



Structural Change in the Ruhr

Key Terms

Deindustrialisation: The long-term absolute decline of employment in manufacturing industry.

Structural Change [reindustrialisation]: The establishment of new industries in a country or region which has experienced considerable decline of traditional industries. This process has important social and environmental implications.

Filter-down: the movement of traditional industries from high cost MEDCs to LEDCs where wages and other cost factors are lower. Filter down can also occur from one country to another-often MEDC to LEDC as well as taking place between core and peripheral regions within individual countries.

Globalisation: the rapid increase in the share of economic activity traded across national boundaries.

In general, high-technology manufacturing, such as computers, aerospace, pharmaceuticals and electronics has been more able to hold its market share in the economies of MEDCs. However, more traditional and low technology manufacturing, such as iron and steel, basic chemicals, food products and textiles has declined markedly. Thus, the richer economies, have become heavily reliant on manufacturing imports.

Economists recognise two types of deindustrialisation; positive and negative. **Positive deindustrialisation** occurs when the share of employment in manufacturing falls because of rapid productivity growth but where displaced labour is absorbed into the non-manufacturing sector. In such a situation the economy is at or near full-employment and GDP per capita is rising steadily.

Negative deindustrialisation results from a decline in the share of manufacturing in total employment, owing to slow growth or a decline in demand for manufacturing output, and where displaced labour results in unemployment. Unfortunately, Germany and many other developed countries, have experienced negative deindustrialisation.

Declining Importance of Manufacturing in the Developed World

In the USA and Britain the proportion of workers employed in manufacturing has fallen from around 40% at the beginning of the twentieth century to barely half that now. Even in Germany and Japan, where so much industry was rebuilt after 1945, manufacturing's share of total employment dropped below 30% in the 1990s. Not a single developed country has bucked this trend, known as **deindustrialisation**, the causal factors of which are:

- the filter-down (**global shift**) of manufacturing industry from developed countries to lower wage economies, such as those of Southeast Asia. The seeking out of lower cost locations by TNCs is an important component of the process of globalisation. The most positive aspect of globalisation has been the development of newly industrialised countries which are responsible for a rapidly increasing share of the world's manufacturing products.
- the increasing importance of the service sector in developed economies. As average incomes have increased people have had more money to spend on a growing array of services, a process aided by technological advance. The increasing sophistication of manufacturing in MEDCs has also required access to a greater range of high level services. In 2000 Germany's GDP by sector was services – 71%, manufacturing – 28%, agriculture – 1%.

The decline of manufacturing employment has mirrored the previous decline in employment in agriculture in the developed world. It is a huge problem because:

- the traditional industries of the industrial revolution were highly concentrated, thus the impact of manufacturing decline has had severe regional impacts
- the rapid pace of contraction of manufacturing, especially during recessions has often made adjustment difficult
- there are defence concerns if the production of some industries falls below a certain level, and the country has to rely on imports.
- some economists argue that over-reliance on services makes an economy unnecessarily vulnerable to booms and slumps in consumer spending

Fig 1 Location of the Ruhr

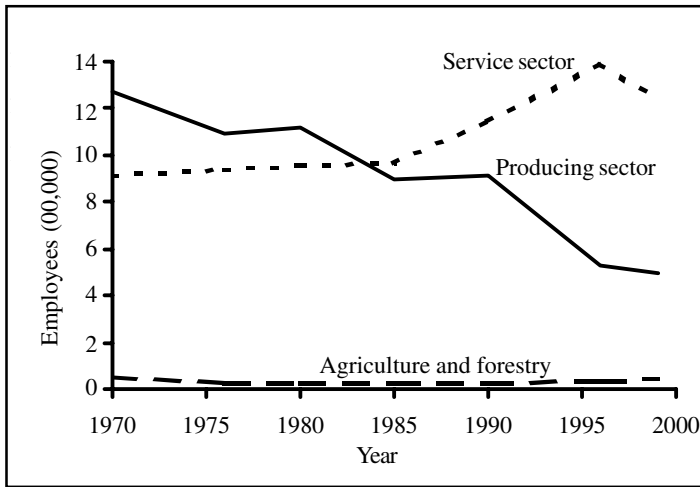


The Ruhr Coalfield

The Ruhr coalfield region is the largest concentration of heavy industry in Europe. It is the place where Marshall Aid money (from the USA for European economic recovery) first ignited ‘the post-war economic miracle’, and is in the throes of a dramatic transformation (Fig 2). Most of the coal mines, steel works and the other traditional industries on which the region’s reputation was based have closed, to be steadily replaced by enterprises such as telecommunications, computer products and service industries.

Structural change has occurred to a greater or lesser degree in all traditional heavy industrial regions around the world but few regions have matched the transformation of the Ruhr in terms of scale and pace. Thus, it is not surprising that the Ruhr is often regarded as a model of structural change for other traditional industrial areas.

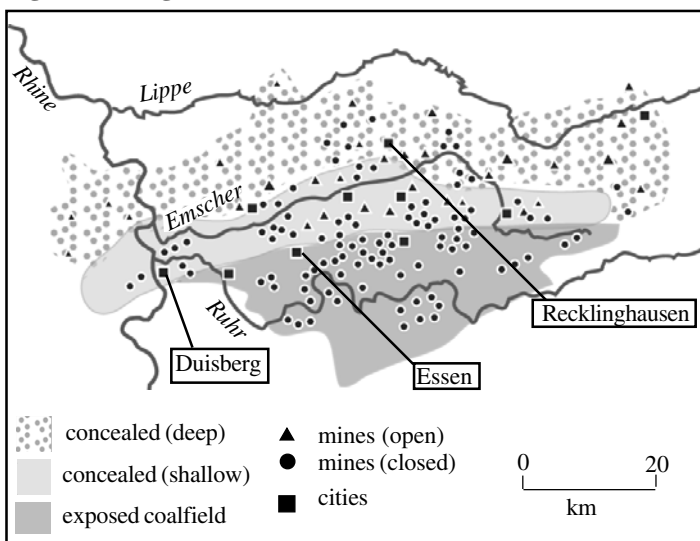
Fig 2. Changing employment structure



Location and Development

- The Ruhr region or ‘Ruhrgebiet’ (4,434 sq. km) lies along, and north of, the Ruhr river (Fig 3), which rises in the hills of central Germany (where there is a very large upland point) and flows westwards to join the River Rhine at Duisburg.

Fig 3. Ruhr region



- The Ruhr, situated in the Federal State of North-Rhine Westphalia (about 10% of its land area) is neither a historical nor a political entity but rather an economic and geographical area. The Association of Local Authorities in the Ruhrgebiet (KVR) is generally regarded as the *statistical and geographical basis of the region*.

- The headquarters of the KVR is in Essen, which used to be the largest coal-mining city in Europe.
- Originally set up in 1920 as the ‘Ruhr Coal Area Settlement Association’, the 11 urban areas of Bochum, Bottrop, Dortmund, Duisburg, Essen, Gelsenkirchen, Hagen, Hamm, Herne, Mulheim and Oberhausen, along with the districts of Ennepe-Ruhr, Recklinghausen, Unna and Wessel are linked together in this single umbrella authority.
- From east to west the Ruhr measures 116 km and from north to south 67 km.
- With around 5.4 million people it is one of the largest urban conurbations in Europe.
- Average population density is 1,213 persons per square km.

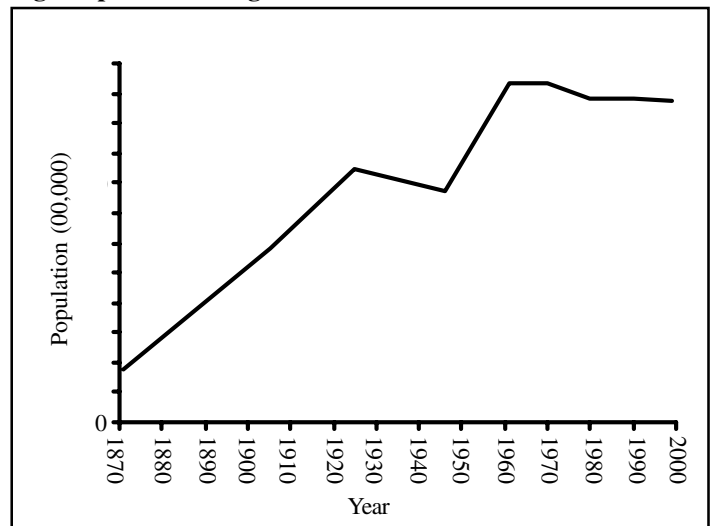
Industrialisation

At the beginning of the 19th century the region was mainly covered in open field and woodland. The industrial revolution changed the landscape extensively.

The industrialisation of the region was based on extensive coal deposits, especially the high quality coking coal required in steel manufacturing. Coal was found near the surface (the exposed coalfield) along the Ruhr river, where the oldest mines and steelworks were located, and at greater depths (the concealed coalfield) to the north along the Lippe river. ‘Steel barons’, such as Krupp and Thyssen, established their industrial empires in the Ruhr valley.

During the industrial revolution the population grew from 274,000 in 1820 to 1.3 million in 1885 and 4.1 million in 1925 (Fig 4), with workers coming into the area from the rest of Germany and abroad.

Fig 4 Population change



Following a decrease in population after the Second World War the population rose to a peak of 5.7 million in 1961. Coal production reached its height in 1956 when there were almost half a million people employed in the mining industry.

The crises in the coal and steel industries precipitated the subsequent fall in population, with many workers leaving for the newly developing industrial areas in south Germany. It has been projected that the region’s population will decline further to 5.04 million by 2015.

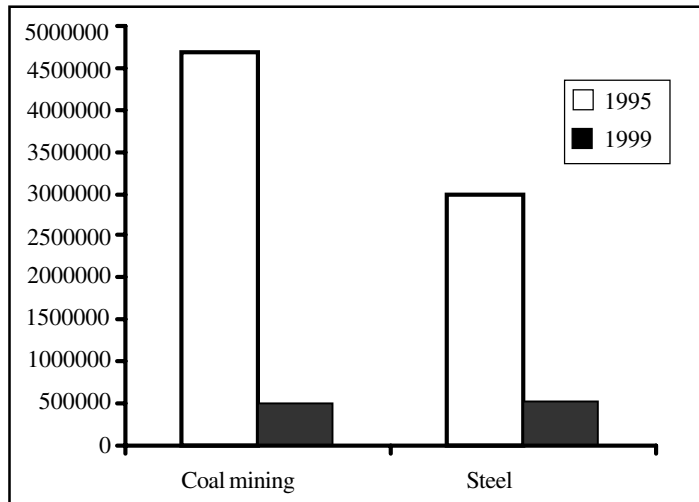
Deindustrialisation

In 1960, one in every three workers in the region were employed in the mining and metalworking sector. However, with:

- The loss of traditional markets to new products made from oil, synthetic materials and ceramics *and*
- The filter-down of heavy industries to more favourable coastal locations and to NICs, firms in the Ruhr began to lose orders on a large scale and unemployment increased rapidly.

Since the 1970s, collieries, steelworks and other associated heavy industries have closed down one after another. (Fig 5)

Fig 5. Employment in coal-mining and steel industry



During the same period the number of working collieries fell from 136 to nine. Coal-mining is now concentrated in a few sites in the north of the region. During the 1980s and 1990s, a total of 400,000 jobs disappeared in the Ruhr. The German government tried to counter the regional crisis by providing financial aid to heavy industry which helped to soften the impact of job losses. The region has also been in receipt of a considerable amount of EU funding through the **European Regional Development Fund [ERDF]** and the **European Social Fund [ESF]**. EU funding aims to encourage the development of small and medium-sized enterprises, infrastructure, disused industrial sites, the improvement of environmental quality and the development of human resources. The EU wants the remaining mines to close by 2005 because they are considered uneconomic and also because of their environmental impact. However, the German government may try to negotiate an extension beyond 2005 for the most productive of the remaining mines.

Today, less than 9% of the region's employment is in the coal and steel industries. However, 31% of the coal and 11% of the steel produced in the EU still comes from the Ruhr. By 1999 manufacturing's share of total employment in the Ruhr had fallen to 33.6%, down from 59.5% in 1964.

The **chemical industry** in the Ruhr is undergoing major changes with mergers, sell-offs and job losses. The 25,000 jobs which existed in the chemical industry in the Emscher-Lippe region have been reduced to just over 6,000.

The merger of Degussa-Huls and the VIAG subsidiary SKW Trostberg AG in February 2001 created the world's largest special purpose chemicals business. Degussa's Marl works, one of the largest industrial sites in the Ruhr, employs more than 10,000 workers.

Even the **car industry** has not escaped job losses. Although the Opel works in Bochum has been working at full capacity, the company has been reducing the workforce to remain competitive. In 2000 319,000 cars [Zafiras and Astras] were made. Opel currently employ 13,000 workers in Bochum. It is likely that this number will fall further in the future.

The rapid decline of traditional industries caused unemployment to shoot up, reaching a record of over 15% in 1987 and 1988. In 2001 it was 12.6% -considerably above the national average. However, without structural change the unemployment rate would be much higher, as much as 50% according to some commentators. Former workers in the traditional industries have been faced with unemployment, early retirement and retraining for jobs in the new lighter industries or in the service sector.

In general, coal miners have found it much more difficult to secure alternative employment compared to steel workers and those in other declining industries. The long-term unemployed face considerable isolation from mainstream society. Poverty is concentrated in specific urban areas and within these there are particular islands of deprivation.

Reindustrialisation

Structural change can occur either spontaneously [due to market forces] or as a result of regional economic planning. In most traditional industrial areas such as the Ruhr spontaneous redevelopment tends to be rather limited and very spatially selective. As a result, a regional economic planning approach is essential if widespread reindustrialisation is to occur. The KVR undertakes this vital role in the Ruhr. It develops and promotes regional initiatives and undertakes essential groundwork, from collating information and preparing analyses to the development and implementation of projects.

In the Ruhr, work on creating a new economic structure began in the 1960s:

- universities and polytechnics were set up
- the transport infrastructure was significantly improved
- new business sectors such as chemicals, power, motor vehicles, machine building and environmental technology began to replace coal and steel.
- Information and telecommunication businesses increasingly opted to locate in the region
- many small and medium-sized businesses moved into the Ruhr, operating in a more innovative manner than traditional large-scale firms. These companies operate in fields such as precision mechanics and optics, legal and business consulting, publishing, construction hotels and catering and environmental technology.
- The renewable energy industry is making its mark in the Ruhr. Gelsenkirchen boasts the world's most up-to-date solar cell factory which commenced production in 1999
- Medical technology [e.g., developing intelligent technologies for the early diagnosis of disease], based mainly in the Ruhr Technology Centre in Bochum, is another expanding field. However, this industry is also represented in Duisburg, Essen, Hamm, Schwerte and Castrop-Rauxel
- Dortmund has become an important centre for young software development firms. The town is planning to create up to 70,000 new jobs by 2010 in information technology, e-commerce and microscopy
- Duisburg is a significant logistics centre because of its good transport connections, particularly its port with connections to the North Sea. Duisburg boasts the largest inland harbour in the world
- The Deutsche Rergbautechnik [German Mining Technology] based in Lunen tailors German mining products to the export market, taking account of the different conditions in each of the countries it trades with. Collieries in Chile, for example, have very different technical requirements to mines in South Africa.

Today 65% of the Ruhr's workforce are employed in the tertiary sector. However, this growth has not been enough to compensate for the loss of manufacturing jobs. The strongest branch in the service sector is the retail industry, followed by health and veterinary services, transport and communications, legal and business consultants and estate agencies. Further growth areas are computer and internet services, multimedia, advertising agencies, telecommunications and engineering consultants.

Many businesses in the 'new economy' are clustered on modern science, business or office parks in greenfield locations. However, many empty industrial and colliery sites (brownfield locations) have been prepared for re-use by the State Development Company of North-Rhine Westphalia.

Reindustrialisation has not occurred evenly in the region. The southern part of the Ruhr has been much more successful than the north in this process. More plant closures have been concentrated in the north which also suffers from a poorer infrastructure than the south.

Industrial Reclamation

The closure of coal mines, steel works and other heavy industrial premises resulted in large areas of abandoned industrial wasteland. These areas contain a great variety of different types of sub-surface soil, most of it man-made and chemically polluted. However, the scale of industrial reclamation in this region has been staggering.

Case Study: The Emsher Landscape Park

The Emsher Landscape Park is a green backbone running through the heavily populated centre of the Ruhr. Europe's largest regional park follows the Emscher valley, linking its green zones over an area of more than 320 square kilometres, large sections of which have been newly cultivated. At the heart of the park is the 230 km long Emscher Park Cycle Trail. The long-term aim is to create a connected, high-grade ecological area of recreation running through the middle of the conurbation, open to everyone and easily reached by public transport.

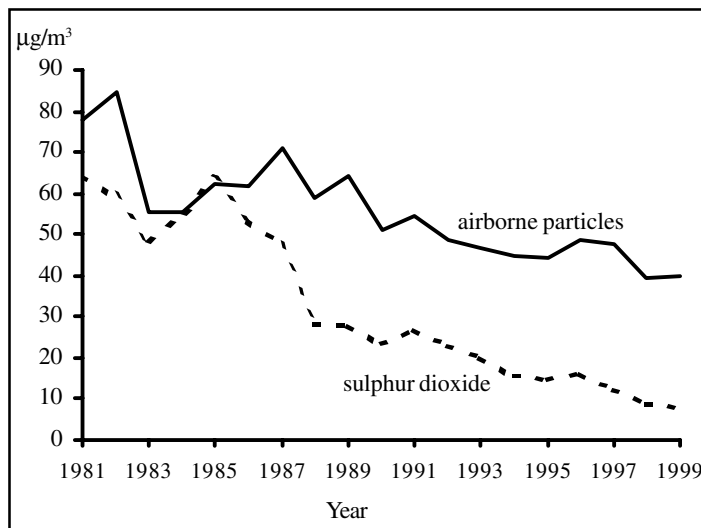
Among the more spectacular visual examples of renewal are:

- In Duisburg a disused iron and steel works is now a gigantic 200 hectare industrial museum.
- In Oberhausen a 117 metre high gasometer has been transformed into the highest exhibition hall in Europe
- In Mulheim, the water tower Aquarius which once held 500, 000 litres of water is home to a multimedia water theme museum.
- The first large shopping centre in Germany, the Rhine-Ruhr Zentrum, was developed on the former site of a coal mine in Mulheim.

The Ruhr is attracting a growing number of **tourists**. The Route of Industrial Heritage, opened in 1999, shows 150 years of industrial history over its 400 km length. The region now boasts 300 conservation areas covering more than 4% of the total land area.

The NRW State Environment Office monitors atmospheric pollution in the region. Deindustrialisation has had a positive impact on air quality. For example the average level of sulphur dioxide emissions fell from 66 $\mu\text{g}/\text{m}^3$ in 1981 to 8 $\mu\text{g}/\text{m}^3$ in 1999 (Fig 6).

Fig 6. Pollution in the Rhine-Ruhr region



The Ruhr and 'The German Problem'

Reindustrialisation in the Ruhr must be seen in the context of the significant difficulties the German economy has faced over the last decade. For long the leading economic light of Europe, Germany is now "the sick man of Europe", according to Otmar Issing, the European Central Bank's chief economist. In mid-2002 unemployment stood at 4 million or 9% of the workforce, with Germany trailing the rest of Europe in economic growth and job creation. Some economists fear that Germany will slide into a Japanese-like spiral of deflation and economic stagnation. In the 2002 World Competitiveness Report published by the International Institute of Management Development, Germany ranked 47 out of 49 industrialised countries in "adaptability and flexibility", characteristics that are vital for the successful attraction of foreign direct investment. A recent article on the German economy suggested that it needed to do the following:

- create more incentives for small businesses, the prime source of new jobs
- rewrite laws that hold back entrepreneurs
- loosen labour laws to attract a higher level of investment
- revamp and simplify the country's cumbersome tax code
- deregulate to encourage competition.

It also has to be seen in the light of German reunification and the creation of a new nation, with many areas of the old East Germany in even greater need of regeneration

Web sites

www.kvr.de Kommunalverband Ruhrgebiet
www.proruhrgebiet.de Pro Ruhrgebiet e. V.
www.economist.com/countries

Exam Question

- [a] Describe and explain the processes of deindustrialisation and reindustrialisation.
- [b] Discuss the nature of these processes in a traditional industrial area you have studied.

Guidelines for Answers

- (a) Begin with definitions and then take each process in turn. For deindustrialisation explain how and why the filter-down process of industrial relocation has gathered pace since the 1960s and also discuss the reasons for the growing importance of the service sector. Stress the fact that all MEDCs have undergone deindustrialisation to a greater or lesser extent. You could also consider briefly the main concerns about deindustrialisation in the countries affected. Move on to distinguish between positive and negative deindustrialisation, and between planned and spontaneous redevelopment. Consider the range of industry associated with deindustrialisation and contrast it to the staple industries which have closed in traditional industrial areas.
- (b) The economic, social and environmental consequences of deindustrialisation should be considered [unemployment, social deprivation, derelict landscapes etc] in the context of the Ruhr. Quote appropriate figures from the illustrations and text. Discuss the characteristics of reindustrialisation and the role of the KVR in the process of structural change in the region. Begin with the economic benefits but also consider the environmental gains. Mention the greater success of the southern part of the Ruhr in attracting new industry compared to the north. In your conclusion it would be worth considering briefly the difficulties the German economy in general is facing. This has clearly hindered the pace of structural change in the Ruhr.

Acknowledgements;

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