis is showing positive results.

Strictly related to the evidence provided by the ECR is the recent and official EU Commission document named “For a European Industrial Renaissance” (For a European Industrial Renaissance (EIR) – European Commission, 2014). Here, the technical considerations as well as the policy implications contained in the ECR are translated in political terms making the intentions of the EU Commission more clear and explicit.

The policy agenda proposed in the EIR could be summarized in six focal points: i) increasing European industrial competitiveness operating in particular – through further deregulation of the labor market which could “help the mobility of workers” – to improve the productivity of the service sector; ii) maximizing the “potential of the internal market” through the harmonization of the normative, financial and educational systems at the Union level iii) Accelerating the adoption of the existing financial instruments – the new 7 years program of Union funds – to foster innovation both at the regional and at the Union level; iv) adopting a set of national and international policies to ease and make cheaper the firms access to energy and raw materials v) helping firms to enter into the Global Value Chains where they can gain in terms of technology and new demand vi) reaching the 2020 objective of an industrial sector accounting for the 20% of European GDP (European Commission, 2014).

If, on one side, their vagueness allows to share, in principle, some of the points proposed by the Commission; on the other, what “misses” in the Commission’s policy agenda brings to a general pessimistic feeling. The rationale of the official communication continues to be inscribed in a kind of religious faith in market forces. In particular, it seems that the main recipe to give new strength to the European industrial system is made of further market deregulation looking in particular at the labour and the financial ones.

No words are spent about the role of demand as a crucial element to shape growth-enhancing structural change. Nothing about the unavoidable role of a public demand able to select and push the development of strategic sectors. No lights on the contradiction between the fiscal constraints imposed at the National level and the need to enlarge the provision of fundamental public goods as education, health and welfare in general (recognized in the same Communication as fundamental instruments to enhance competitiveness). Nothing on the inadequate dimension of the European Union budget if compared to the objectives of the 2020 agenda.

Summing up, an analysis of the coherence between statistical figures, scientific literature, declared objectives of European institutions and the reality of their industrial policy proposal turns out to be a demoralizing exercise. It urges a strong inversion in the cultural framework allowing to completely reshape the industrial policy agenda proposed in Europe until today.

### *A few policy implications*

The evidence provided in this section could be synthesized as follows:

- *Technology* is the main source of European industries competitiveness. From this point of view a wide manufacturing base, product complexity, immaterial capabilities and a strong position in international value chains are crucial assets which must be preserved.
- Labour cost is no longer a relevant component determining the ability to maintain international market positions.
- The objective of maintain and increase positions in the international markets should be obtained pushing European economies towards a virtuous – namely green, high tech and labour friendly – structural change.
- There is a need to update the analysis of competitiveness introducing new indicators able to account for complexity – namely fragmentation, offshoring and patterns of global value chains - in international production
- The European growth model – namely export and debt led growth – has negatively affected structural change in European industries, in particular in the periphery. Price competition among the member states, credit bubbles and austerity measures contributed to: i) a strong polarization characterized by a fall in investment – especially technological ones – in particular in the periphery; ii) a dramatic loss of the production base in the periphery; iii) the beginning of a structural change characterized by a loss of relative weight of high tech with respect of medium and low tech industries.
- The present configuration of a polarized European production and trade system – with a German centered core, able to exploit a network with some of the Eastern newcomers, and a periphery lagging behind and working as a final market for goods and capital – seems to be a threat for the growth prospect of the whole Europe.

This section highlighted the fundamental role of *technological competitiveness* as a determinant of European industries' ability to maintain and increase international market positions. Immaterial capabilities and skills – strongly related with product quality and complexity- emerged as a crucial element explaining the good position of EU industries in Global Value Chains. Beside this, the scarce relevance of *cost competitiveness* – at least regarding the competition between EU and Extra-EU industries – has been shown.

Nevertheless, five years of depression and the increasing polarization between core and periphery are seriously endangering the future of European industry. The growth model followed in Europe until today – export and debt led growth – has pushed part of the Member States towards a structural change –shifting from manufacturing towards non tradable services - harmful for their ability to compete in high tech sectors. The loss of production base experienced in the periphery is contributing to reduce the whole dimension of EU manufacturing which is recognized as a crucial asset to foster and diffuse innovation.

The present EU Commission's industrial policy – as well as the strategy adopted since the beginning of the crisis - does not seem to be an adequate response. Moreover, the continuous emphasis on *cost competitiveness* – identifiable with the claims for further labour market deregulation – and the lack of a strong demand side policy could contribute to worsen the trend of stagnation and polarization in Europe. An alternative industrial policy for Europe should move from the considerations above.



### 3. The employment effects of the crisis

The massive industrial decline registered during the last years has had deep employment effects leading to an increase of *structural unemployment*; in the first quarter of 2014, 16.3 million people had been out of work for 12 months, almost twice the number in 2007 (OCSE, 2014). The industrial decline registered in Europe over the last years has contributed to reshape employment structures with different impacts on workers and countries.

#### *Polarisation of skills*

Skills have been differently affected by industrial restructuring processes. Low skill workers have been the most hurt during recessions, above all in manufacturing. Conversely, in services mid skill jobs were the most affected by restructuring at the industry level. Services keep growing following a pattern of positive structural change while a huge contraction of employment has been experienced in manufacturing and construction industries. At sectoral level, during the first two years of the recession, the expansion of higher-paid jobs has been mostly sustained by knowledge-intensive services in the public sector (principally health and education). Overall, the crisis of 2008 has had a strong impact on employment dynamics emphasizing a pattern of polarisation of the job structure (Eurofound, 2013).

#### *Polarisation of countries in industrial production*

A similar, extreme polarisation has emerged in Europe. The continent has been divided between a slow-growing “centre” with financial and political power, and a “periphery” in depression, with no political influence, high public debt, high unemployment. This polarization is evident in the data on real industrial production and youth unemployment shown in Table 1. With 2008 values for industrial production equal to 100, in 2013 only Germany, Austria and the Netherlands had an index that had suffered limited slumps during the recession and had returned to pre-crisis levels. Progress was made by Poland alone, reaching 118. Ireland has returned to a 2013 value of 99 after dramatic losses in the midst of the crisis. Most countries in Central and Northern Europe failed to recover; France, the UK, Sweden, and Denmark have 2013 values equal to 89, Finland is at 83 (in Finland and the Netherlands GDP has been falling in 2012 and 2013). Southern Europe has experienced a dramatic loss of industrial production; 2013 values are 88 for Portugal, 79 for Italy, 76 for Spain, 73 for Greece. As a result of the prolonged European crisis, a permanent loss of production capacity is taking place in most industries and most countries, with a major destruction of economic activities in the Southern “periphery”.

#### *Polarisation of countries in unemployment*

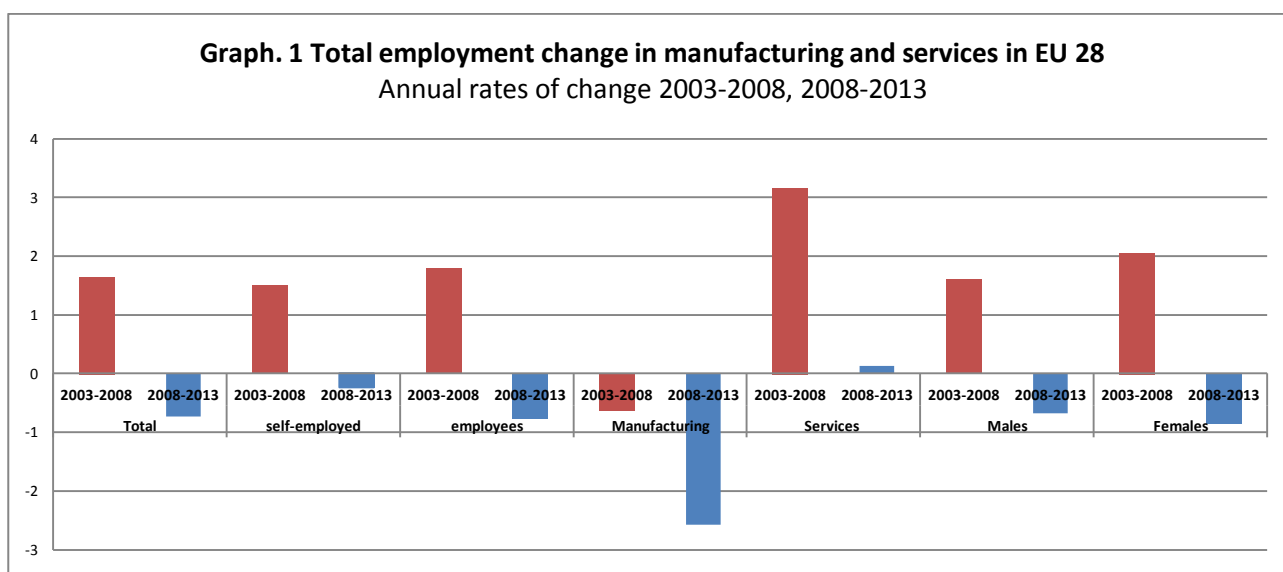
The division between a “centre” and a “periphery” is evident also in terms of youth unemployment which reflects the job opportunities for new entrants in the labour market, alongside structural characteristics of society and labour markets. The absolute change between 2008 and 2013 in the percentage of youth unemployed (15-29 years of age) has been a decline by 2.3 percentage points in Germany and limited raises in Austria and the Netherlands; in these countries only the 2013 level have remained below 10%. Poland and Ireland had significant increases of jobless youth, in spite of the recovery of production. Central and Northern European countries had modest increases, but in 2013 reached percentages ranging from 12 to 18%. The impact of the crisis on youth unemployment in Southern European countries has led to a very large increase – ranging from 14 to 32 percentage points – with 2013 shares reaching in Greece 48.7%, seven times the value for Germany.

## *The occupational consequences of the crisis*

The industrial decline experienced by Europe over the last years has reshaped the job structure with different impacts on workers, sectors and wages.

### *Employees versus Self-employed*

During the last years (2008-2013), employment declines by 0.7% per year reverting the positive trend registered during the upswing when employment was growing by 1.6% per year. The employment contraction has not been equally distributed between employees and self-employed; on average employees were more affected than self-employed workers. However, different patterns between sectors have to be detected. Overall manufacturing industries perform worse than services both for employees and self-employed workers. Nevertheless in manufacturing employees were less penalized than self-employed due to an increasing process of outsourcing leading to contract small satellite activities related to big manufacturers such as in the auto industry (case of Italy). Conversely, in services self-employed workers were more resilient than employees. Overall, employees were more penalized than self-employed reverting the positive growth experienced during 2003-2008, when job expansion was mainly concentrated in dependent work. Evidence of the “resilience” of self-employment to the crisis compared to paid employment has been provided at European level even if with major differences among countries. The risk of low quality jobs among self-employment activities could be relatively high; from this point of view, proper policy interventions are needed in order to limit the expansion of low quality occupations mostly among self-employment activities which can easily jump into the informality.

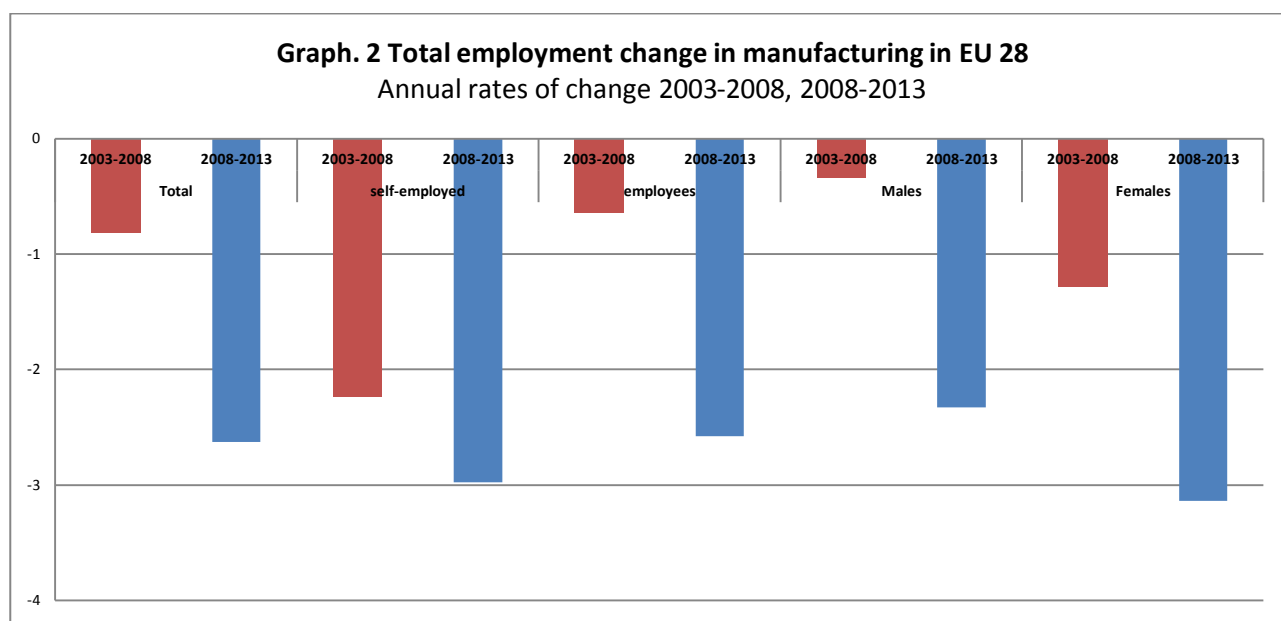


Source: Eurostat, LFS.

### *Manufacturing versus Services*

The manufacturing sector which was already experiencing a negative process of structural change over the last decade (-0.8%) has registered a sharp contraction of employment during the crisis reaching -2.6% per year in 2008-2013. Conversely, the employment growing pattern of services is still confirmed during recession, but it substantially slows down reaching 0.07% per year compared to 2.8% registered during the upswing (2008-2013). The industrial contraction has enhanced the division between a declining manufacturing and a growing service sector. As underlined by Eurofound (2013), the two broad categories that most suffered the impact of the recession labour market were construction and manufacturing which lost 10% of the pre-crisis employment. On the other side, the service sector employs over 70% of the EU working population and despite the crisis its share continues to grow. Inside the service sector, public services such as health and education

were more resilient in terms of employment. Given the different skill composition of the workforce between sectors, a reshaping of employment structures has emerged leading to skill polarisation.



Source: Eurostat, LFS.

#### *Best and worst performers*

Behind the general performances of manufacturing and services, specific patterns need to be recognized. High-tech sectors such as pharmaceutical firms perform better with a modest decrease of employment (-0,4 per cent per year) compared to traditional manufacturing such as textiles and wearing apparel. The growing employment pattern registered by management and consultancy activities in services is reversed by telecommunications and publishing industries that were more affected by the crisis. The different composition of skills of each industry influences the employment dynamics registered during the crisis. From this point of view, those sectors more hit by the crisis were the ones with a major concentration of low skill jobs, most of all in manufacturing.

**Table 7. Industries with best and worst employment performance, EU 28, 2008-2013**  
Annual rates of change

Best performers		Worst performers	
<b>Manufacturing</b>			
Pharmaceutical products	-0.4	Manufacture of wearing apparel	-6.8
Food products	-0.9	Manufacture of textiles	-6
Machinery and equipment	-1.0	Printing and reproduction of media	-6
<b>Services</b>			
Management consultancy activities	7.7	Telecommunications	-5
Professional, scientific and technical activities	6.2	Publishing activities	-3
Computer programming and consultancy	2.8	Postal and courier activities	-2

Source: Eurostat, LFS.

## Gender

The gender employment gap continued to close over the decade with an increasing participation of women in the labour market; in 2007 women accounted for 46% of total employment in the EU27 (Eurofound, 2013). The average annual rate of growth was for women of 2.05% compared to 1.59% of men during upswing (2003-2008); however the crisis has had its major impact on female workers with a job loss of -0.85% per year mostly in manufacturing (-3.13%). Among employees, female workers decrease in the service sector by -0.14% while men increase by 0.38%. The same pattern is confirmed when we analyze employment change of women in manufacturing self-employment activities (-2.44%) and in service self-employment (-1.04%). Conversely, a different pattern arises when we include in the analysis sectors such as education and health. In these sectors self-employed jobs keep increasing mostly for women (3.75%) than for men (1.62%), even during the period of recession (2008-2013). Also among dependent workers in health and education sectors, women grew more than men by 1.24% compared to 0.81% for men.

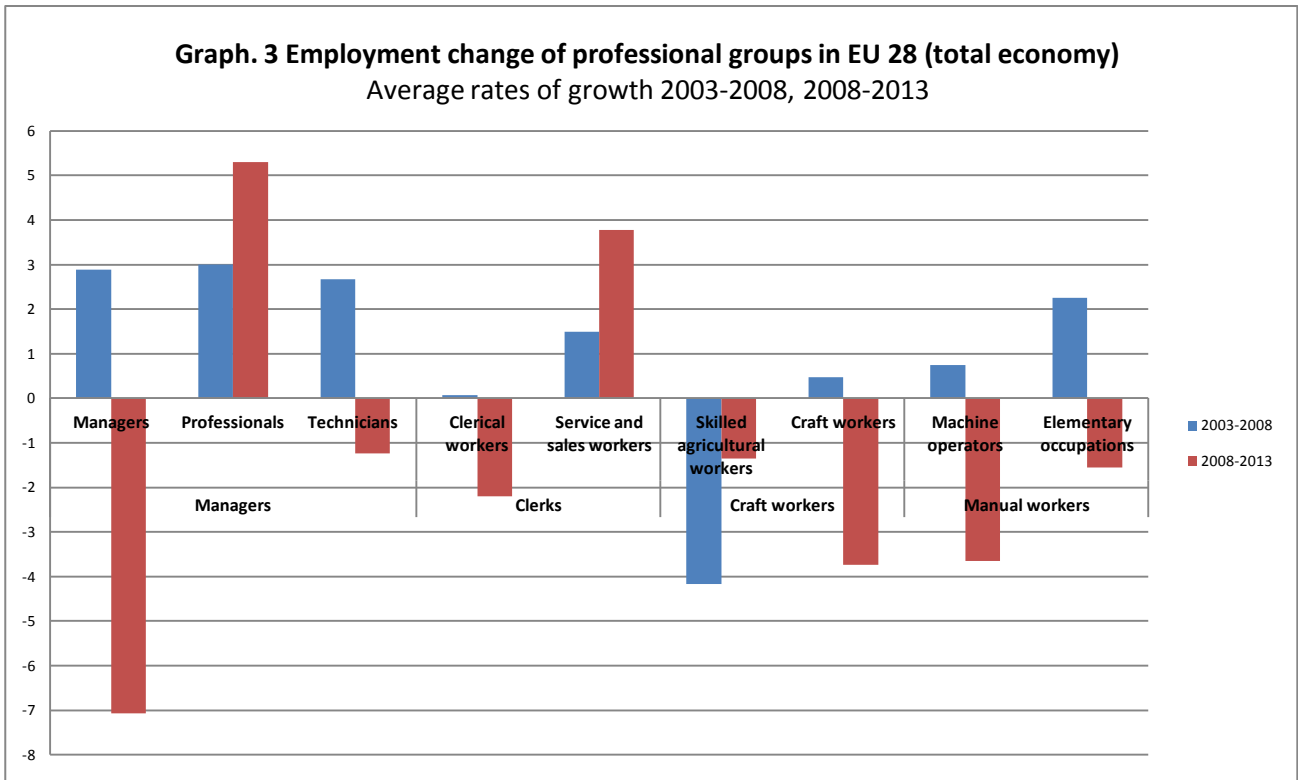
## Skills and Wages

The industrial decline registered in Europe over the period 2008-2013 has had one of its major effect on employment leading to a strong contraction of jobs and a massive increase in unemployment differently experienced by workers and skills. From a qualitative point of view, not all jobs were equally affected. As shown by graph 3, with the exemption of managers whose performance is totally explained by Denmark (-21%) and Finland (-23%), major job cuts were concentrated in low skill jobs. Manual workers, such as machine operators and elementary occupations, decrease on average by 2 per cent per year. Also mid-paid occupations (craft and clerks jobs) decrease but with a minor extent compared to service and sales workers. Overall the polarizing pattern experienced during 2003-2008 is partly interrupted by a strong contraction of low skill jobs; however, sector and country specificities matter. The crisis of 2008 has impacted mostly on low skilled workers in manufacturing and on mid-skilled jobs in services leading to different patterns of polarisation, upgrading, downgrading or some hybrid combinations (Eurofound, 2011; Eurofound, 2013).

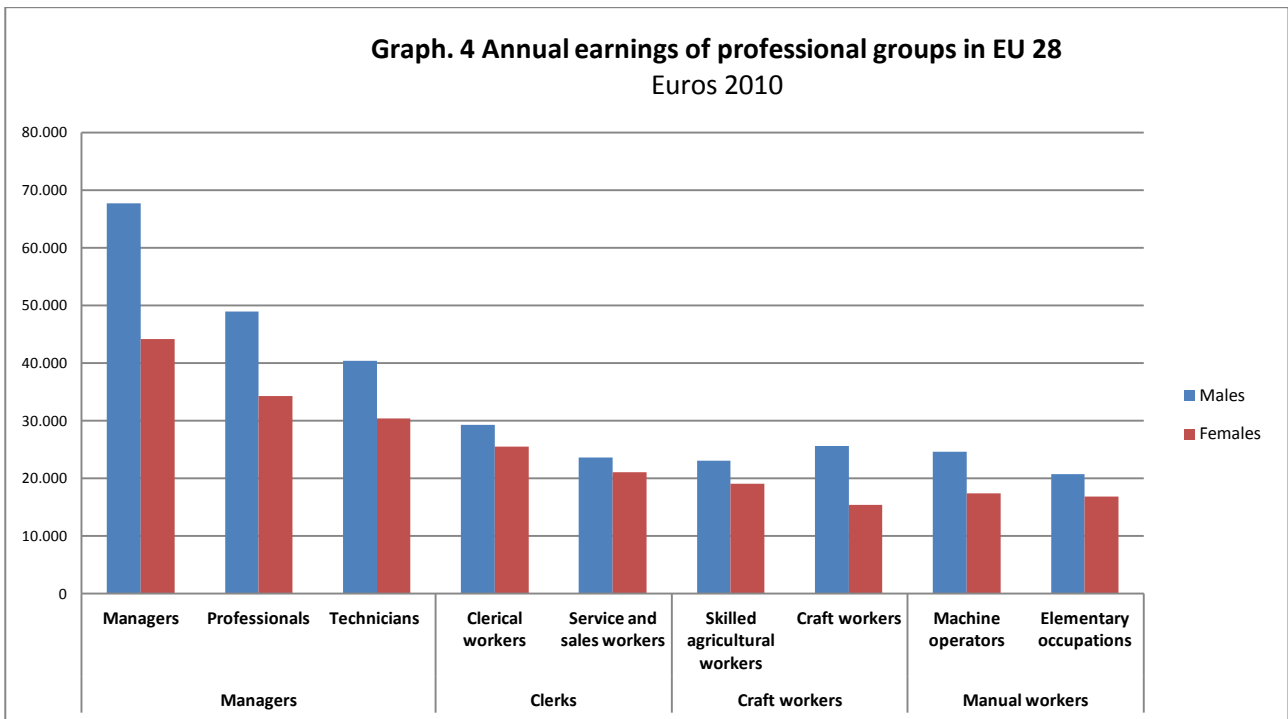
Considering employment change by wage quintile and country in the period 2011-2012, a typical pattern of job upgrading has emerged for Austria, Germany, Sweden, Poland, France, Lithuania and Malta. On the contrary, skill polarisation is more evident for Spain, Ireland, Portugal, Greece, UK, Belgium, Finland, Czech Republic, Luxembourg and Cyprus. Skill downgrading in terms of job growth of low-paid jobs has been detected for Hungary, Italy, Romania, Bulgaria, Slovenia, Slovakia, Estonia, Latvia and Netherlands.

The analysis of job growth by wage quintile reflects on average the distribution of jobs by professional group as shown by graph 4. A well-established correspondence exists between professions and wages, where the *International Standard Classification of Occupations* synthesizes the multidimensional aspects behind jobs both in terms of tasks, level of autonomy in the workplace, average education required, typology of work realized and labor compensation provided. From this point of view, a polarizing employment structure pushes inequality upward with an increase of high-paid and low-paid jobs.

Overall, the industrial decline experienced during the last years has contributed to reshape the European employment structure with a relative decline of blue-collar compared with white-collar occupations, a resilient demand for high-skill white-collar workers across the sectors and a relative increase in service sector employment compared with manufacturing.



Source: Eurostat, LFS.

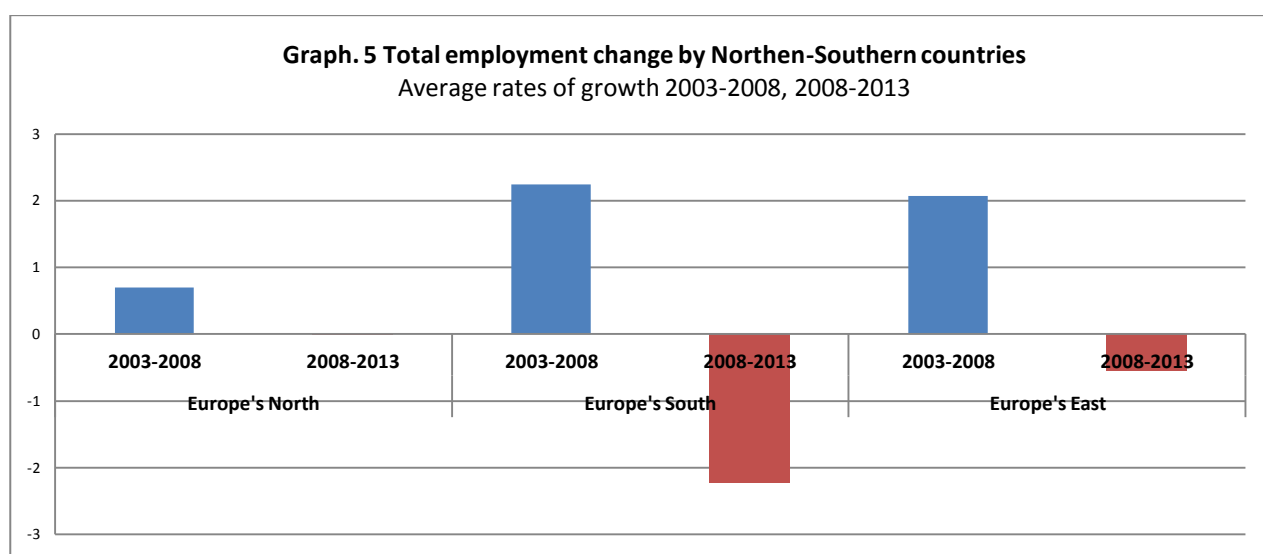


Source: Eurostat, LFS.

Manufacturing, construction and services (except public administration, defense, compulsory social security).

## Countries

A strong polarizing dynamic has emerged in Europe between groups of countries as well as in the employment structure; on the one hand Europe's North follows to create employment, on the other hand Europe's South has experienced massive job cuts reversing the positive job growth of upswing. Also Europe's East has faced a strong employment reduction which has counterbalanced the employment expansion of the previous upswing period. Overall, the 2008 economic crisis has exacerbated the main geographical disparities defining a group of countries in the North of Europe more resilient in occupational terms during the crisis. For Belgium, Denmark, Germany, France, Luxembourg, Netherlands, Austria, Finland, United Kingdom and Sweden employment follows to growth even if with a slowdown of 0.6 percentage points. Ireland, Greece, Spain, Italy and Portugal face the major job losses (-2.21%) in Europe followed by Czech Republic, Estonia, Croatia, Latvia, Lithuania, Hungary, Malta, Romania and Slovakia (-0.53%).



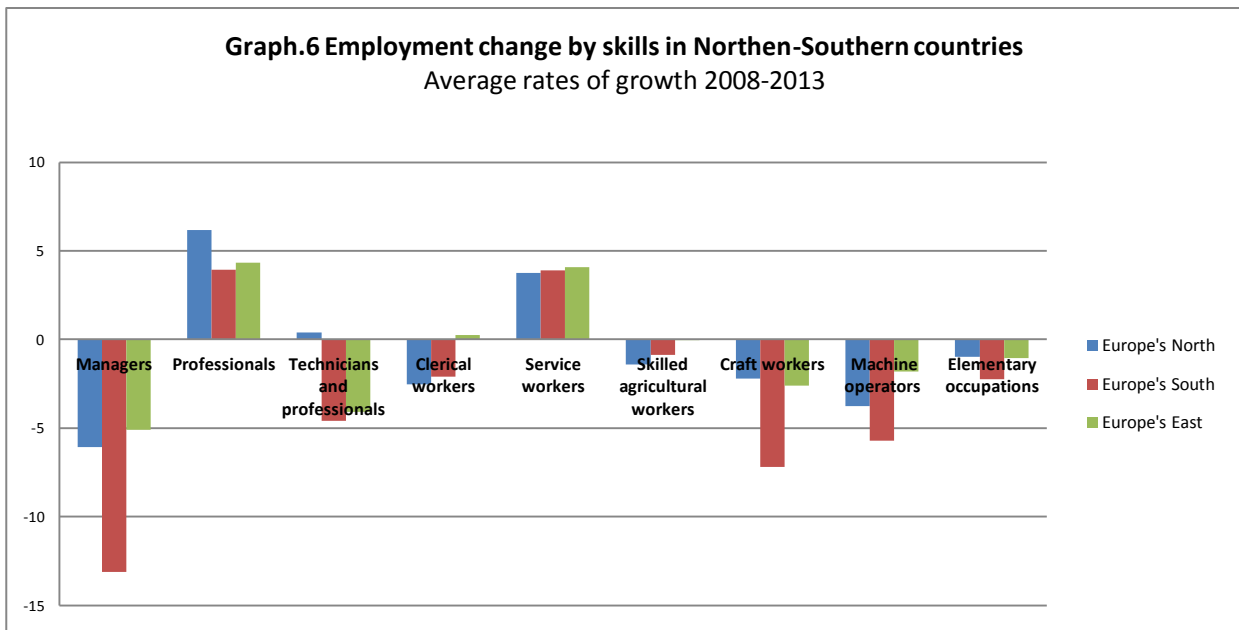
Source: Eurostat, LFS.

North: Belgium, Denmark, Germany, France, Luxembourg, Netherlands, Austria, Finland, United Kingdom, Sweden.

South: Ireland, Greece, Spain, Italy, Portugal.

East: Czech Republic, Estonia, Croatia, Latvia, Lithuania, Hungary, Malta, Romania, Slovakia.

Employment dynamics reflect the divide in terms of industrial production between the “centre” and the “periphery” as shown in table 1, where leading countries as Germany, Austria and Netherlands maintain their productive role and do not experience massive job losses. The “periphery” is composed by southern and eastern countries characterized by high public debt and low political influence; in these countries unemployment increases and job losses were concentrated in almost all professional groups except professionals and service workers. The pattern of employment polarisation more evident during the upswing in the Europe's South and East has left space to *downskilling* mostly in the South of Europe. Few and bad works. The first three professional groups (Managers, Professionals and Technicians) are the best paid jobs and correspond to high quality occupations; they increased by 0,17% per year over 2008-2013 in the North of Europe while decreasing by -4.57% in southern countries. In both areas, low skill works (machine operators and elementary occupations) decrease as well by -2.36% per year in the North and -3.98% in the South. From this perspective, while jobs contraction in the South seems to lead to *downskilling* in Southern Europe; job losses in the North were more concentrated in low skill jobs while high quality professions were more resilient to the crisis defining a pattern of “apparent upskilling”.



Source: Eurostat, LFS.

Summing up, the industrial decline experienced by Europe over the last years has contributed to reshape employment dynamics in European industries. More in detail:

- ✓ employees were more affected by job losses than self-employed;
- ✓ manufacturing experienced the major job cuts;
- ✓ female workers were more penalized than male workers;
- ✓ the 2008 crisis has contributed to define polarisation across skills, jobs and wages;
- ✓ the process of industrial decline, polarisation of skills and unemployment has not be uniform across Europe contributing to define a “centre” and a “periphery”.

### *The technology-employment link*

The impact of technology on employment is well-established; the innovation activity can stimulate the introduction of new products usually related to the openness of new markets or, it can foster the application of new production techniques and machines having an impact on production processes. Both innovation activities create technologies impacting on employment; on the one hand, product innovations are associated with job creation, on the other hand, process innovations produce job losses mainly among low skill workers aiming to reduce labour costs.

In this framework, a proper industrial policy promoting the introduction of product innovations and creating the conditions for the application of technologies could have a job potential effect expanding employment. As recognized by Lucchese and Pianta (2012), during downswing the job potential of innovative activities is partly lost due to the expectations of low demand faced by firms. Private investment is negatively affected by negative expectations and firms end up not innovating or reducing their innovative efforts towards cost-competitiveness technologies. As widely recognized by the literature (Vivarelli and Pianta, 2000; Lucchese and Pianta, 2012), the introduction of technologies aiming to reduce labour costs has usually a labour saving effect impacting mostly on low skills.

In order to stop this vicious cycle of downswing-negative expectations-low investments-low employment, the role of demand can be crucial pulling the introduction of product technologies

having a positive impact on jobs. From this point of view, a *new Europe-wide industrial policy* is needed to reactivate a virtuous cycle between technologies and employment.

First, as said the job potential of innovation can be partly lost during downswing due to a lack of demand. Hence, from a *macroeconomic* point of view, the current stagnation requires a substantial increase in demand that could come from a Europe-wide investment plan driven by public policies (Pianta, 2014). An increase in demand would stimulate firms to innovate possibly opening up new markets and introducing new products with a substantial impact on the quantity of jobs available.

Second, the 2008 crisis has contributed to shape the European economic structure with major losses in troubled industries. A downsizing of the inflated financial sector is needed, while large economic activities that could offer new useful products and services and above all provide new employment should be supported. Strategic sectors such as ICT, renewable energy, welfare and health should be supported considering the high skill composition and high standard of job quality.

Third, a need for industrial policy arises from the evidence of polarisation of the skill structure leading to an higher level of inequality. Low skill jobs are low paid and low quality jobs. Rebalancing the employment structure supporting high quality jobs in specific sectors is fundamental in order to avoid polarisation and face increasing inequalities in the labour market. A proper industrial policy is needed to counterbalance the expansion of low skill occupations more likely associated to poor quality conditions of work, informality and low wages. This kind of occupations have contributed to the expansion of the so-called working poor.

Fourth, although the female participation to the labour market has increased over the last decade and the 2008 crisis has hit more high-concentrated male sectors (i.e. construction) providing a “natural” rebalancing of gender participation to the labour market, women experienced the major job losses and by professional group they are paid less. From this point of view, supporting high quality sectors which favour female participation is fundamental.

Fifth, a proper industrial policy is needed in order to counterbalance the process of privatization experienced over the past decades which has not always been able to foster investment, environment-friendly growth and mostly employment. Public action could provide direction and support to private activities – including the development of competences and entrepreneurship, access to capital, the organisation of new markets, etc. - and could directly produce public goods, such as knowledge, environmental quality, well-being, social integration and territorial cohesion.

Sixth, a geographical polarisation is taking place in Europe with a growing divide between a relatively strong “centre” and a “periphery” where a large share of industrial capacity is being lost. This has deepened imbalances within the EU - and within individual countries – in terms of knowledge base, investment, trade, and most of all employment. A EU-wide industrial policy could have a specific aim of reducing such imbalances, concentrating action in the countries of the “periphery” and on the less favoured regions of the “centre”.

Overall, industrial policy can play a major role to address the employment priority; this also implies a need for new institutional arrangements and funding sources, new mechanisms of accountable governance, systematic links between the EU, national and local levels, forms of democratic control implementing participatory practices.

#### *The technology-employment link: which sectors?*

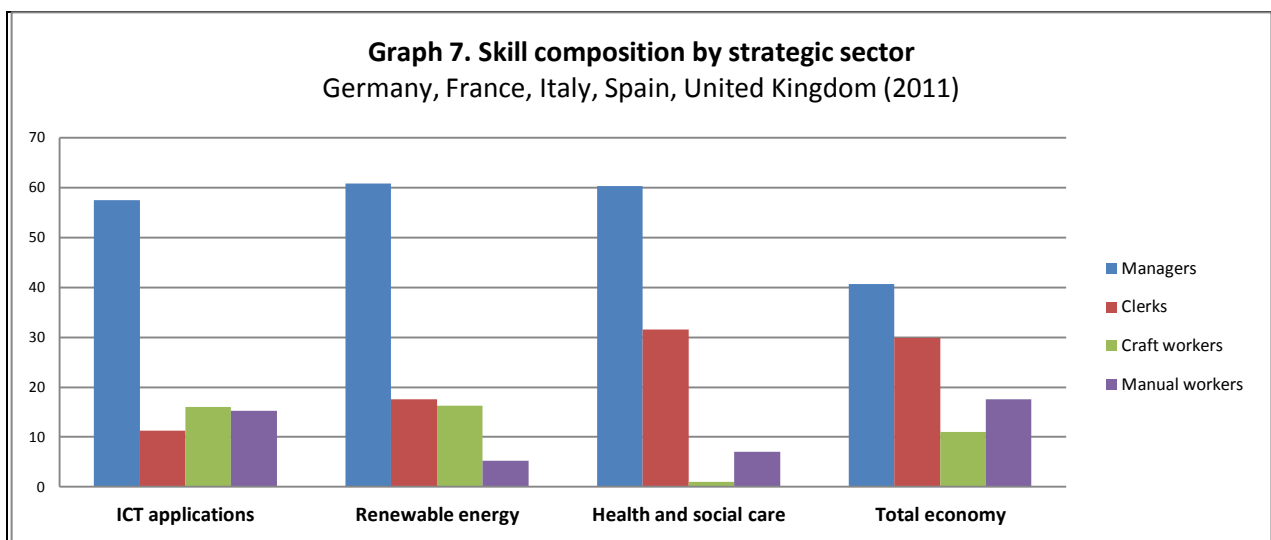
The new EU-wide industrial policy should be targeted in strategic sectors able to drive the rise of high skill, high wage, new environmentally sustainable and knowledge intensive economic activities. From this point of view, among the strategic sectors we propose the environmental, ICT applications and health fields. More in detail, as suggested by Pianta (2014), specific activities that could be targeted include: a) the protection of the environment, sustainable transportation, energy efficiency and renewable energy sources; b) the production and dissemination of knowledge, applications of ICTs and web-based activities; c) health, welfare and caring activities. The choice of



fostering these sectors is strategic because it implies the evolution of knowledge, technologies and economic activities towards directions that improve economic performances, social conditions and environmental sustainability (Pianta, 2014). A proper industrial policy should favour activities and industries characterised by learning processes, rapid technological change, scale and scope economies, and a strong growth of demand and productivity. Activities centered on the environment and energy, knowledge and information and communication technologies (ICTs) and health and welfare meet these requirements.

### High Skilled Occupations

ICT applications, Environment and Health and Care activities are characterized by an above-average level of high skilled occupations compared to the average of the economy; most of all the workforce in the health sector is composed by over 60% by high skilled workers. Also, ICT applications and renewable energy present a well above average level of qualified workers. On the other hand, low skilled occupations such as manual jobs are under the 10% of the workforce in renewable energy and health and social care sectors, while for ICT applications elementary occupations are under the 20% but still below average of the total economy. Overall, the strategic sectors identified are characterized by a highly qualified workforce; consequently, a proper industrial policy focusing on these strategic sectors could foster the creation of high quality jobs.

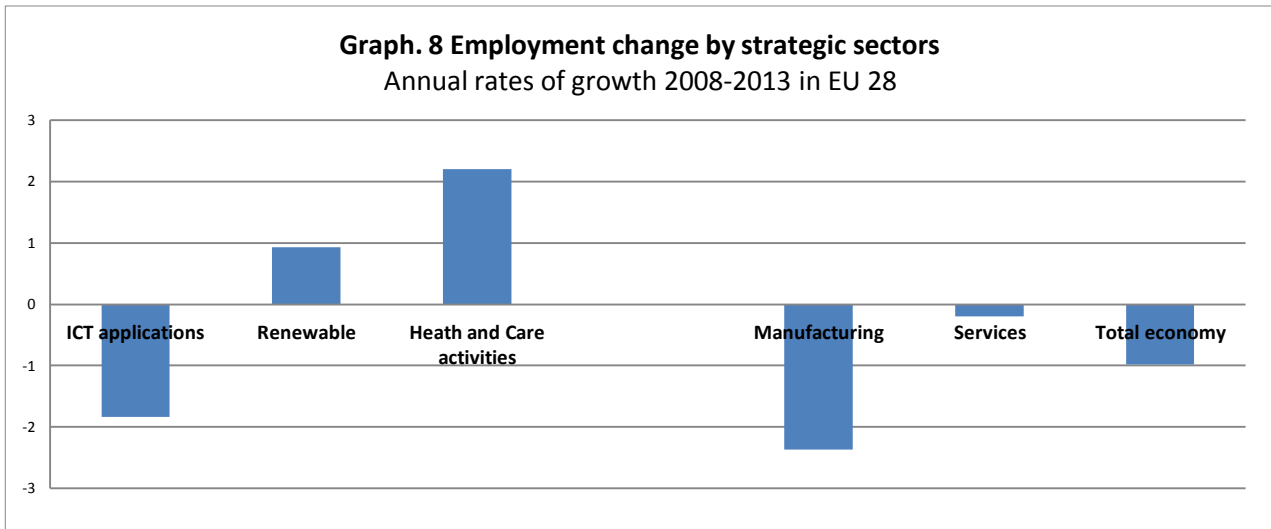


Source: LFS, 2011

2-digit NACE Rev.2 sectors (Health and social care include both market and non-market activities)

### Dynamic sectors

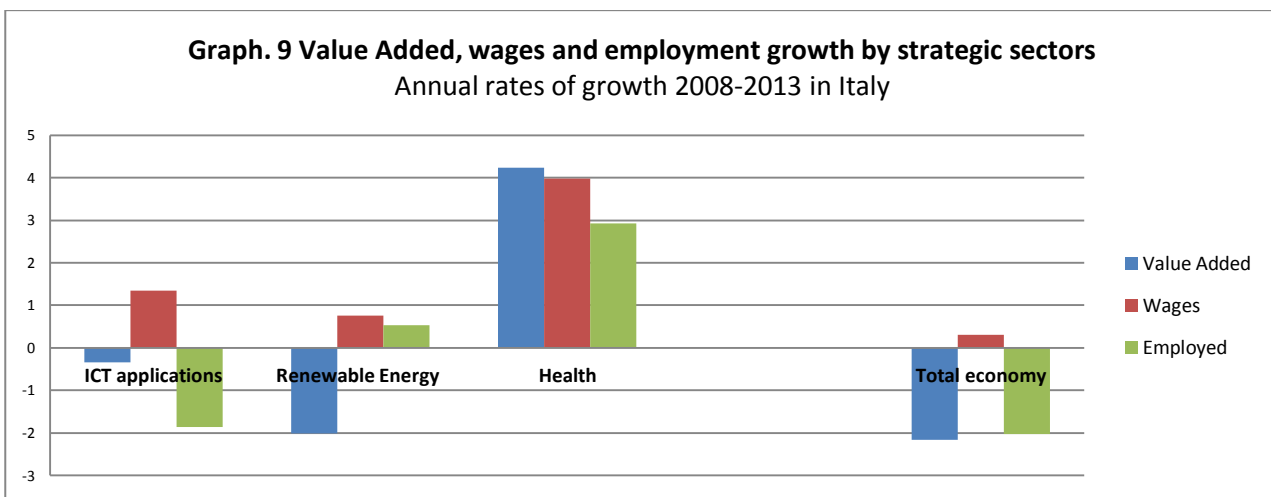
Over the last years (2008-2013) ICT, renewable and health and care activities have performed better than the rest of the economy; while manufacturing and services were reducing employment, jobs were still growing in renewable and health and care activities. These strategic sectors keep creating employment even during the last recession; also ICT applications did better compared to the rest of the manufacturing.



Source: LFS, 2011

2-digit NACE Rev.2 sectors (Health and social care include both market and non-market activities)

The same trend is documented when we analyse value added, wage and job dynamics at 4-digit level of disaggregation for ICT, renewables and health. Due to data constraints, we have focused on Italian firms structure considering among the ICT applications the manufacture of electronic components, electronic boards, computers and peripheral equipment, communication equipment, consumer electronics and magnetic and optical media, but also ICT services activities such as software publishing and telecommunication, computer programming, consulting and related activities, data processing, hosting and related activities, web portals, repair of computers, peripheral equipment and communication equipment. Over 2008-2011 the value added decline of these industries were well below average of the total economy; wages increase faster than the rest of the economy and employment contraction was below average. In the renewable energy sector we include wind, hydro, solar and biomass production of electricity. Over 2008-2013, employment was growing in these industries reverting the employment decline faced by the entire economy. Finally, health is a growing sector characterized by an expansion in terms of employment, value added and wages<sup>6</sup>.



Source: ISTAT

4 – digit NACE Rev.2

<sup>6</sup> The data on health do not include public health and non-profit organisations which together represents over 50% of the Italian health sector.

Summing up, a specific and target-oriented industrial policy is needed in Europe in order to revert the skill and wage polarisation trend emerging in the employment structure over the last years which is leading Europe to higher levels of social exclusion and poverty. From this point of view, a valid tool of intervention can be detected in a targeted industrial policy operating at two major levels. From one hand, it should promote *macroeconomic demand* in order to pull sectoral investments towards high quality innovations having a job potential effect. From the other hand, a proper industrial policy should focus on strategic sectors such as ICT applications, renewable energy and health which at European level have performed better than the rest of the economy containing job losses and promoting high skilled jobs. From this point of view, a specific support of these strategic sectors will have a positive impact on employment pushing high quality and highly paid jobs. Conversely, in the crisis scenario that Europe is facing, an industrial policy supporting traditional sectors would risk to trigger a vicious cycle of low investments- low technologies-low quality jobs.

#### 4. A proposal for a European industrial policy

##### *Industrial policy in the EU*<sup>7</sup>

Since the 1980s, industrial policy has had a marginal role in Europe's agenda. European Union policies on the evolution of economic activities are now framed in the Europe 2020 strategy, approved in June 2010 by the European Council.

Current EU policy tools include, first, Structural Funds that are the most important EU programme "compensating the losers" in market competition; they amount to 0.4% of EU GDP.

Second, the idea of Smart Specialisations (Foray et al., 2009) has been recently adopted by EU policy, encouraging regions to focus their "horizontal" efforts in building a critical mass of R&D, innovative and investment capacity in highly specific activities, combining advanced technologies and local competences also in traditional industries.

Third, there is the project financing by the European Investment Bank - 72 billion euros in 2013 - that funds all sorts of private and public projects. The EIB, however, operates with a logic typical of financial markets.

With very modest resources, a focus on "indirect" measures and no questioning of the market logic, the "horizontal" approach of current EU policy has had a minimal impact on the development of production capacity. Moreover, present EU industrial policies have lacked an adequate governance mechanism, as industry lobbies exert a major influence.

However, the depth of the crisis has first led in January 2014 the European Commission to introduce a new policy initiative called "Industrial Compact" and, second, has led the new Commission president Jean-Claude Juncker to unveil in November 2014 a €315 bn investment plan. The "Industrial Compact" establishes the "target" of returning industrial activities to 20% of GDP by 2020, against the present 16% (European Commission, 2014a). German – and, to a lesser extent, Italian – industry and governments lobbied for such an action, which remains entirely within the Europe 2020 approach described above, building on the "Smart specialisations" approach. The only novelties include the call to support investment in fast growing, high value added industries such as energy efficiency, green industries and digital technologies. No additional funds, however, are offered; all actions have to rely on already existing EU initiatives, such as the Horizon 2020 R&D programme, the Competitiveness of Enterprises and Small and Medium-sized Enterprises (COSME), and the Structural Funds (including national co-financing) (European Commission, 2014b).

The Juncker investment proposal calls for the creation of a *European Fund for Strategic Investment* (EFSI) with a fund of €21 bn – 15 from existing EU funds and 6 from the EIB – that are expected to "leverage" private funds through the emission of EIB bonds and private capital participation to investment projects, reaching €315 bn over three years. National governments are invited to contribute additional funds that will be excluded from EU constraints over public expenditures, but they will have no control over the use of EFSI funds. The plan is unlikely to succeed in raising such large amounts of private investment in a context of continuing stagnation; its impact in terms of additional demand will be modest and the type of profit-making investment that will be financed might be problematic from the social and environmental point of view.

Finally, a major policy development in Europe, however, has emerged in 2013 with the negotiations for the Transatlantic Trade and Investment Partnership (TTIP) with the United States. If the TTIP were approved, the possibility for a European industrial policy would be closed, and the space for public action in the economy reduced to a minimum.

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<sup>7</sup> This sections draws from Pianta (2014).

## *An alternative for Europe*

The previous analysis has documented the crisis of Europe's industry, and the implications for competitiveness and employment. Seven years after the start of the crisis a fast growing policy debate is now rediscovering the importance of industrial policy. The German trade union confederation DGB has proposed "A Marshall Plan for Europe" (DGB, 2012), envisaging a public investment plan of the magnitude of 2% of Europe's GDP per year over 10 years. Along the same lines the European Trade Union Confederation has developed the proposal of "A new path for Europe" (ETUC, 2013). Previous proposals were developed in Pianta (2010, 2014), Dellheim and Wolf (2013), EuroMemo Group (2013). Europe's Greens have proposed a €750bn plan of public investment over three years that would mobilise additional private investments of around €400bn, targeted to a green energy union, sustainable and inclusive local development, a green and social innovation union.

There are six major reasons for developing a new industrial policy in Europe.

- a. *Macroeconomics*. The first one is rooted in macroeconomics. Exiting the current stagnation requires a substantial increase in demand, that could come from a Europe-wide investment plan driven by public policies.
- b. *Structural change*. The second one is associated with the changes in Europe's economic structure resulting from the crisis; major losses are taking place in troubled industries, and a EU-wide industrial policy could drive the rise of new environmentally sustainable, knowledge intensive, high skill and high wage economic activities
- c. *Public-private balance*. Third, a new EU-wide industrial policy is needed in order to reverse the massive privatisations of past decades. The new activities require a substantial action by the public sector and could directly produce public goods, such as knowledge, environmental quality, well-being, social integration and territorial cohesion.
- d. *European cohesion*. A EU-wide industrial policy could have a specific aim of reducing such imbalances, concentrating action in the countries of the "periphery" and on the less favoured regions of the "centre".
- e. *The ecological crisis*. Fifth, a new EU-wide industrial policy could become a major tool for addressing the urgent need for an ecological transformation of Europe. Turning Europe into a sustainable economy and society - reducing the use of non renewable resources, developing renewable energy sources and energy efficiency, protecting ecological systems and landscapes, lowering CO<sub>2</sub> and other greenhouse gas emissions, reducing waste and generalising recycling - goes well beyond the emergence of specific environmentally friendly new activities; it is a transformation that concerns the whole economy and society. A combination is needed of direct public action with provision of environmental services, and appropriate regulations for private activities, including environmental taxation, incentives, public procurement and organisation of new markets.
- f. *The need for disarming the economy*. In the context of increasing international tensions and the return to armed conflict in and around Europe – in the Ukraine, the Middle East, etc. – it is important that industrial policy does not take the road of a growing militarization. The way out of the Great Depression in the 1930s was marked in all countries by state intervention for building up military production, associated to the preparations for the Second World War. Europe has to build its security through political and not military means. Its industrial and technological policies have to take a different road from the one taken by US policies supporting its military-industrial complex. A more balanced, sustainable and equitable production system in Europe is also one that does not need militarization.

An appropriate industrial policy is a crucial tool for addressing these priorities. In order to implement it effectively, there is a need for new institutional arrangements and funding sources, new mechanisms of accountable governance, efficient and effective operation, as well as forms of

democratic control with participatory practices. An obvious list of activities to be developed includes those centred on the environment and energy; knowledge and information and communication technologies (ICTs); health and welfare.

*Environment and energy:* The current industrial model has to be deeply transformed in the direction of environmental sustainability. The technological paradigm of the future could be based on "green" products, processes and social organisations, that use much less energy, resources and land, have a much lighter effect on climate and eco-systems, move to renewable energy sources, organise transport systems beyond the dominance of cars with integrated mobility systems, rely on the repair and maintenance of existing goods and infrastructures, and protect nature and the Earth.

*Knowledge and ICTs:* Current change is dominated by the diffusion throughout the economy of the paradigm based on ICTs. Its potential for wider applications, higher productivity and lower prices, and new goods and social benefits should be supported, including their use in traditional industries. Moreover, ICTs and web-based activities are reshaping the boundaries between the economic and social spheres, as the success of open source software, copyleft, Wikipedia and peer-to-peer clearly show. Policies should encourage the practice of innovation as a social, cooperative and open process, easing the rules on the access and sharing of knowledge, rather than enforcing and restricting the intellectual property rules designed for a previous technological era.

*Health and welfare.* Europe is an aging continent with the best health systems in the world, rooted in their nature of a public service outside the market. Advances in care systems, instrumentation, biotechnologies, genetics and drug research have to be supported and regulated considering their ethical and social consequences (as in the cases of GMOs, cloning, access to drugs in developing countries, etc.). Social innovation may spread in welfare services with a greater role of citizens, users and non-profit organisations, renewed public provision and new forms of self-organisation of communities.

All these fields are characterised by labour intensive production processes and by a requirement of medium and high skills, with the potential to provide "good" jobs. But how could Europe change its economic activities in such directions?

Building on previous experiences, the new European industrial policy could rely on three main tools.

a. *Public R&D and innovation in the targeted fields.* There is little new in this type of policy, as public research in universities, public laboratories and agencies – sometimes also funded by EU R&D programmes - have been a key factor in Europe's long term growth.

b. *Public investment for developing production in the targeted fields.* This type of public action is essential for expanding investment in environmental, ICT applications and health fields. Three cases have to be considered here. First, some of these activities are mainly carried out in the public sphere, as in the cases of cleaning up pollution, ICT education or public hospitals and caring services. There is a serious underproduction of these public goods, and the EU industrial policy could allow existing public organisations to invest and expand the quantity and quality of their services.

Second, markets are dominating some other activities, as in the case of photovoltaic cells, software or medical machinery. Existing private firms, however, underinvest in these activities due to high uncertainty on technological and market developments. A European-wide agency or national public investment banks could offer long term loans to private firms or take equity in them, when there is a convincing plan for developing production and employment in the targeted fields and regions. As

successful firms grow and markets expand, private finance could be attracted and replace the initial support by public agencies.

Third, there may be a need to create new firms – either with a European-wide or with a local scope - addressing specific innovation and production challenges, as in the case of the lack of strong European producers of photovoltaic panels. In these cases public investment banks could take on a more entrepreneurial role, linking up with competences in R&D organisations and private firms, and take the lead in the creation of new firms that could respond both to the needs of public procurement and to the needs of emergent markets.

*c. Mission-oriented innovation and procurement programmes in the targeted fields.* A new industrial policy in Europe could identify specific goals for scientific and technological advancement – in fields such as energy efficiency, renewable energy, prevention and cure of particular diseases – through “mission oriented” policies for developing new products and processes with a potentially large market. Public action could stimulate production through procurement programmes, the organisation and regulation of markets with high growth potential, and support and incentives for early users of new technologies. Policies of this type have long been adopted in the science and technology efforts of the US and some EU countries, in fields ranging from military to space and health research.<sup>8</sup>

*The institutional arrangements.* The new industrial policy has to be firmly set within the European Union and – if required – within the institutions of the Euro-zone. This is needed in order to coordinate industrial policy with macroeconomic, monetary, fiscal, trade, competition, regulatory and other EU-wide policies, providing full legitimation to public action at the European level for influencing what is being produced. Major changes are required in current EU regulations, in particular the ones that prevent public action from “distorting” the operation of markets. The expansion of economic activities that markets are unable to develop should become an explicit objective of EU policy. The EU level is crucial also for funding such policy. As this policy is likely to meet opposition by some EU countries, a “variable geometry” EU policy could be envisaged, excluding the countries that do not wish to participate.

Existing institutions could be renewed and integrated in such a new industrial policy, including – at the EU level – Structural Funds and the European Investment Bank (EIB). However, their mode of operation should be adapted to the different requirements of the role here proposed. While in the short term adapting existing institutions is the most effective way to proceed, in the longer term there is a need for a dedicated institution – either a European Public Investment Bank, or a European Industrial Agency - coherent with the mandate of reshaping economic activities in Europe.

A system could be envisaged where EU governments and the European Parliament agree on the guidelines and funding of industrial policy, calling the EU Commission to implement appropriate policy tools and spending mechanisms. In each country a specific institution – either an existing or a new one, either a National Public Investment Bank, or a National Industrial Agency – could assume the role of coordinating the implementation of industrial policies at the national level. The institutions at the national and local level would take responsibility for spending decisions, identifying the private firms to be supported – either with public procurement, or with low interest loans of with a share of ownership -, the projects to be developed, the new public activities that are required.

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<sup>8</sup> Mazzucato (2013) provides a comprehensive review of such policies and emphasises the potential of “mission oriented” public funds and actions as effective ways for directing private firms to carry out R&D, innovation and production in targeted fields.

*The funding of industrial policy.* Funds for a Europe-wide industrial policy should come from Europe-wide resources. It is essential that troubled national public budgets are not burdened with the need to provide additional resources and that national public debt is not increased. The order of magnitude of the funding for an industrial policy programme that could address the challenges discussed above is the one suggested by the DGB plan and by the ETUC proposal – 2% of EU GDP over a period of 10 years, about €260 billion per year. As a term of reference, we can note that the European Central Bank provided in the period December 2011-March 2012 alone €1,000 billion of special funds to private banks at 1% interest rate, with no success in turning them into real investment; EU Structural Funds in the period 2007-2013 reached €347 billion; lending by the European Investment Bank was €72 billion in 2013. An investment effort of about 2% of EU GDP appears to be feasible – considering the size and power of European institutions - and would be big enough to compensate – at the macroeconomic level - for the lack of private investment and low exports, effectively ending Europe’s stagnation.

Different funding arrangements could be envisaged. As suggested by the DGB proposal “A Marshall Plan for Europe” (DGB, 2012) - funds could be raised on financial markets by a new European Public Agency; funds could come from the Europe-wide receipts of a once-for-all wealth tax and from the newly introduced Financial Transactions Tax. Such tax income could help cover interest payments for the necessary projects that are not profitable in market terms.

An alternative may come from a deeper European fiscal reform, introducing a EU-wide tax on corporations, thus effectively eliminating fiscal competition between EU countries. Perhaps 15% of proceedings could go to fund industrial policy, public investment, knowledge generation and diffusion at the EU level; the rest could be transferred to the countries’ Treasuries.

For the group of Euro-zone countries, financing through EMU mechanisms could be considered. Eurobonds could be created to fund industrial policy; a new European Public Investment Bank could borrow funds directly from the ECB; the ECB could directly provide funds for industrial policy to the spending agencies concerned.

*The governance system.* As an example, we can assume that a European Public Investment Bank or Agency – let us call it *European Public Investment (EPI)* – is created and similar organisations – *National Public Investment (NPI)* – operate in each country. The European institution should be accountable to the European Parliament, who appoints its board where representatives from business, research organisations, trade unions, environmental civil society organisations should be included. No “revolving door” between industrial policy institutions and private firms and banks would be allowed. The European institution should engage in consultation with EU political, economic and social actors for developing its proposed industrial policy, that should be approved by the European Parliament. Funds would then become available, and could be assigned to national institutions and specific targets and activities. The same governance system could be introduced in the implementation of activities at the country level

The lessons from successful experiences outside Europe, such as ARPA-E in the US, the Brazilian Development Bank BNDES – discussed at length by Mazzucato (2013) – could lead to a more specific and effective forms of public action. Transparency in decisions would be required; monitoring and evaluation procedures – similar to those required by EU Structural Funds - would be arranged.

In order to reduce the scope for ‘pork barrel politics’, the countries and regions where such investments could be carried out have to be defined in advance, with the explicit aim to reduce the polarisation that is weakening the industrial base of Europe’s “periphery”. For instance, 75% of funds could go to activities located in “periphery” countries (Eastern and Southern Europe, plus Ireland); at least 50% of them should be devoted to the poorer regions of such countries; 25% could go to the poorer regions of the countries of the “centre”.



These criteria for operation, transparency in decision making, accountability to the EU Parliament and citizens may contribute to overcome the collusion between industrial policy and economic and political power that has characterised past European and national experiences. Extensive public consultations and a democratic debate about what and how we produce could support these policy initiatives, building consensus and credibility for a EU-wide industrial policy.

## Bibliography

Aghion, P., Boulanger, J., Cohen, E. Rethinking industrial policy, Bruegel Policy Brief, Issue 2011/04, 2011.

Aghion, P., Dewatripont, M., Du, L., Harrison, A., and Legros, P. Industrial Policy and Competition, NBER Working Paper No. 18048, 2012.

Agostino, Mariarosaria, Giunta, Anna, Nugent, Jeffrey, Scalera, Domenico, Trivieri, Francesco, The importance of being a capable supplier: Italian industrial firms in global value chains, International Small Business Journal, doi:10.1177/0266242613518358, 2014.

Aiginger, Karl. Industrial Policy for a Sustainable Growth Path, WIFO Working Papers, No. 469, 2014.

Amador, Joao, Cappariello, Rita, Stehrer, Robert, Global value chains: A view from the euro area, Paper presented at the ECB/CompNet, PIIE and World Bank Conference, Washington D.C., April 2013.

Bayoumi, T., J.Turunen, and R.T.Harmsen, 2011, Euro Area Export Performance and Competitiveness, IMF Working Paper 11/140, (Washington: International Monetary Fund).

Bianchi, Patrizio and Labory, Sandrine (eds), Industrial policy after the crisis: seizing the future, Cheltenham: Edward Elgar, 2011.

Carlin, W. and Soskice, D. 2009. German economic performance: disentangling the role of supply-side reforms, macroeconomic policy and coordinate policy institutions, Socio-economic Review, vol. 7, 67–99.

CEPR, “Reducing transatlantic barriers to trade and investment: an economic assessment”, Brussels: CEPR, 2013.

Chang, Ha-Joon. The political economy of industrial policy. Basingstoke: Macmillan, 1994.

Cimoli, Mario, Dosi, Giovanni and Stiglitz, Joseph (eds). Industrial policy and development, Oxford: Oxford University Press, 2009.

Coriat, Benjamin. Politique de la concurrence et politique industrielle dans l’Union européenne. Un rééquilibrage est-il possible? Cahiers français. Paris: La Documentation française, 2004.

Danninger, S. and Joutz, F. 2007. ‘What Explains Germany’s Rebounding Export Market Share?’ IMF Working Paper no. 24.

Dellheim, Judith and Wolf, Frieder Otto, Alternative European Economic Policy, Industrial Policy, and Socio-ecological Reconversion. Paper presented at the EuroMemorandum conference, London, 20-22 September 2013,  
[http://www2.euromemorandum.eu/uploads/dellheim\\_wolf\\_alternative\\_european\\_economic\\_policy\\_industrial\\_policy\\_and\\_socio\\_ecological\\_reconversion.pdf](http://www2.euromemorandum.eu/uploads/dellheim_wolf_alternative_european_economic_policy_industrial_policy_and_socio_ecological_reconversion.pdf)

DGB. A Marshall Plan for Europe: Proposal by the DGB for an economic stimulus, investment and development programme for Europe, 2012. <http://www.dgb.de/themen/++co++d92f2d46-5590-11e2-8327-00188b4dc422/#>

Dosi, G. (1982), 'Technological paradigms and technological trajectories: a suggested interpretations of the determinants and directions of technical change,' Research Policy, 11, 147-162.

Dosi G. (1988) 'Sources, procedures and microeconomic effects of innovation', Journal of Economic Literature, vol. 26, pp.1120-71.

Eichengreen, B. The European Economy Since 1945: Co-ordinated Capitalism and Beyond. Princeton University Press, 2008.

Eurofound (2013) Employment polarisation and job quality in the crisis: European Jobs Monitor 2013. Eurofound, Dublin.

EuroMemo Group. EuroMemorandum 2014. The deepening divisions in Europe and the need for a radical alternative to EU policies, 2013. [http://www.euromemo.eu/euromemorandum/euromemorandum\\_2014/index.html](http://www.euromemo.eu/euromemorandum/euromemorandum_2014/index.html)

European Commission. Europe 2020. A strategy for smart, sustainable and inclusive growth, COM (2010) 2020 final, Brussels, 2010a.

European Commission. Innovation Union, COM(2010) 546, Brussels, 2010b.

European Commission. An integrated industrial policy for the globalization era, COM (2010) 614, Brussels, 2010c.

European Commission. Labour Market Developments in Europe 2012 (COM) 2012 final, Brussels 2012.

European Commission. European Competitiveness Report: Towards Knowledge Driven Reindustrialization (SWD) 2013 final, Brussels 2013.

European Commission. For a European Industrial Renaissance. COM (2014) 14/2, 2014a.

European Commission. A policy framework for climate and energy in the period from 2020 to 2030. COM (2014) 15, 2014b.

European Commission. For a European Industrial Renaissance (COM) 2014 final, Brussels 14/2 2014c.

European Trade Union Confederation. A new path for Europe: ETUC plan for investment, sustainable growth and quality jobs, 7 November 2013. [http://www.etuc.org/sites/www.etuc.org/files/EN-A-new-path-for-europe\\_3.pdf](http://www.etuc.org/sites/www.etuc.org/files/EN-A-new-path-for-europe_3.pdf)

Fazi, Thomas, The Battle for Europe. How an Elite Hijacked a Continent - and How we Can Take it Back. London, Pluto Press, 2014.

Foray, Dominique, David, Paul and Hall, Bronwyn, “Smart specialisation: the concept”, in Knowledge for Growth: Prospects for science, technology and innovation, Report, EUR 24047, European Union, 2009.

Freire, Clovis, Strategies for Structural Transformation in South Asian Countries , Seoul Journal of Economics, 26, 3, 2013.

Geroski, Paul, European industrial policy and industrial policy in Europe, Oxford Review of Economic Policy, 5, 2, 1989.

Grabas, Christian and Nützenadel, Alexander (eds), Industrial Policy in Europe after 1945. Wealth, Power and Economic Development in the Cold War, London, Palgrave, 2014.

The Greens-European Free Alliance, *A Green investment plan for Europe*, 13 November 2014.

Greenwald, Bruce and Stiglitz, Joseph. Industrial policies, the creation of a learning society and economic development. In Stiglitz, Joseph and Lin Yifu, Justin (eds), 2013.

Hausmann, Ricardo and Rodrik, Dani, “Economic development as self-discovery”, Journal of Development Economics, vol.72, 2003.

Landesmann (2013). The new North-South Divide in Europe – can the European convergence model be resuscitated? WIIW Working Paper Series.

Landesmann, M., Foster-Mc Gregor N., Holzner M., Polsch J., Stehrer R., Stollinger R. (2013). A manufacturing imperative in the EU – Europe’s position in global manufacturing and the role of industrial policy. WIIW Final Report carried out within the framework contract n° ENTR/2009/033.

Lee, Keun. Capability failure and industrial policy to move beyond the middle-income trap: from trade-based to technology-based specialization. In Stiglitz and Lin Yifu (eds), 2013a.

Lee, Keun. Schumpeterian Analysis of Economic Catch-up. Knowledge, Path-Creation, and the Middle-Income Trap. Cambridge: Cambridge University Press, 2013b.

Lerner, J. Boulevard of Broken Dreams, Why Public Efforts to Boost Entrepreneurship and Venture Capital Have Failed and What to Do About It, Princeton: Princeton University Press, 2009.

Lissovlik (2008). Trends in Itlay’s non-price competitiveness. IMF Working Paper Strategy, Policy and Review department WP\08\124

Lorenz, Edward and Lundvall, Bengt-Åke (eds.), How Europe’s economies learn, Oxford, Oxford University Press, 2006.

Lucchese, Matteo and Pianta, Mario. Industrial and innovation policies in the European Union; in: Garibaldi, F., Baglioni, M., Telljohann V., Casey C. (eds.): Workers, Citizens, Governance: Socio-Cultural Innovation at Work, Berlin, Peter Lang, 2012.

Lundvall, Bengt-Åke and Lorenz, Edward. From the Lisbon Strategy to Europe 2020; in: Morel, N., Palier, B., Palme, J. (eds.): Social Investment, London: Policy Press, 2011.

- Malerba F. (2002), Sectoral systems of innovation and production, *Research Policy*, vol. 31, 247-264.
- Malerba F. (ed.) (2004), *Sectoral systems of innovation*, Cambridge, Cambridge University Press.
- Mazzucato, Mariana. *The entrepreneurial state*, London: Anthem Press, 2013.
- Montobbio, F., (2003). Sectoral patterns of technological activity and export market share dynamics. *Cambridge Journal of Economics*. 27, 523-545.
- Nelson, Richard (ed.), *National innovation systems. A comparative analysis*. Oxford, Oxford University Press, 1993.
- Pasinetti L. (1981), *Structural Change and Economic Growth*, Cambridge, Cambridge University Press.
- Pianta M. (2001), *Innovation, Demand and Employment*, in: Petit P., Soete L. (eds.) *Technology and the future of European Employment*, Cheltenham, Elgar, 142-165.
- Pianta, Mario. *Industrial and innovation policies in Europe*; in: Watt, A. and Botsch, A. (eds.): *After the crisis: towards a sustainable growth model*, Brussels, ETUI, 92-95, 2010.
- Pianta (2014) *An industrial policy for Europe*, *Seoul Journal of Economics* 2014
- Pianta, Mario. "Slowing Trade: Global Activism Against Trade Liberalization". *Global Policy*, vol.5, 2, pp.214-221, 2014.
- Reinstaller, A., Hölzl, W., Kutsam, J., and Schmid, C. *The development of productive structures of EU Member States and their international competitiveness*, WIFO research study, 2013.
- Rodrik, Dani. *Normalizing industrial policy*, The International Bank for Reconstruction and Development/The World Bank, Commission on Growth and Development, Working Paper, no. 3, 2008.
- Schumpeter, J.A. (1975) *Capitalism, Socialism and Democracy*, New York, Harper (1st edn 1942).
- Simonazzi, Annamaria, Ginzburg, Andrea and Nocella, Gianluigi. *Economic relations between Germany and southern Europe*, *Cambridge Journal of Economics*, 37 (3):653-675, 2013.
- Soete, L.L.G., (1981). A general test of the technological gap trade theory. *Weltwirtschaftliches Archiv*. 117, 638-666.
- Stiglitz, Joseph and Lin Yifu, Justin (eds). *The industrial policy revolution 1. The role of government beyond ideology*. Basingstoke: Palgrave Macmillan, 2013.
- Stockhammer E. (2014). *The Euro Crisis and The Contradiction of Neoliberalism in Europe*. PKSG Working Paper Series n° 1401 2014
- Tiffin A. (2014) *European Productivity, Innovation and Competitiveness: The Case of Italy*. IMF Working Paper Strategy, Policy and Review department

Utting, Peter, Ellersiek, Anne and Pianta, Mario (eds). *Global justice activism and policy reform in Europe. Understanding how change happens*, London: Routledge, 2012.

Vivarelli, M., Pianta, M. (eds.) *The Employment Impact of Innovation. Evidence and Policy*, London: Routledge, 2000.

Wade, Robert H. 'Return of industrial policy?', *International Review of Applied Economics*, 26(2), pp. 223-239. 2012.

WIIW (2013) *European Competitiveness Report. A 'Manufacturing imperative' in the EU - Europe's position in global manufacturing and the role of industrial policy*. Vienna: WIIW.

Wijkman, Anders, Rockström, Johan, *Bankrupting Nature: Denying Our Planetary Boundaries*, London, Earthscan/Routledge, 2013.