



LABOR MARKET BRIEFINGS SERIES

*LABOR MARKET INFORMATION FOR
RESEARCHERS*

THE MANUFACTURING SECTOR
IN EUROPE

WHAT? **Manufacturing-** "loosely encompasses the production of goods using machinery."

33,000,000 jobs in Europe



Accounts for 15% of European GDP.



Poland

Poland is the 16th largest manufacturer in the world and rising fast. Poland accounts for 1% of global manufacturing.



Slovakia

Slovakia is the fastest growing economy in Europe which can be attributed to it's growing manufacturing sector.



The Czech
Eepublic

The Czech republic also has one of Europe's fastest growing economies a large part of which can be attributed to it's large and rapidly growing manufacturing sector.

Researchers in the Sector

Occupations- the majority of jobs for researchers in the sector are in R&D.

Research fields- all STEM, natural science, and engineering, specifically mechanical eng. electrical eng., chemistry, and biology.

Skills- planning, organizational, leadership, cooperation, teamwork, decision-making, analytical thinking, and precision.



As part of EURAXIND's Labor Market Briefings Series, this report will give an overview of the Manufacturing sector in Europe and will provide insight as to how European researchers can begin making their career in the sector. While providing a general overview of the Manufacturing sector, this report will focus on the manufacturing sectors in Poland, Slovakia, and the Czech Republic. It should be noted that is this is a general overview of the Manufacturing sector and does not seek to give specific information, rather a glimpse of the sector.

THE MANUFACTURING SECTOR IN EUROPE

THE SECTOR

Manufacturing, which loosely constitutes the production of goods using machinery is a prominent economic sector worldwide. In Europe, the Manufacturing sector is one of the oldest and most prominent economic sectors. Since the industrial revolution, the manufacturing sector has been at the forefront of the European economy. Today is no exception, with the manufacturing sector remaining one of the largest economic sectors in Europe. Currently, the manufacturing sector accounts for 15.0% of European GDP and provides about 33 million jobs. Manufacturing generates almost two-thirds of total factor productivity growth in the EU. As well as, accounting for over two-thirds of EU exports and two-thirds of the financing of the total private sector investment in R&D.

In recent years much, controversy has surrounded the sector due to decline in the sector brought about by the proliferation of new technologies and the "Wests" move to a more service-based economy. In addition, global trends such as declining energy prices, diminishing global resources, increased competition from emerging markets, and an aging European workforce have all contributed to slow growth and even decline in the manufacturing sector. This can be seen in employment with employment set to decrease 4.1% in the next decade. Between the years of 2000 and 2014 seven million jobs were lost in the sector.

Yet, all is not bleak in the manufacturing sector. The EU has put concerted effort and capital into reviving the sector through specific categories in the Horizon 2020 program. Monthly earnings for manufacturing workers are still 5% higher than the EU average. In those same years that the manufacturing sector lost seven million jobs (2010-2014) the value of the manufacturing sector in Europe rose from €1.53 to €1.7tr, 11.1%. Labor productivity in the manufacturing sector is expected to increase by nearly 10.0% by 2025.

In terms of national manufacturing sectors in Europe, the largest European nations such as Germany, the U.K., France, and Italy traditionally dominate the manufacturing sector. As these countries become increasingly service-oriented the manufacturing sector has seen large losses, with manufacturing industries relocating and general employment in the sector decreasing. Luckily for Europe instead of moving abroad, much of the manufacturing has just moved over to Central and Eastern Europe. Countries such as Poland, Slovakia, and the Czech Republic have taken up the mantle of manufacturing in Europe. These countries and their neighbors have seen tremendous growth in the manufacturing sector and are helping reaffirm Europe as a global manufacturing center.

While the manufacturing sector is quite broad and can be said to incorporate a variety of economic activities, the EU commission breaks it down to incorporate twenty-four categories. Of these categories, Europe is strongest in the manufacture of machinery and equipment, motor vehicles, and food. With Pharmaceutical products and pharmaceutical preparations being by far the most lucrative.

The manufacturing sector is still one of the largest and most dominant economic sectors in Europe. While facing a relative decline in recent years the sector is currently at a crossroads with the ability to change its trajectory looking like a distinct possibility within reach. Whether the sector will reinvent itself and continue to change with the times or whether it will continue to decline and largely exit Europe, is still yet to be seen.

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THE EUROPEAN MANUFACTURING SECTOR AT A GLANCE

As Western European economies have decreased the importance of their manufacturing sectors other European countries have increased their national sectors. Three countries which have done this to a large extent are Poland, Slovakia, and the Czech Republic. All three of these countries are significant contributors to the European manufacturing sector and have helped bring about a small renaissance in Central and Eastern European manufacturing.

Poland-

As Europe's sixth largest economy and the largest in Central Europe Poland holds a significant position in the European economy. Which can be seen specifically in the manufacturing sector. Currently, Poland is the 16th largest manufacturer in the world and accounts for a full 1% of world manufacturing. Putting Polish manufacturing output on par with countries such as Russia and Brazil. There are currently 370,000 manufacturing entities operating in Poland employing a total of 2.3 million people, 19.3% of the labor force. The manufacturing sector alone accounts for 20% of GVA to the Polish economy.

In recent years Poland has become an extremely attractive location for FDI in manufacturing which can be attributed to several factors. Poland's geographic location puts it in Prime position to cater manufacturing goods to all of Europe's 500 million potential consumers. In addition, Poland has strong trading ties with Germany its neighbor to the West boosting Poland's attractiveness. Overall, Poland has a strong talent pool with a highly educated and skilled workforce. This contrasts with low wages and operating costs in the country. A stable economy and strong central management ensure that Poland remains a favorable location for FDI in Manufacturing. The increase in manufacturing FDI has led to rampant growth in the manufacturing sector and in the Polish economy in general.

Polish manufacturing is quite strong in several Manufacturing subsectors. The Aviation, Automotive, and Domestic Appliances subsectors are amongst some of its strongest. The value of the Domestic Appliances subsector production stands at €4.4bl putting it on par with the biggest national producers in Europe. Meaning that the Polish market is likely to become one of the European leaders in the domestic appliance manufacturing subsector. The sales of Domestic Appliances have been growing in Poland annually at a rate of between 4-6%. The Automotive manufacturing subsector is another one of Poland's strongest. Poland is the most prominent automotive and automotive part manufacturer in Central and Eastern Europe. Many of the large automotive companies such as GM, MAN, Fiat, Volkswagen, and Toyota maintain production facilities in Poland. The Polish automotive sector is known mainly for the production of commercial and passenger vehicles of which it is able to produce at a high-quality and at a relatively low cost. Much like in the automotive subsector, Poland benefits from high-quality production and low costs in the manufacturing of aviation products. Poland excels specifically in the production of Aviation parts in which it not only produces for economic purposes but also for scientific purposes such as on space exploration projects. Companies such as Hamilton Sunstrand, Hispano Suiza, Airbus, GE Aviation, UTC Aerospace Systems, and MTU Aero Engines all produce aviation parts in Poland.

The Manufacturing sector in Poland is on the up, with experts forecasting the sector attaining parity with the manufacturing sectors of Western European countries in the coming decade. The sector is extremely important to the Polish economy as it is one of the country's largest employers as well as provides one of the largest GVAs of any economic sector annually.

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As the sector grows in the coming years it will help Poland become a more prominent manufacturing nation as well as help to push Poland forward on the global economic scene.

Slovakia-

Slovakia is a small Central European state, often overlooked it has become an economic powerhouse. Slovakia is usually best known for being a former communist nation or for its split from former Czechoslovakia. While not quite as advanced as some of its European neighbors, Slovakia has come a long way in its 20 years of independence. Slovakia boasts one of the fastest growing economies in the EU, achieving that distinction several times since it became a member of the EU in 2004. Between 1999 and 2017 Slovakia more than quadrupled its GDP going from €1.017bl in 1999 to €4.883bl in 2017.

Much of the growth in the Slovakian economy is driven by its manufacturing sector. The manufacturing sector is one of the strongest in the country and is beginning to develop an international reputation. The sector has been growing at a steady 7% since 1999, even seeing growth during the recession in 2008. The manufacturing industry in Slovakia alone contributes over 20% of the country's GDP in terms of GVA. In addition, the manufacturing sector provides over 30% of the total jobs in Slovakia. This alone makes it one of Slovakia's foremost industries. In terms of manufacturing subsectors, fabricated metal manufacturing, motor vehicle manufacturing, electrical machinery manufacturing, food and beverages products manufacturing, and machinery equipment manufacturing constitutes the strongest subsectors in the Slovakian manufacturing sector.

Motor vehicle manufacturing has grown to be by far the strongest subsector in Slovakian manufacturing.

The subsector constitutes 43% of total industrial production in the country, making automobiles Slovakia's largest single export. The subsector alone employs 80,000 Slovaks. Slovakia is the largest global per-capita producer of automobiles in the world. In 2016, Slovakia hit the million a year production mark on automobiles, which is staggering as the total population is 5.5 million. The three main automotive companies which produce in Slovakia are Volkswagen, KIA Motors, and PCA Peugeot. Additional automotive companies are seeking to relocate some of their production to the country.

Much like Poland, Slovakia has become a prime location for FDI. Geographically, it is located near Western European markets and boasts a solid position on the continent. In addition, the country has a well-educated labor pool yet costs in the nation are relatively low. Lastly, its position within the EU gives it an advantage in terms of trade ability. Investment in Slovakia is trending up and it will continue to facilitate Slovakia's unprecedented growth. Slovakia is an anomaly, despite its storied past, it is one of Europe's fastest-growing economies. Despite being a small and relatively unknown country, it boasts an extremely competitive manufacturing sector. This is highlighted by the Automotive manufacturing sector which is quickly becoming one of the most important in the world.

The Czech Republic-

Like Poland and Slovakia, the Czech Republic is another up and coming central European economy. Over the last few years, the Czech Republic has been experiencing sustained economic growth seeing a sustained growth rate of over 2.5%, with a 4.5% rate as recently as 2015. Much like Slovakia, the Czech Republic is most often thought of for its storied past rather than its economic role. Yet, it is becoming a significant European economy and one of the strongest in central Europe.

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The industrial sector in the Czech Republic has been growing over 4.1 %, with the manufacturing sector by over 8 %. The manufacturing sector is a significant driver of the Czech economy creating over 25% GVA annually, with a high of 27% as recently as 2015. This means that Czech Republic is one of the countries with the highest Manufacturing contribution to GVA in the world. It is the second in Europe in this regard only after Ireland. The Manufacturing sector accounts for over 27% of employment in the country with over 167,000 manufacturing enterprises being found in the country.

Regarding manufacturing subsectors, the largest are automotive manufacturing, metal products manufacturing, machinery & equipment manufacturing, computer manufacturing, electrical equipment manufacturing, rubbers & plastics manufacturing, and food products manufacturing. Automotive manufacturing is by far the strongest subsector in the Czech Republic with the subsector accounting for over 25% of all production in the sector.

The manufacturing subsector accounts for over 28.7% of revenues from sales within the manufacturing industry. In terms of exports, the automotive subsector contributes one-third of all exports from the manufacturing sector. In terms of employment, the subsector accounts for 14% of all employment in the manufacturing sector. Investments in the automotive subsector account for almost one-fifth of all investments in the manufacturing industry. The subsector already hit the million a year automobile production mark around 2010. Skoda and Hyundai dominate the automobile production in the republic. Growth, in the subsector, looks to stay on track and will continue to push the Czech manufacturing sector forward. Another strong subsector in the manufacturing sector is that of beverage manufacturing.

While not necessarily as strong as other subsectors such as automobiles or metal, beverage manufacturing is a well-known manufacturing sector in the Czech Republic. This is highlighted by the manufacture of beer and spirits for which the Republic has a significant name, Beer is the national drink of the country due to this.

Just like in Poland and Slovakia, the Czech Republic is an attractive place for FDI. With a strong and stable economy, a great talent pool, low operating costs, and a strong geographic position it is becoming a destination for direct FDI, especially in the manufacturing sector. The Manufacturing sector looks to continue pushing the Czech economy forward for years to come. The automotive and beverage subsectors especially are continuing to provide a manufacturing name for the country.

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EMPLOYMENT IN THE EUROPEAN MANUFACTURING SECTOR

There is no doubt that the Manufacturing sector is one of Europe's strongest economic sectors, providing well-paying employment for millions of Europeans. But the sad truth is that the manufacturing sector is on the decline. Where at the turn of the previous century (1900) the European Manufacturing Sector employed 40% of the European workforce, today it employs roughly 8%. This trend of decline shows no signs of abating as the manufacturing sector cuts jobs year after year. Due, to the rising cost of European labor in relation to the rest of the world and proliferation of advanced manufacturing techniques which render many workers redundant. Despite declining employment in the sector, there are still well-paying manufacturing jobs to be found. These jobs can be found for the most part in Central and Eastern Europe with the manufacturing revival in these parts of Europe. Additionally, while the advancement of manufacturing technology may have impacted low skilled workers negatively. It has also increased demand for highly-skilled workers in the sector, especially for implementation, quality assurance, and technical jobs.

In terms of manufacturing enterprises in Europe, the majority are large enterprises with large numbers of employees and significant production infrastructure. While small boutique and specialty manufacturing enterprises can be found they are mostly limited to the production of luxury goods in countries such as Italy or Switzerland.

Some of the largest employers in the European manufacturing sector are,

[Poland](#)

Pesa SA, Fablok, and Maspex.

[Slovakia](#)

Slovnaft, Slovenské elektrárne, and INA Kyusce.

[The Czech Republic](#)

Skoda, Thermacut Inc., and Inekon Trams.

The fate of the European manufacturing sector is yet to be seen. In the mean-time, there still exist significant employment opportunities in the sector if one knows where to look.



THE MANUFACTURING SECTOR IN EUROPE

GETTING A RESEARCH JOB IN THE EUROPEAN SECTOR

As a recent graduate or a researcher looking to begin a fulfilling career the manufacturing sector is a great place to look. Most of the enterprises in the manufacturing sector are large enterprises and therefore require constant expansion, in order to deliver more products at greater profits. This means that almost all the large enterprises in the Manufacturing sector retain significant R&D departments to further expansion. It is here, in the R&D departments that researchers can find significant employment and career opportunities.

Employment in manufacturing R&D departments is for the most part well paid with salaries being larger than similar positions in other sectors.

STEM degrees are by far the most desired throughout the sector, with an emphasis on natural science and engineering degrees. Of the natural science and engineering degrees, the mechanical and electrical engineering degrees, as well as the chemistry and biology degrees, are the most commonly found. Non-STEM degrees are rare but can be found specifically degrees which give analytical, applied research, and process experience.

Some of the most valued skills for researchers looking to enter the manufacturing sector are planning & organizational skills, leadership, cooperation and teamwork skills, decision-making, analytical thinking, and precision.

THE MANUFACTURING SECTOR IN EUROPE

OVERVIEW

As one of Europe's strongest and most visible sectors, the manufacturing sector is extremely important to the health of the European economy. As such the sector's decline in recent years has led to much unease throughout Europe. Yet, positive signs have been seen. The sector has experienced new life in Central and Eastern Europe, with these areas taking over for lagging Western Europe. The EU itself has set the rebirth of the sector as a top priority and has helped the sector begin to reinvent itself. Employment opportunities can still be found in the sector despite the negative press it may have, especially highly skilled workers and researchers. Researchers, in particular, can find homes in the sector's numerous R&D departments, making the sector a great landing spot for new researchers.

Other useful sources of information and links

Overview of the Manufacturing Sector-

<http://viewer.zmags.com/publication/7765fb29#/7765fb29/1>

Europe's Future in Manufacturing-

http://bruegel.org/wp-content/uploads/imported/publications/Blueprint_XXI_web_181113a.pdf

Made in Poland-

<http://made-in-poland.live.jll.com/wp-content/uploads/sites/478/2016/02/MIP-final-1.pdf>

Panorama of the Czech Manufacturing Industry-

<http://www.businessinfo.cz/app/content/files/engdocs/panorama-manufacturing-industry-2015.pdf>