

Grömling, Michael; Koenen, Michelle; Kunath, Gero; Obst, Thomas; Parthie, Sandra

Article

Deindustrialisation – A European Assessment

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Michael Grömling, Michelle Koenen, Gero Kunath, Thomas Obst and Sandra Parthie

Deindustrialisation – A European Assessment

The war in Ukraine has exacerbated pre-existing production problems in manufacturing networks originating from the coronavirus pandemic. Material shortages are compounded by uncertainties about sufficient energy supplies. Above all, energy has become more expensive for European industrial companies. All this has raised the question of whether permanent changes in economic structures will occur in the wake of these geo-economic burdens. Nevertheless, European economies differ significantly in their manufacturing shares, in the importance of energy-intensive industries and in their energy supply. Based on a survey of members of AIECE, an association of European economic research institutes, the risk of deindustrialisation in Europe is assessed. Thirteen out of 20 AIECE institutes stated that they do not expect the current energy problems and the associated price effects to have a permanent impact on the economic structure of their own country. However, the institutes also point out that structural changes may occur because energy-intensive industries may relocate to non-European countries. In contrast, relocation effects within Europe are estimated to be negligible.

Societies in Europe are facing enormous challenges in the current decade and beyond. Demographic change, most significantly the ageing of societies and the workforce, exacerbates existing shortages of skilled workers in many economies. This reinforces obstacles to production and endangers financing conditions of governments in general. Climate change requires fundamental societal and economic transformations. Technological progress and the various dimen-

sions of digitalisation are putting business models across all sectors under considerable pressure to modernise and to adapt quickly. Last but not least, efficiency and productivity gains from more intensive international cooperation can no longer be reaped in times of geopolitical tensions.

Multiple disruptions

The pandemic and the war in Ukraine have caused unprecedented economic challenges in many European countries. The coronavirus pandemic was accompanied by immense strains on the supply and demand side of the economy (Grömling, 2021). Production processes were widely disrupted by a lack of workers and disturbed supply networks. Demand came to a standstill as a result of lockdowns – especially in the personal services sectors. As a result, investment activities are still impaired in European countries (European Commission, 2023).

Since February 2022, many European economies have been affected by the burden associated with the Russian invasion of Ukraine (Celi et al., 2022). The war has an impact on three levels:

Additional production shocks. In addition to the supply disruptions caused by the pandemic, some European countries are facing considerable problems in energy supply since spring 2022, depending on the respective national energy supply mix and on the country's own resource endowment. Although substitution options have been developed and deployed to date, the future energy supply – mainly for companies – is not fully secured yet.

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Michael Grömling, German Economic Institute, Cologne, Germany.

Michelle Koenen, German Economic Institute, Cologne, Germany.

Gero Kunath, German Economic Institute, Cologne, Germany.

Thomas Obst, German Economic Institute, Berlin, Germany.

Sandra Parthie, German Economic Institute, Brussels, Belgium.

Disruptions to critical infrastructure can exacerbate production problems. All this affects not only individual companies, but also complex supply networks.

Additional cost shocks. Historically high costs for intermediate inputs and raw materials occurred already in 2021. The supply side issues with energy and raw materials – mainly due to the war – have lead to additional unprecedented cost shocks in many European economies. This causes increasing uncertainty among companies, creates additional transaction costs and changes international competitiveness within Europe as well as on a global scale. Rising labour costs – aimed at limiting the loss of purchasing power of private households – can further impair the competitiveness of companies. In some areas, these higher costs cannot be passed on to customers and may lead to a sharp drop in corporate earnings, which would have a negative impact on investment activity.

New demand shocks. Significantly higher prices at the producer and consumer level in many countries have a direct impact on the demand for consumer and investment goods. High inflation rates erode the purchasing power of private households. In view of the uncertain economic outlook and rising financing costs, companies are holding back on investment. In addition, there are possible long-term structural and reallocation effects as a result of inflation (Matthes et al., 2023). The global economy is losing momentum again, which affects foreign trade in many countries.

Sectoral adjustments as a result of the shocks

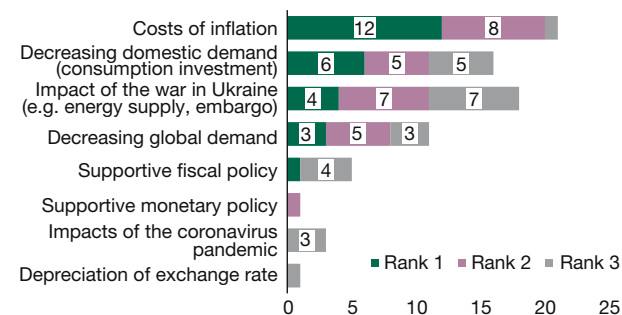
Against this background, many research institutes have revised their forecast for 2023 downwards. This paper illustrates the results of a survey among economic research institutes. The participants are members of AIECE (Association d'instituts européens de conjuncture économique), an association of European economic research institutes. Founded in 1957, the association includes 40 institutes from 20 countries and international organisations such as the European Commission, the Organisation for Economic Co-operation and Development, the International Monetary Fund and the European Central Bank. For the AIECE General Report Autumn 2022, the responses of 25 participating AIECE members were analysed. This survey was conducted and evaluated by the German Economic Institute (Grömling et al., 2022).

Figure 1 shows the main arguments put forward by the AIECE institutes that are driving the business cycle in their own country in 2023. Accordingly, the various effects of high inflation, decreasing domestic demand and the di-

Figure 1

Drivers of the business cycle in Europe in 2023

Number of AIECE members (rest to 25: no answer)



Notes: Question: Please choose the three most important factors according to their effect on economic growth for 2023 in your country and rank them from 1 to 3, with 1 being the most important.

Sources: AIECE Institutes; German Economic Institute.

rect impact of the war in Ukraine – for example, through restricted energy supplies or trade restrictions as a result of the sanctions – are the main reasons for the subdued economic outlook in the respective economies. Given the high economic risks posed by the war in Ukraine and the pre-existing production disruptions resulting from the coronavirus pandemic, the current economic outlook is subject to considerable uncertainties. In this context, AIECE members were also asked how they assess certain forecasted downside risks to their respective economies. Commodity price shocks and associated high inflation rates are viewed as the most important downside risk, followed by the possibility of restricted energy supply and related production interruptions. This also applies to an expansion of geopolitical conflicts, including attacks on critical infrastructures. From a demand perspective, a slowdown in advanced economies, such as the United States, also poses a significant downside risk to economic forecasts for 2023.

This raises the question of whether permanent structural changes can occur in the wake of current economic circumstances. While we acknowledge the long-term effects of climate change and the associated costs of decarbonisation, the effects of demographic changes or the impacts of digitalisation on the economic structure, they are not at the core of our analysis. Rather, the focus is on whether and how the current geopolitical ruptures, the effects of supply and production disruptions and their associated price effects can have a lasting impact on the international competitiveness of companies, on business locations and the economic structure. Specifically, whether the manifold current adjustment burdens can lead to a permanent deindustrialisation.

In view of the current geo-economic conditions, deindustrialisation, i.e. a sustainable decline of the manufacturing share in total economic activities, can take place via various mechanisms:

- The threat of persistent supply chain disruptions due to a lack of or insufficient industrial inputs causes substantial issues to manufacturing production processes based on interconnected supply networks. This can promote incentives to produce more locally in customer markets – for example in North America or Asia. Protectionism, e.g. local content requirements, can reinforce the restructuring and relocation of manufacturing. There is also a debate in Europe on reshoring (Kolev and Obst, 2022; Sandkamp, 2022).
- The energy crisis triggered by the war poses a threat to energy-intensive industries in terms of stable energy supply (Graevenitz and Rottner, 2022). In industrial networks with a high degree of inter-sectoral cooperation, failures in critical domestic intermediates can lead to far-reaching production disruptions in other parts of the economy – causing a chain reaction.
- The geopolitical changes alter the locational conditions of national economies and thus relative costs and relative prices. This leads to changes in price competitiveness in an international context. Examples include a wide range of cost factors, such as energy costs, labour costs, as well as government-set cost factors, e.g. subsidies, R&D conditions and taxes.

This article provides empirical facts about the European countries for which the risk of deindustrialisation may be relevant. Based on the AIECE survey mentioned above, it also elaborates on how the risk of deindustrialisation is assessed for those countries represented by AIECE institutes and it ends with some pertinent economic policy conclusions.

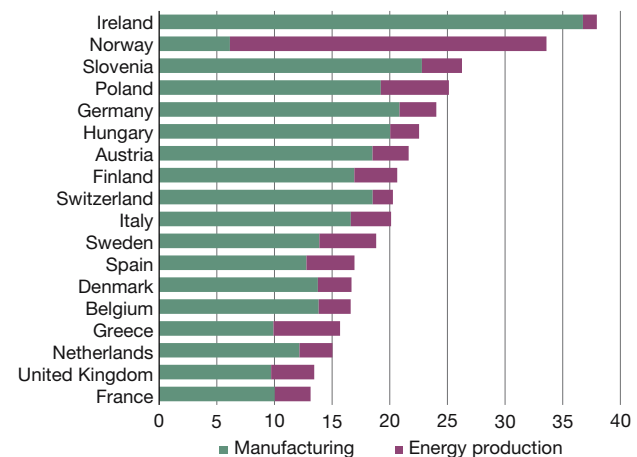
Potential vulnerability to deindustrialisation

The following figures lay the empirical foundation for a discussion on how deindustrialisation is relevant for the economies considered here. First, we look at the importance of manufacturing in the sectoral structure of the economies. Figure 2 shows the share of gross value added by manufacturing as a percentage of total value added. Accordingly, there are considerable differences in the importance of the industrial sector within the 18 countries considered here – and represented by the AIECE institutes in the General Report Autumn 2022 (Grömling et al., 2022). In 2021, four of those 18 countries (Ireland, Slovenia, Germany and Hungary) had a manufacturing share of 20% or more. In this context, the long-term different structural changes in

Figure 2

Industry shares in international comparison

Value added of manufacturing and energy production as a percentage of total economy, 2021



Sources: OECD; German Economic Institute.

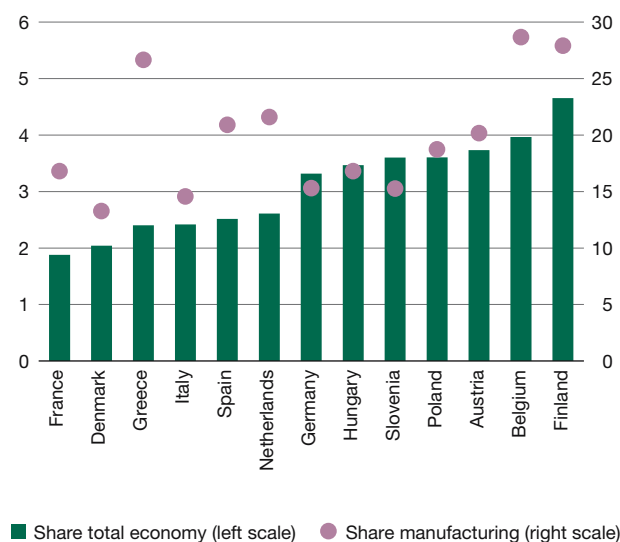
Europe must also be considered (Nickel et al., 2008; Romano, 2016; Grömling, 2019). By contrast, four countries (Norway, Greece, United Kingdom and France) had manufacturing shares of 10% or less in 2021.

Therefore, the question of deindustrialisation has a very different macroeconomic relevance in the economies considered. As shown in Figure 2, if the value added by the energy-producing industrial sector is also taken into account, the ranking changes somewhat (purple bars). The high importance of energy production in Norway's economic structure is striking. While Norway has the smallest share of manufacturing, energy production plays a central role, accounting for almost 28% of total value added.

As pointed out earlier, the energy crisis triggered by the war in Ukraine can have asymmetric effects in individual economies. This is due, *inter alia*, to the importance of energy-intensive manufacturing branches (Manderson and Kneller, 2020). Their business models and production processes are exposed to considerable uncertainties due to an energy supply that is not fully guaranteed or in the worst case threatened by stoppages, elevating the risk of production relocations and so-called tipping effects. The latter is the case when energy-intensive companies have a central role as suppliers for other manufacturing sectors. In the wake of an exodus of energy-intensive industries, other manufacturing sectors might follow. Figure 3 shows the importance of energy-intensive industries. The definition of energy-intensive industries was adopted from the German Federal Statistical Office. Accordingly, the energy-intensive industries include the chemical in-

Figure 3
Relevance of energy-intensive industries in international comparison

Value added of energy-intensive manufacturing branches¹ as a percentage of total economy and manufacturing, 2019



Notes: ¹ Chemical industry (C 20), basic metal industry (C 24), coke/refined petroleum products (C 19), non-metallic mineral products (C 23), paper/paper products (C 17).

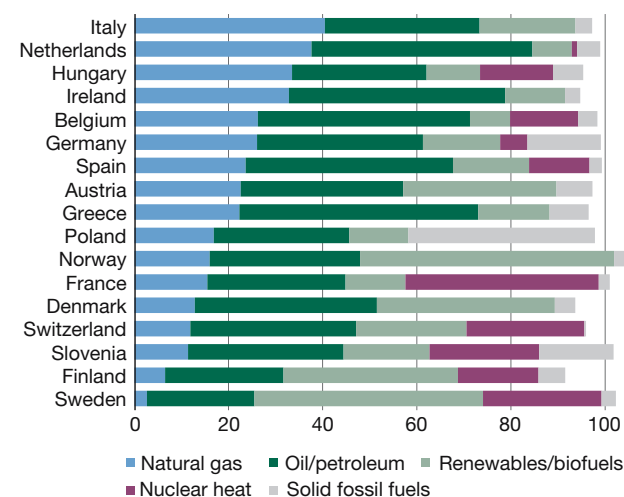
Sources: OECD; German Economic Institute.

dustry (C 20), basic metal industry (C 24), coke/refined petroleum products (C 19), non-metallic mineral products (C 23), paper/paper products (C 17). The numbers represent the respective NACE codes, an internationally used industry standard classification system. Figure 3 shows that these energy-intensive industries account for 2%-5% of total gross value added in most of the economies shown here (for the other AIECE countries there are no comprehensive data available). Within manufacturing, however, the energy-intensive sectors play different roles in the individual countries. On average, the overall economic weight of energy-intensive industries amounts to around 3% and their significance within manufacturing to around 20%.

So, which economies are likely to face persistent constraints on their energy supply and sustained higher energy costs in the future? The energy crisis affects individual European economies to a different extent, depending on the energy mix of each country – i.e. the structure of their energy supply – as well as the availability of own energy resources (Manderson and Kneller, 2020). In the wake of the war, greater uncertainties and adjustment burdens arose for many economies because the amount of available energy came from imports of Russian natural gas

Figure 4
Energy mix in international comparison

Share of energy sources as a percentage of gross available energy, 2020



Note: Difference to 100: Non-renewable waste, net exports of electricity.

Sources: Eurostat; German Economic Institute.

or crude oil. Before the war in Ukraine, almost half of Europe's gas imports came from Russia (IEA, 2022).

In this context, Figure 4 shows the energy mix of the economies considered here for the year 2020. Natural gas and crude oil are very important for a number of European economies. The share of natural gas in gross available energy constitutes 40% in Italy, 38% in the Netherlands and 26% in Germany. Renewable or nuclear energy play a major role in some countries, with the share of renewables at 54% in Norway or at 49% in Sweden. This may not be insignificant for the dispositions of energy-intensive economic sectors with regards to the security of the energy supply and the energy costs, which are of great importance for energy-intensive companies in particular.

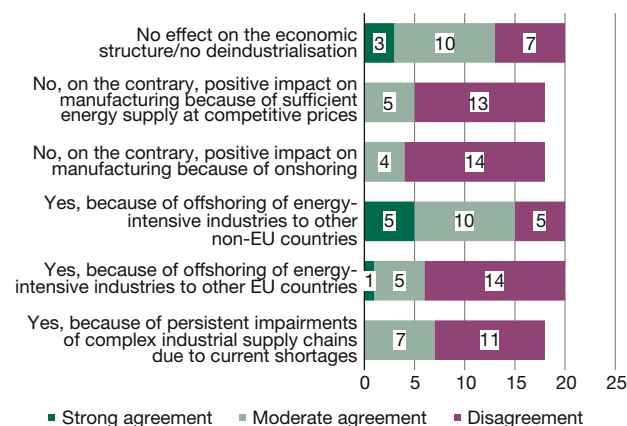
Assessment by AIECE institutes

The AIECE institutes were given a question with six possible answers to assess the risk of deindustrialisation (the specific question is given in Figure 5). Of the total of 25 participating institutes, 20 took part in this discussion. Concrete statements for individual countries cannot necessarily be derived from the answers, since for some countries several institutes participated without having a national consensual assessment. In the following, the respective institutes and their assessments will not be specifically named.

Looking at their own economies, 13 institutes generally stated that they do not expect the current energy problems

Figure 5
Evaluation of the risk of deindustrialisation in Europe

Number of AIECE members (rest to 25: no answer)



Notes: Question: Do you expect a sustained deindustrialisation in your country as a result of the current energy supply shortages and high energy prices? Please indicate your level of agreement using the defined categories.

Sources: AIECE Institutes; German Economic Institute.

and the associated price effects to have any lasting impact on the economic structure and thus, in a figurative sense, do not expect deindustrialisation. In contrast, seven institutes did not agree with the question “No effect on the economic structure/no deindustrialisation”. This tends to be the case in Austria, Germany, the Netherlands and to some extent, in Belgium and France. In these countries, the issue of a deindustrialisation is discussed more strongly.

The institutes point out that structural changes can occur because energy-intensive industries are relocated to countries outside of Europe. Reference can be made here to countries such as the USA, which offer locational advantages due to the large availability of own energy resources and lower energy prices. Fifteen institutes have affirmed this statement to varying degrees. Institutes from Austria, Belgium, Denmark, France, Germany, Italy, the Netherlands, Slovenia, Hungary and Norway support such a transmission channel of structural changes away from manufacturing in Europe. A deindustrialisation due to persistent impairments of complex supply chains caused by energy shortages and the relocation of energy-intensive industries to other EU countries is only seen by a moderate portion of the institutes surveyed, and only to a moderate extent. This is the case in Denmark, France, Germany, Hungary and Italy.

In this context, it was also asked whether there might be positive effects on manufacturing as a result of the current economic and energy conditions. This could be the

case if an economy has a sufficient energy supply with competitive energy prices – and therefore a locational advantage. In addition, global restructuring of supply networks can lead to a relocation of manufacturing production and thus to reindustrialisation in European countries. However, only institutes from Sweden and Poland moderately agree with both options. The majority of the institutes surveyed, on the other hand, do not expect a reindustrialisation in their own country.

In summary: 13 out of 20 AIECE institutes stated that they do not expect the current energy problems and the associated price effects to have a permanent impact on the economic structure of their own country. Nevertheless, the institutes also point out that structural changes may occur because energy-intensive industries may relocate to non-European countries. In contrast, relocation effects within Europe are estimated to be moderate.

Policy implications

European policymakers, sensitive to the plights of energy consumers and potential negative implications of the various shocks to their economies, discussed comprehensive changes and interventions in the design of energy markets as well as support measures to households and industries for the winter 2022/2023. The EU itself has only a shared competence in energy policy and thus cannot, against the will of its members, introduce changes to the national energy mixes, nor to the design of the energy market or to the price-setting mechanisms. It can only provide a forum for exchange, can facilitate voluntary agreements of member states or market actors or produce an impact assessment for different policy measures (European Commission, 2021). Thus, national responses to the energy crisis varied, reaching from the setting of national price caps to the construction of new energy infrastructure, new bilateral purchasing agreements with third country suppliers, to different levels of financial support to their industries and households. This uncoordinated approach already had many negative consequences, such as competition for energy resources, skyrocketing energy prices and the furthering of existing inequalities of the respective economies in 2022. Proposals regarding the joint purchasing platform of, e.g. gas or oil, the rapid improvement of cross-border energy infrastructure, as well as a discussion on the best design for today's energy market therefore have not come to an end.

There is no consensus among the EU member states on whether our energy systems need more or less state intervention, need to be left to the market, or require more regulation. However, like the policy responses to the COVID-19 crisis, e.g. the debate on reshoring, there is a

danger of market distortions given the centralised nature of such emergency measures. In parallel to these discussions at the European level, governments were keen to take national actions, cushioning the energy price shocks or even nationalising some energy companies. To make this possible, however, derogations from the EU's hitherto strict state aid rules became necessary. The relevant regulatory framework had already been temporarily suspended in 2020 (European Commission, 2020) to provide national governments with room for manoeuvre in dealing with the effects of the coronavirus pandemic. It was decided to prolong the suspensions for 2022 (European Commission, 2022) and to also allow state aid for energy-related measures. In the mid-term, however, it is neither sustainable nor good governance to suspend rules ad infinitum.

Considering the challenging geopolitical landscape, a change to the state aid regulatory framework might be warranted. Given its declining share in the global economy, it is imperative that the EU improves its productivity and competitiveness. For this to happen, the EU must adopt a competitiveness agenda that strengthens the conditions for EU businesses to innovate, invest and trade, thereby creating a common good. Europe needs to improve its own industrial capacity and resources, and to develop new business ecosystems. Energy sources and supply chains of raw materials, intermediate products and components must be diversified. The reorganisation of production and supply chains is the responsibility of companies, while the role of policymakers is to support and facilitate it. The Single Market remains the backbone of the EU business environment (as elaborated in the "Single Market Economic Papers" by the European Commission's Directorate General on Growth). But it requires full implementation and enforcement of common rules. Member states must avoid a proliferation of national deviations and new regulations conflicting with common rules. Besides effective market and competition rules, adequate infrastructure is a necessity for the functioning of the Single Market. It requires investment in future-proof transport, energy, and data networks, with particular focus on providing critical infrastructure, which is crucial for emergency preparedness.

A major challenge that remains is dealing with the longer-term effects of the current energy crisis. The outlined policy responses on a national and European level have so far focused mainly on short-term crisis management rather than on maintaining medium-term competitiveness in Europe. A revival of industrial policy in Europe or a possible reform of the common electricity market can alleviate the immediate dangers of deindustrialisation. However, careful preparation in terms of energy policy is necessary, especially for the winter of 2023-24, which could potentially be more problematic than the previous one. In the best-case scenario,

gas prices will settle at a significantly higher level than before the war and cause short-term economic losses. If we look at the issue of energy dependency, energy mix and industrial shares in the individual EU27 member states, this has a significant potential to further disrupt production processes and worsen the competitiveness of energy-intensive industries. There is a risk that permanent investment and production will be shifted abroad, where energy costs are lower. Hence, Europe would lose part of its industrial base. While immediate losses in the total manufacturing sector are not yet evident, the risk of a loss of value added and competitiveness presents an economic challenge for Europe; addressing this risk should remain a top priority.

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