

# Economy in Transition

The comprehensive transformation of the economy which is gradually taking shape entails both opportunities and risks. This can mean a tailwind for existing business models - but also a headwind. The basis for successful structural change is a willingness to effect changes, flexibility, readiness to compromise and the ability to take the initiative in order to evolve innovative ideas. The Chief Economists of the Savings Banks Finance Group would like to emphasize: The change process is a generational project, resembling not a sprint but a marathon. In this context, it is also the task of policymakers to shape important framework conditions that enable structural change while maintaining stable finances and accepting changed interest rate structures. These parameters include:

- Promoting new ideas and business start-ups,
- Reinforcing the education system,
- Creating free markets,
- Reducing bureaucratic hurdles,
- Enhancing infrastructure; and
- Creating competitive research structures with the help of evaluation-oriented research funding.

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## The global economy is reorganizing

The global economy is reorganising. The world is undergoing tectonic shifts, with wide-reaching implications for the economy, politics and society in general. Such structural change has been accelerated by the coronavirus pandemic as well as by the Russian war against Ukraine. It should be stressed that these two events did not trigger the change; they merely accelerated structural shifts that had long been in flux. The roots of these developments are demographic, technological, climatic and political in nature.

Decisive drivers during the thirty years prior to the outbreak of the Covid-19 pandemic were globalisation, wealth accumulation and structurally declining interest rates. Now, geopolitical tensions, shortages and persistently high inflation are back on the world stage. This is changing the structures within which companies, private households and countries operate.

The extent of the changes in question, and the economic, societal and political areas affected by them, are not foreseeable at the present juncture. What is undisputed, however, is that the economy, politics and society at large are now confronted with complex, multi-layered and constantly growing challenges. Four key topics have reared their heads, especially in the economic context, all of which happen to begin with the letter D. These Four Ds are: Demographics, Decarbonisation, Deglobalisation and - primarily as a consequence - Deindustrialisation.

Given just how comprehensive the transformation process is, this list could easily be extended to include further Ds. Digitalisation and debt will also play a key role moving forward. We do not, however, intend to treat the topic of Digitalisation as a separate issue here, but rather show that it is lending support to the necessary transformation processes. On the subject of the "Debt D," the Chief Economists of the Savings Banks Finance Group took a comprehensive stand in their Statement "Fiscal Policy in Challenging Times" from the beginning of 2023, making it clear that now is not the time for debt-financed spending programmes. This led to the conclusion that the supply side of the economy in particular must be reformed in order to strengthen Germany as a business location.

## Demographic change: Skilled workers are becoming a scarce commodity

The challenges from the macro trends can be met with additional investments, new business models and technologies. In addition to higher R&D investment volumes and start-ups, these require above all skilled workers. However, demographic change will lead to a noticeable decline in the supply of skilled workers in many industrialized countries and also in

*The Covid-19 pandemic and the Russian war against Ukraine are accelerating the structural break*

*Society is now facing major challenges*

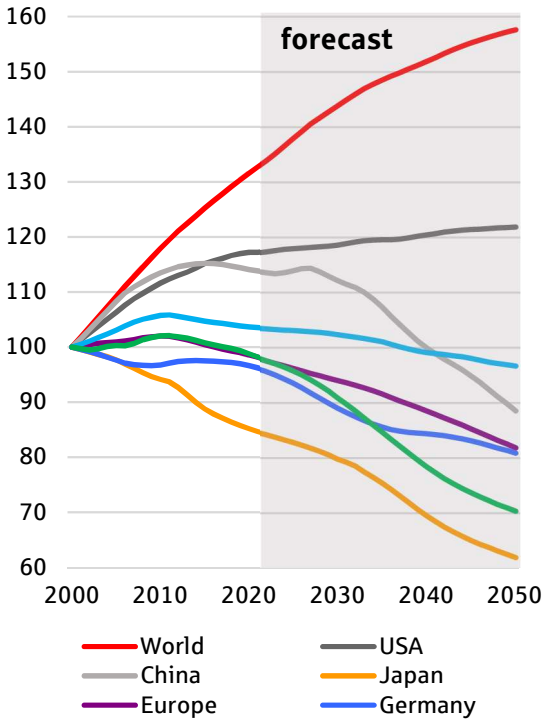
*Structural factors are going to lastingly determine how the economic trend shapes up*

*Demographic change is tearing open a supply gap in the labor market*

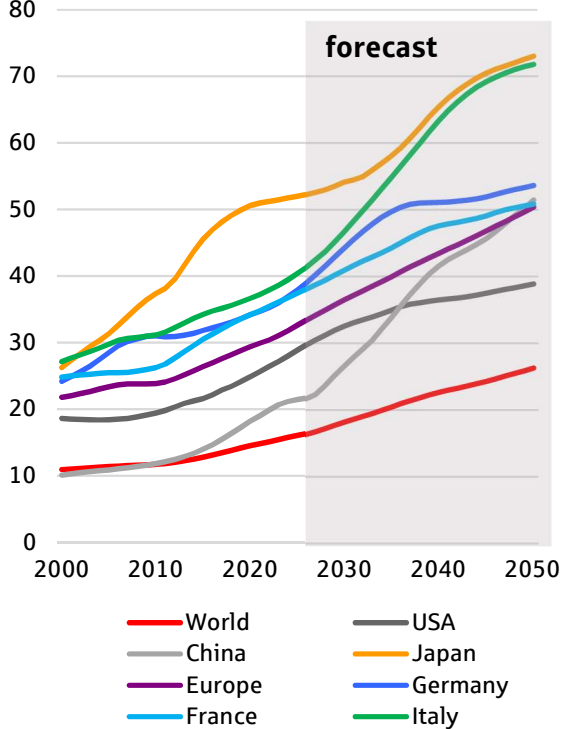
Germany in the coming years. The baby boomers, the high-birth-rate cohorts of the 1950s and 1960s, are gradually retiring. Unlike in recent decades, the number of people in the labour force will therefore not increase, but will decline noticeably, leaving a supply gap in the labour market. In addition, the succession of low-birth-rate cohorts and the simultaneous increase in the number of older people will lead to a rise in the old-age dependency ratio, which will exert pressure on the pension and health insurance system as well as on the health and care system.

Admittedly, demographic projections can prove to be flawed models of the future: in recent years, for example, the trend in the number of workforce participants in Germany has shaped up much better than forecast. Regardless of this caveat, projections of population growth can illustrate and quantify the future consequences of currently existing conditions and changes that are already apparent. They provide "if-then" scenarios that promote understanding of how the size and structure of a given population might develop under certain demographic assumptions. Demographic change thus becomes more visible and transparent. At the same time, demographic projections of this kind enable society to identify potentially problematic changes at an early stage; they are therefore indispensable tools for forward-looking political and economic action.

**Fig. 1: Working-age population trend,** (working-age population (15 to 64 years), indexed, 2000 = 100)



**Fig. 2: Old age dependency ratio** (share of over 65-year-olds in the working-age population (15 to 64 years) in percent)



Source: United Nations (from 2022 forecast data of the medium scenario projection), Refinitiv Datastream, Kreissparkasse Köln.

According to a study by Wido Geis-Thöne from 2021, the number of skilled workers in Germany between the ages of 20 and 69 is projected to decline by 3.1 million persons, or 8.8 percent, from 2020 to 2040. In the process, there is going to be a considerable shift between the academically qualified and the vocationally qualified workforce segments. Where the former group is growing sharply, the latter is experiencing a much more pronounced decline than the skilled workforce as a whole (cf. Geis-Thöne, W., 2021, p. 31). For German companies, the implication is that they will not only have to brace for a decline in the supply of skilled workers, but will also have to adjust to the fact that the composition of their workforces is going to change significantly. This is particularly true for skilled workers holding innovation-relevant MINT qualifications (Mathematics, Informatics, Natural sciences, Technology). Over the horizon of the coming five years, there are indications that only about half of the replacement demand for STEM skilled workers in Germany can be covered by the annual supply of new skilled workers equipped with appropriate qualifications (cf. Demary, V. et al., 2021, p. 75).

*The number of skilled workers is expected to decline noticeably*

**Fig. 3: Demographically induced replacement demand for STEM specialists**

	STEM skilled workers	STEM graduates
until 2023	270,800	62,200
2024 - 2028	291,200	68,800
2029 - 2033	284,100	75,200
Annual new supply of STEM skilled workers (2020 - 2025) and of STEM replacement graduates from university (2019)	135,000- 146,000	101,600

Source: Demary, V. et al., 2021, p. 74; Kreissparkasse Köln.

In an economy where the goods and services consumed by an increasing number of people are provided by a relatively decreasing number of people, welfare losses in the form of declining potential growth are to be expected in the absence of structural change, and all other things being equal (“ceteris paribus”) with regard to the capital-stock and capital-stock-utilisation trend as well as with regard to technological progress. Societal aging can furthermore be expected to push inflation higher in the longer run. An age group that produces more than it consumes has a dampening effect on inflation; conversely, if a cohort consumes more than it produces, can drive up inflation. In the case of an aging society, an increase in inflation as a function of this factor is therefore entirely likely (see Lindh, T. et al., 2010, p. 56). It is true that demographically-induced inflationary pressure could be alleviated from the import side; we do not, however, wish to go into more detail on this aspect at this point.

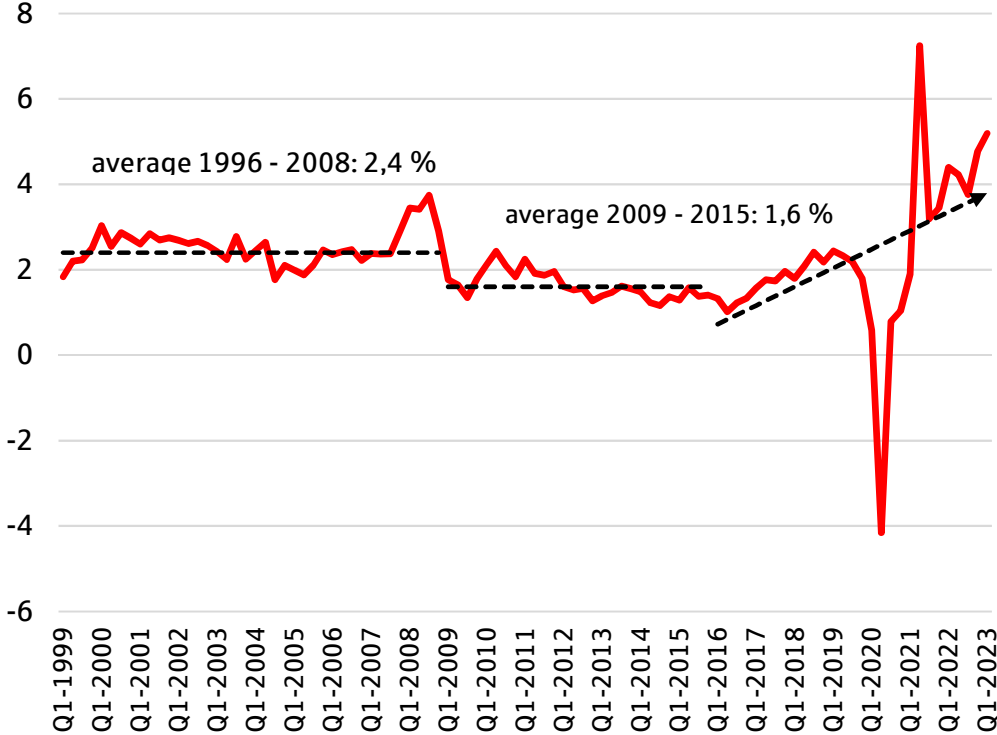
*The consequences of population ageing are rising inflation rates and weaker growth*

Another point to note is that, as the labour market tightens, the bargaining power of employees is liable to increase, which will probably entail upward

*Demographic change will boost the bargaining power of workers*

pressure on wages. Tendencies of this kind are already evident on the euro area labour market, where effective wages have been trending upwards since 2016, albeit amid sharp fluctuations given the distortions spawned by the coronavirus pandemic. In this context, 2016 can be seen as a “tipping point”, because, since then, the size of the working-age workforce on whom industrialised nations can draw has been falling.

**Fig. 4: Euro area: effective wages** (compensation per employee, year-on-year change in percent)

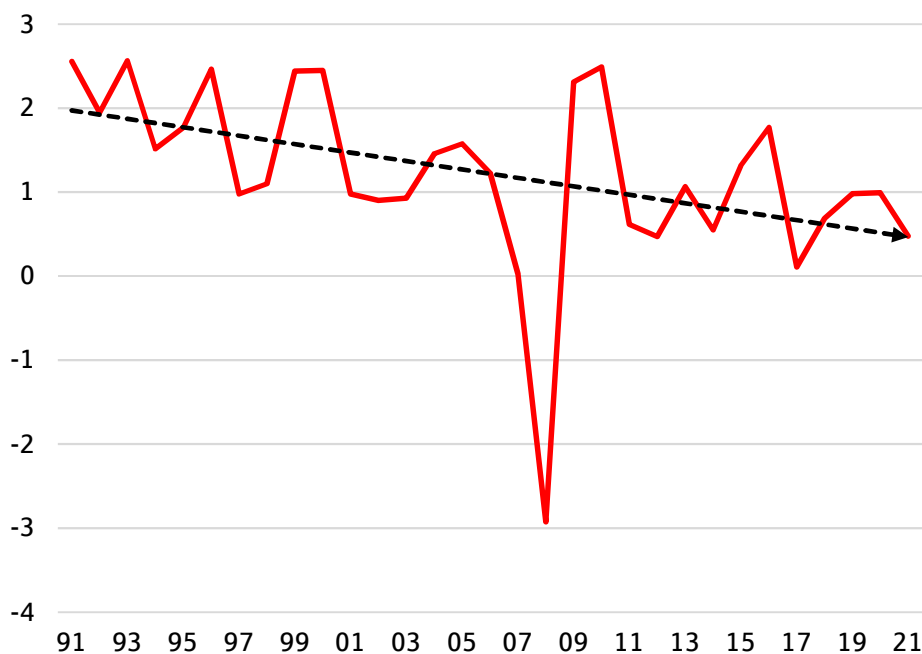


Source: European Central Bank, Refinitiv Datastream, Kreissparkasse Köln.

The associated negative welfare effect, in form of a decline in real per-capita income, can be compensated by a correspondingly strong increase in total economic value added per employee. Such an advance in productivity would make it possible both to generate the necessary affluence with fewer workers in the future, and to meet the higher expenditures for pensions, healthcare and long-term healthcare. In this context, it is sobering to note that productivity growth in the industrialized countries has been trending downward for several years. This also applies to Germany and means that the scope for welfare-enhancing wage and salary increases and/or for a reduction of working hours is becoming ever smaller.

*Productivity: key to success*

**Fig. 5: Hourly productivity in Germany** (change in percent compared with previous year)



Source: Destatis, Refinitiv Datastream, Kreissparkasse Köln.

Note: The sharp decline in labour productivity during the financial crisis derived from the pronounced 5.0 percent (y/y) drop in gross domestic product in 2009, which was accompanied by only a marginal 0.04 percent change in the number of employed persons.

It should also be borne in mind that the productivity of workers tends to conform to a "hump-shaped" pattern over time. Where young people are either in training or in the early stages of their working lives and therefore display comparatively low productivity levels due to a lack of experience, workers' levels of experience and thus productivity should increase with increasing age. At a more advanced age, by contrast, physical and cognitive performance slowly tails off: This negative effect can admittedly be made up for by experience but, sooner or later, a decline in labour productivity is liable to set in. Various empirical studies show that the highest productivity level is reached on average at the age of 50. Current demographic trends therefore suggest that labour productivity growth is likely to continue on a downward trend if capital inputs remains unchanged and if demographically-induced technological progress fails to materialise (see Bertelsmann Stiftung, 2019, p. 9, Lindh, T. et al., 2010, pp. 55 f., Petersen, T. et al., 2020, p. 595, Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung (German Council of Economic Experts), 2011, pp. 108 f. and Skirbekk, V., 2004, p. 143).

*Individual labor productivity peaks at age 50 and declines thereafter*



Moreover, since retirement benefits in the form of pensions and annuities are generally lower than employment income, savings accumulation in older age are expected to decline. In addition, it is quite realistic to assume that people will, to some extent, run down the assets they have accumulated during their working phase in order to maintain the standard of living they achieved during their years of active workforce participation. In other words, “dissaving” will take place. The problem is, though, that domestic savings are the main source of investment financing. The decline in the savings rate in an aging society is therefore associated with a lower supply of capital. Should such a shortfall coincide with a constant demand for capital, market equilibrium is only possible at a higher interest rate. The higher the interest-rate level, however, the lower, as a rule, the level of investment and thus of aggregate demand in an economy (see Lindh, T. et al., 2010, pp. 58 f. and Petersen, T. et al., 2020, p. 595). We concede, of course, that this line of argument applies first and foremost in a closed economy.

*If savings dwindle, the supply of capital decreases, causing interest rates to rise*

Another countervailing argument is that the real interest rate is falling due to declining productivity growth, which has a positive impact on companies' willingness to invest. At the same time, however, the move to a higher inflation path which seems to be underway is likely to lead to a higher “mark-up” on the real-interest-rate level. We expect this latter effect to predominate. In addition, a further investment-dampening effect results from the fact that the working-age population is shrinking. All other things being equal (“ceteris paribus”), this means that less macroeconomic investment is needed to equip this age group with the requisite machinery and work tools. The consequence is a decline in the investment ratio. The jury is still out on whether demographically-induced technological progress and substitution of capital for the factor labour (which has become an expensive production factor) will initiate a countermovement (see Petersen, T. et al., 2020, p. 959).

*The shift in the age structure is set to weigh on savings and investment rates*

### **Options for action**

These potential development paths resulting from demographic change are sobering. But they are not yet set in stone. There are various levers that will, or would, allow prosperity to be maintained at the current level or even augmented. For example, the decline in the skilled labour base can be counteracted by a demand-oriented migration policy. In their 2019 study, Anger et al. demonstrate that STEM professionals who had migrated to Germany contributed around €197 billion to the gross value added of the local economy in 2018. Migration likewise makes an important contribution to Germany's innovative capacity. According to Anger et al., no less than 200,000, or thereabouts, of the 1.35 million people working in the research sector in Germany in 2015 had a migration background, with just under 167,500 of this group holding a STEM qualification (cf. Anger, C., 2019, p. 13). The negative consequences of demographic change can also be

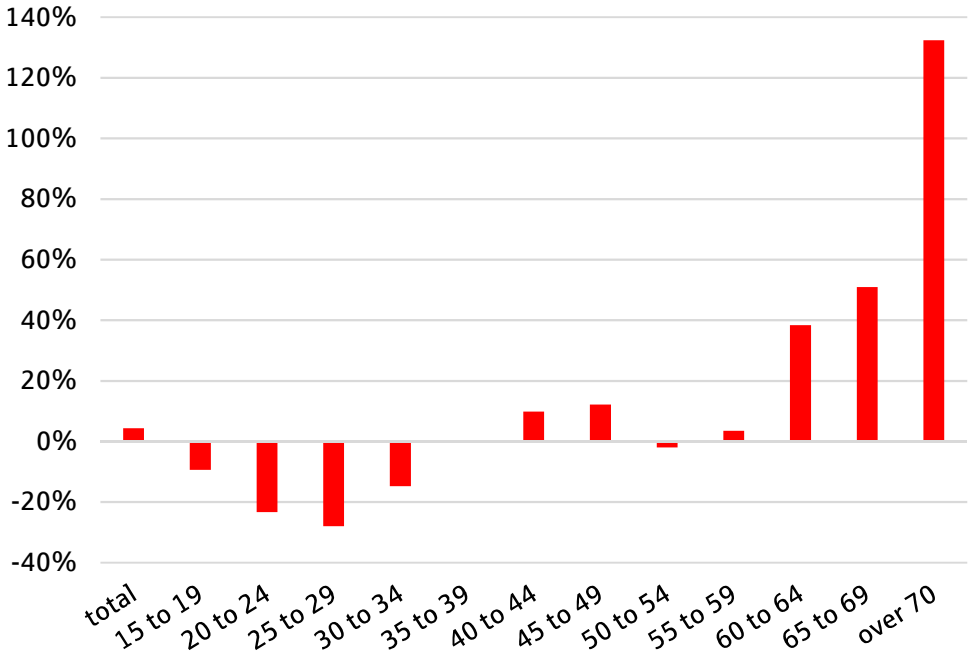
*Demographic change and migration - a possible win-win scenario*

mitigated by boosting the labour force participation rate of women, of the low-skilled and, above all, of older workers.

Particular potential can be unlocked by bringing older people into the workforce, as the example of Japan shows. Although the working-age population in Japan declined by almost 16 percent between 2001 and 2022, and although the old-age dependency ratio simultaneously soared to over 50 percent, the number of people in employment increased by 4 percent over the same period, albeit not at a steady rate. While the number of younger employees decreased, the number of their older counterparts, no longer classified as workers, grew. For the 65-69 age group, this increase worked out at 56 percent, and the equivalent figure for the 70+ age group was as high as 125 percent. This increase is largely due to the employment rate, which, for the 65-69 age group alone, has risen from 36 percent to 50 percent over the past decade. Even for the 70+ age group, it is now standing at 17 percent (see Carrera, J. et al., 2023).

*Older people constitute a large labor pool*

**Fig. 6: Increase in the number of employees in Japan since 2001 (by age group)**



Source: Statistics Bureau of Japan, Refinitiv Datastream, Kreissparkasse Köln.



Measures intended to contribute to a higher labour force participation rate presuppose an appropriate incentive system, and individualised solutions for the respective idle labour market resource need to be activated. Such incentives can be financial or tax-related, but also non-financial. Forcing people to work more or longer, on the other hand, does not seem to be very expedient, as the recent mass protests against the planned pension reform in France have shown. In addition, constraints can lead those shackled by them to resort to evasive tactics. Those who are absolutely determined to retire earlier, or else to work less in order to reduce their workload, will find a way to do so, or will otherwise work in an unmotivated fashion, perhaps even falling ill (cf. Dezenter, M., 2023, p. 6).

*Appropriate incentive systems are needed to activate idle labor-market resources*

By the same token, an increase in labour productivity by means of better education and training, higher capital intensity of production and greater automation and digitalisation can help to cushion the negative welfare effects brought about by demographic change. Political decision-makers should therefore influence the framework conditions in such a way that the available resources are deployed more efficiently. The most important instruments on this score are tax policy (for the factors of production labour and capital) and the promotion of investment (capital), but also the dismantling of bureaucratic obstacles and the creation of planning security with regard to the future path of economic and fiscal policy.

*Framework conditions that favor innovation and investment need to be created*

Particular importance will attach to investment promotion in the coming years. In relation to the challenges of demographic change - but of decarbonisation and digitalisation likewise - too little investment is being devoted to the innovation process in Germany. What is essential is to expand support for private-sector research activities, to step up public-sector investment, and to promote the transfer of knowledge and technology for the benefit of the economy.

*More private-sector and public-sector investment is called for*

The main source of hope in the digital economy is currently generative artificial intelligence (GenAI). Perhaps this is the long-awaited gamechanger leading to a rapid acceleration in the automation of tasks, which, in turn, may open up potential for cost savings and a productivity boost. Despite significant uncertainties about the potential of generative AI, its ability to generate content that is indistinguishable from human-created content and to overcome communication barriers between humans and machines represents a significant advance with potentially large-scale economic implications. Goldman Sachs analysts predict that two-thirds of current jobs are directly or indirectly affected by automation through AI, and that generative AI can replace up to a quarter of the work currently carried out by humans. Extrapolating these estimates on a global scale, up to 300 million full-time jobs could be replaced by generative AI (see Briggs, J. et al., 2023, p. 1).

*Will AI prove a game-changer?*

This turn of events is fuelling concerns that significant labour-market dislocations will result. Of course, such a development cannot be ruled out entirely, but the historical evidence concerning the impact of automation on labour markets is encouraging. To date, jobs displaced by automation have been offset by the creation of new jobs. Moreover, new occupations that spring up after technological innovations actually contribute the lion's share of long-term employment growth (cf. Briggs, J. et al., 2023, p. 1). As the old adage goes: Silicon Valley was once just a valley.

*AI will transform the labor market*

The combination of significant cost savings, new-job creation and higher productivity gives rise to hopes that the negative consequences of demographic change can be mitigated by digitalisation, and by AI in particular. Goldman Sachs analysts forecast that AI could raise annual global GDP by 7 percent in the long term (see Briggs, J. et al., p. 1). This sounds pretty fantastic, and it is true that the estimate should be treated with a certain degree of caution. For decades already, we have been living through a phase of high technological momentum, especially with regard to the digital transformation, and yet we nevertheless have to register, and come to terms with, slowing productivity growth. In this context, it is customary to speak of the productivity paradox or "productivity puzzle". The economic outcomes of demographic change are not an unescapable destiny; they can be transformed into opportunities through reforms to education and social-security systems, through competitive research structures involving evaluation-oriented research funding, through deregulation, and through the many other ways in which the digital economy can be promoted.

### **Decarbonization: The challenge posed by climate change**

Investing in clean energy and energy efficiency is the fastest and most effective way to achieve the envisaged climate and energy targets. Decarbonisation is therefore an integral part of the energy transition and of collective climate-sustainability efforts. However, the shift from fossil fuels to zero-carbon and renewable energy sources requires a major transformation that will impact nearly all market participants along the value chain. This transition must take place quickly in order to mitigate the consequences of climate change that are already making themselves manifest, and in order to have a beneficial impact on the quality of life worldwide without major curtailments and in a socially balanced manner.

*Decarbonisation requires an extensive degree of transformation*

If viable social structures are to be maintained in the long term, companies must therefore assume responsibility for both the environment and for society. In their own best interests, every industry should act in an environmentally-compatible fashion. Earning money with sustainability is not a contradiction in terms; on the contrary, sustainability offers opportunities for established companies and start-ups alike. At the same time, sustainable business models make valuable contributions to both society, the environment and overall prosperity.

*Sustainability offers opportunities for both established companies and start-ups*

Substantial investments are needed to achieve the goal of climate neutrality. Decarbonisation alone will necessitate capital expenditure of around 6 trillion euros across the German economy as a whole in the period 2021-2045. This corresponds to an annual investment volume of 245 billion euros, corresponding to about 6 percent of German gross domestic product (GDP) in 2022 (see Dürkop, U. et al., 2022, pp. 2 ff. and Dürkop, U. et al., 2021).

*If Germany is to be climate neutral by 2045, investment of six trillion euros will be required*

To permit this challenge to be risen to, public investment resources need to be deployed in a carefully targeted way and private-sector investment has to be mobilised. Our climate goals require extensive transformation in all sectors of the economy, from transport to industry to private households. The capital needed for climate protection is going to prove a good investment in the medium to long term, as it provides an opportunity to enhance Germany's competitiveness, for example by developing new technologies. This can strengthen Germany's status as an export-oriented business location against a long-term horizon. However, such an undertaking requires not only appreciable financial resources, but also a framework that facilitates both investment and the operative viability of climate-friendly business models.

*The regulatory framework needs to safeguard the profitability of climate-friendly business models*

This transformation will not come free of charge. On the one hand, the additional capital required will drive up interest rates; on the other hand, one of the knock-on effects of the energy transition will be rising CO<sub>2</sub> prices, which will, in turn, be reflected in higher electricity, gas and fuel prices while, at the same time, ramping up production costs at companies. The corporate sector will, in turn, try to pass on such additional costs to their customers. Indirectly, then, decarbonisation will translate into higher prices.

*The energy transition is going to push inflation higher*

According to the European Central Bank (ECB), however, the direct impact of the increase in CO<sub>2</sub> prices on inflation in the euro area is set to be low. In the period to 2025, the ECB estimates that the median annual increase in inflation due to the impact of CO<sub>2</sub> prices is likely to be just 0.1-0.2 percentage points higher than the baseline level in the models used, the baseline here being a scenario factoring in no changes in CO<sub>2</sub> pricing. From 2026 to 2030, the corresponding inflation effect is projected to fall even below 0.1 percentage points (see European Central Bank, 2023). This merely incremental inflation effect will probably be due, among other things, to the fact that investments in new technologies can reduce a number of operational costs, including, for example, energy costs for buildings, or fuel and maintenance costs for vehicles.

*The ECB reckons that CO<sub>2</sub> pricing will only have a low direct effect on inflation...*

Although the direct effect of CO<sub>2</sub> pricing on inflation may well be limited, it should be noted that many industrial metals are key inputs for multiple key technologies related to decarbonisation. Whether we are talking about energy generation by means of wind or solar energy, energy storage by means of batteries, or the operation of electric motors: copper, aluminium

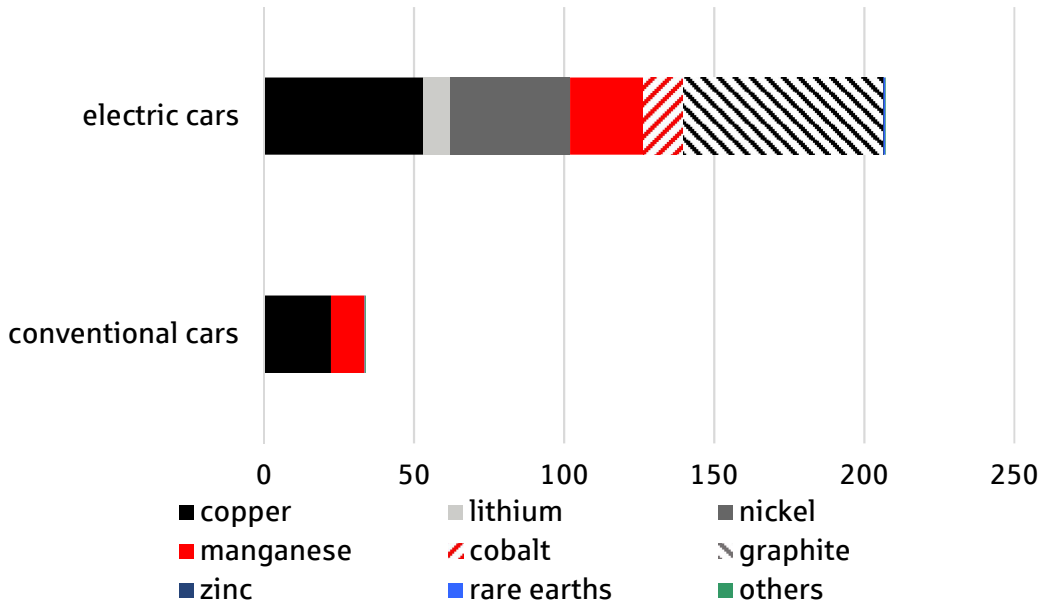
*... but rising commodity prices are going to generate additional inflationary stimuli*

and their peers play a prominent and decisive role in the entire thematic complex relating to the energy transition.

By way of illustration, a report by the International Energy Agency (IEA) points out that a modern photovoltaic system requires more than twice as many metallic raw materials as a coal-fired power plant with the same output. For onshore wind turbines, almost five times as many metals are needed, and even more than seven times as many in the case of offshore wind turbines (International Energy Agency, 2021a, p. 8.). Industrial metals such as copper, aluminium and steel are thus likely to encounter structurally higher demand, meaning that the prices of these raw materials should remain elevated even during periods of economic weakness. On top of this, there is high demand for elements such as rare earths, platinum group elements, germanium, indium and cobalt. The following chart illustrates, for instance, the mineral requirements for the production of an electric car compared with a conventional vehicle. In addition to the raw materials/quantities used in conventionally-powered vehicles, electric vehicles contain components that require additional raw materials, or significantly larger quantities of existing ones. Such high demand has consequences: in addition to virtually uncontrollable price increases, supply bottlenecks and operational disruptions (in manufacturing industry) can repeatedly recur.

*Structural higher demand for industrial metals and other raw materials due to decarbonisation*

**Fig. 7: Minerals used in electric cars compared with conventional cars (figures in kg).**



Source: International Energy Agency (2021b), Kreissparkasse Köln.

Sustainability policy in Germany is firmly interwoven with European and international policy and is oriented toward global sustainability goals. In parallel to this, regulatory and supervisory requirements have grown strongly in recent years. On the basis of the EU Taxonomy Regulation and the associated disclosure obligations, the EU is successively obliging credit institutions, investors, insurance companies and other enterprises to make the sustainability of their activities and, where applicable, their financial products measurable and to report the results.

*Requirements of the EU Taxonomy Regulation are highly complex and implementation will be very time-consuming*

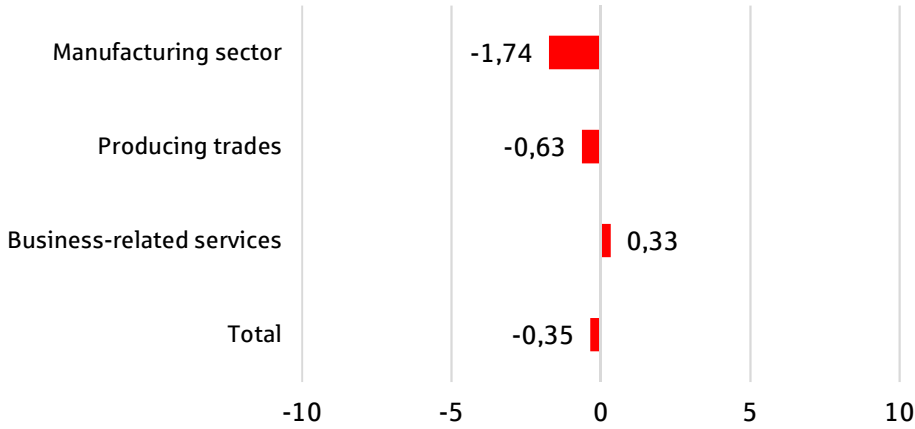
While the state can indeed bolster the transparency of the sustainability components of various financings and financial instruments, a customer-oriented, stable and regionally-anchored banking market needs room to manoeuvre in order to meet the challenges of our time. If the regulatory regime seeks to control every detail, this will inevitably crowd out market forces, lead to additional bureaucracy and limit the predictability of sustainability policy. This, in turn, will restrict the kind of entrepreneurial creativity which could lead to faster and better solutions.

*Excessive bureaucracy hampers entrepreneurial creativity*

The EU taxonomy and technical assessment criteria for environmental and social activities must therefore be designed to be practical and comprehensible. The aim should be to provide incentives for improvements instead of saddling actors with bureaucratic burdens that make sustainable behaviour feel more like a dead weight. Otherwise, investment and location decisions could well be made in favour of regions where climate-protection costs are lower. There is a need for political action here. German companies from the manufacturing and wider producing sector, in particular, see the European Green Deal, aspiring to make the 27 EU member states a climate-neutral bloc by 2050, as a threat to Germany's competitiveness.

*German companies are criticizing the unclear cost-benefit ratio underlying the European Green Deal*

**Fig. 8: Opportunities (+10) and risks (-10) of the Green Deal on German competitiveness (mean values by sector)**



Source: Küper, M. (2023) p. 37, Kreissparkasse Köln.

## Options for action

Digitalisation can support and accelerate the evolution of a more sustainable, circular economy. Networking different areas of life has the power to increase resource and energy efficiency and to contribute to process optimisation. The significant tectonic shifts in our consumption habits, value chains and business models induced by digitalisation open up leeway for thinking about sustainable solutions with new digital concepts and technologies right from the very start.

It goes without saying that the digitalisation landscape must be designed to meet the requirements of sustainable development. The necessary preconditions for this have to be put in place. These include an accelerated expansion of the digital infrastructure as well as a reliable and competitive energy supply, and the provision of the necessary infrastructure. Furthermore, framework conditions are required that both encourage and enforce investment and innovation in order to enable new future-viable markets to be brought into being, and thus to bring compliance with sustainability goals closer. To summarise: Decarbonisation presupposes a comprehensive transformation. Timely and efficient accomplishment of this transformation requires governmental action:

- Setting long-term and clear framework conditions, which also include a transparent and reliable path for the CO<sub>2</sub> price in the medium term;
- Reforming the merit-order principle, whose design aims to increase the profitability of renewables;
- A symmetrical CO<sub>2</sub> tax that not only targets new CO<sub>2</sub> emissions, but also provides a reward for absorbing CO<sub>2</sub> from the atmosphere;
- The provision of the necessary infrastructure;
- Promoting R&D and investment in the climate-protection field;
- Ensuring competitiveness through effective protection against competitive disadvantages;
- Introducing price incentives in order to reward climate protection from an economic point of view;
- Reducing regulatory barriers impeding the use of climate-friendly production technologies; and,
- Actively configuring digitalisation in the interests of sustainability.

*Combining sustainability and digitalisation*

*The digitalisation landscape must be designed with the needs of sustainable development in mind*

## Deglobalisation: Economic Unbundling Comes at a High Price

Globalisation has passed its peak: the Brexit decision from 2016, the trade war between the United States and China, and the increasing tensions at the geopolitical level are merely chapters of this development. At the present point in time, a return to the globalisation regime prevailing in the past looks to be improbable. Indeed, what we have experienced in recent years in the wake of the coronavirus pandemic and the Russian war against Ukraine must lead us to expect rather the opposite. The supply bottlenecks affecting various raw materials and intermediate inputs have made it clear that the international division of labour not only brings advantages, but also harbours considerable risks.

*The international division of labor entails not only advantages but also risks*

Global supply and value chains have morphed into highly complex systems in recent years. Target parameters have often been efficiency and profit maximisation. However, such optimisation has definitely come at a price, because it has rendered the production process highly susceptible to disruptions. Not only the Russian war against Ukraine and the Covid-19 pandemic have made it abundantly clear that dislocations of various kinds can lead to worldwide delivery failures due to the global interconnectedness of supply chains. Risk considerations have therefore gained in importance over efficiency considerations in recent years when it has been a question of designing supply chains and value-creation systems. In addition, new target parameters such as resilience, security, quality and sustainability have come into focus.

*Risk considerations have gained in importance to the detriment of efficiency considerations*

This paradigm shift is being accelerated by the redoubled efforts of many countries to increase their economic autonomy. One noteworthy example in this context are the measures introduced by the European Union over the past few years to undergird its strategic autonomy. The EU's industrial policy and trade strategy are being recalibrated "to strengthen the Union in its role as a strategic global actor and, at the same time, its capacity to act autonomously..." (Council of the European Union, 2016, p. 2).

*Measures aimed at strengthening strategic autonomy are spurring the deglobalisation trend*

As the German economy relies disproportionately heavily, by international standards, on the advantages of the international division of labour, the waning globalisation trend poses a particular threat to the country's export-oriented business model. Redirecting supply chains to countries closer to home ("nearshoring") - or even back to companies in the Federal Republic ("reshoring") - would therefore entail considerable economic costs for Germany. In a simulation study, the Munich-based ifo Institute comes to the conclusion that shifting production back to Germany would result in a 9.7 percent decline in the real level of GDP due to the need to unwind the German economy's complex web of international value-added linkages. According to the same simulation, a shift of production back to the EU-27 member states, Turkey and North Africa ("nearshoring") would still cause

*But we are unlikely to see reshoring / nearshoring and insourcing on a significant scale*

*Deglobalisation leads to value-added losses*



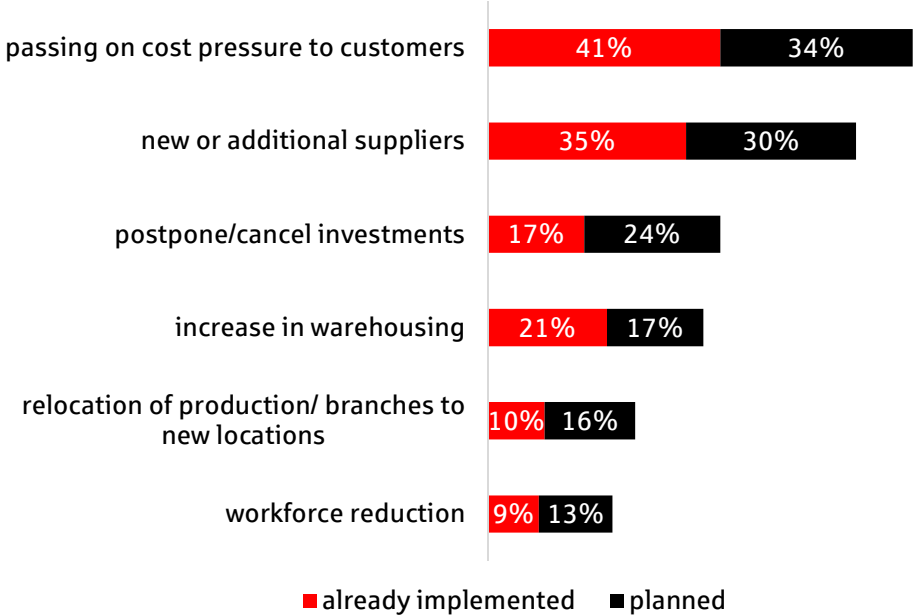
Germany's real GDP level to fall by 4.2 percent (see Fuest, C. et al., 2022, p. 1).

Without any doubt, these two scenarios simulated by the Ifo Institute are extremely unlikely ones. The building-up of global supply chains has taken decades, and reshoring or nearshoring projects could only be implemented in the long term. Despite this, various surveys show that German companies are subjecting both their supply chains and their international locations to a critical review in the light of their experiences of recent years. One example of this is the World Business Outlook survey conducted by the German Chamber of Commerce and Industry (DIHK) in the autumn of 2022. According to this, no less than two-thirds of German companies are adapting their supply chains in the face of international trade disruptions. The Chamber of Foreign Trade's findings are borne out by the results of the European Investment Bank's 2022 Investment Survey (EIBIS). According to the latter, a full 60 percent of German companies questioned are endeavouring to counteract international trade disruptions. Thirty-nine percent of German companies surveyed stated that they would rather prefer to focus on national suppliers and markets, and 38 percent are looking to diversify by interacting with more trading partners (see European Investment Bank, 2022, p. 11).

*Companies are subjecting their supply chains and international locations to a critical review*

*Most companies are attempting to counteract trade disruptions*

**Fig. 9: Measures already implemented or planned by companies in response to current crises** (including global supply bottlenecks, Corona pandemic, war in Ukraine)

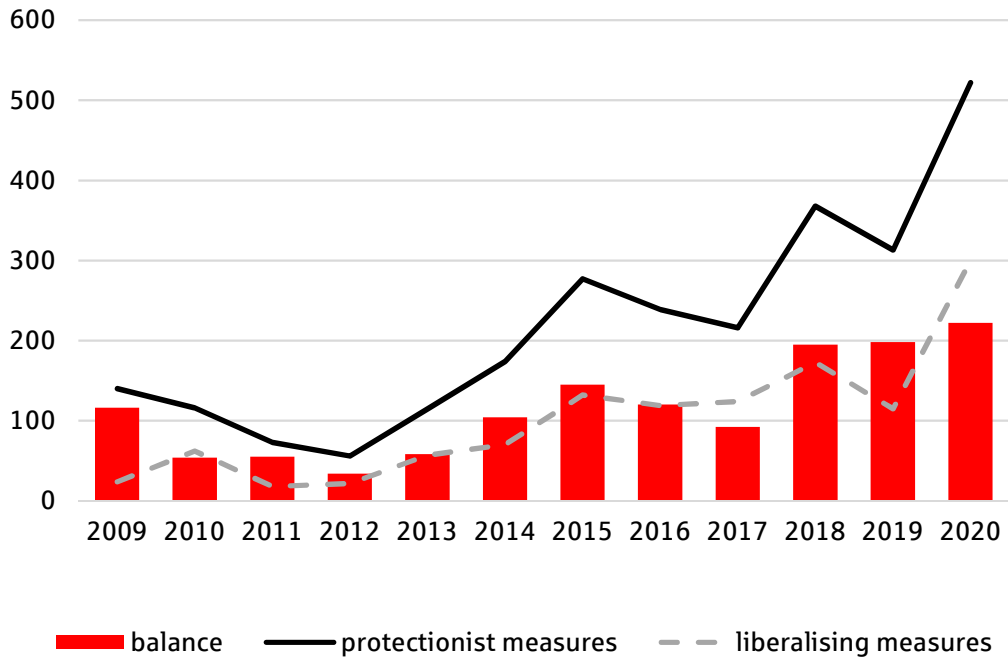


Source: Chamber of Foreign Trade (2022), Kreissparkasse Köln.

Any type of deglobalisation inevitably leads to value-added losses. Rising unemployment and lower prosperity cannot therefore be ruled out on the back of the present deglobalisation trend. Another point to take into account is the following: as new structures emerge in global trade and some supply chains are reconfigured, fresh factors are going to determine trade flows in the coming years. Increasing protectionism, higher trade barriers, a weakening of the role of the World Trade Organisation as well as of multi-lateral regulatory frameworks in international trade, sustainability considerations in the formulation of trade agreements and increased potential for conflicts around the issue of trade and regulation of digital services are just a few factors that imply that the globalisation trend is poised to weaken. The German economy has already clearly felt the rough edge of increasingly high trade barriers in recent years: since 2012, the German export sector has been having to contend with a growing protectionist trend - a development that has been putting pressure on the German export model and provoking economic uncertainty.

*The German export model is under pressure due to protectionism and deglobalisation tendencies*

**Fig. 10: Trade policy measures vis-à-vis Germany** (number of measures taken by other countries)



Source: Institut der deutschen Wirtschaft Köln, GAT, 2021.

In addition, it should be borne in mind that globalisation was a decisive factor keeping inflation so low in the three decades prior to the Covid-19 pandemic. Value chains geared to economic efficiency made low-cost production possible. If risk considerations gain more weight at the expense of efficiency considerations when designing value-added chains, production costs stand to rise as a result of increasing regionalisation of trade, greater regional production and higher inventory levels and/or an increase in the

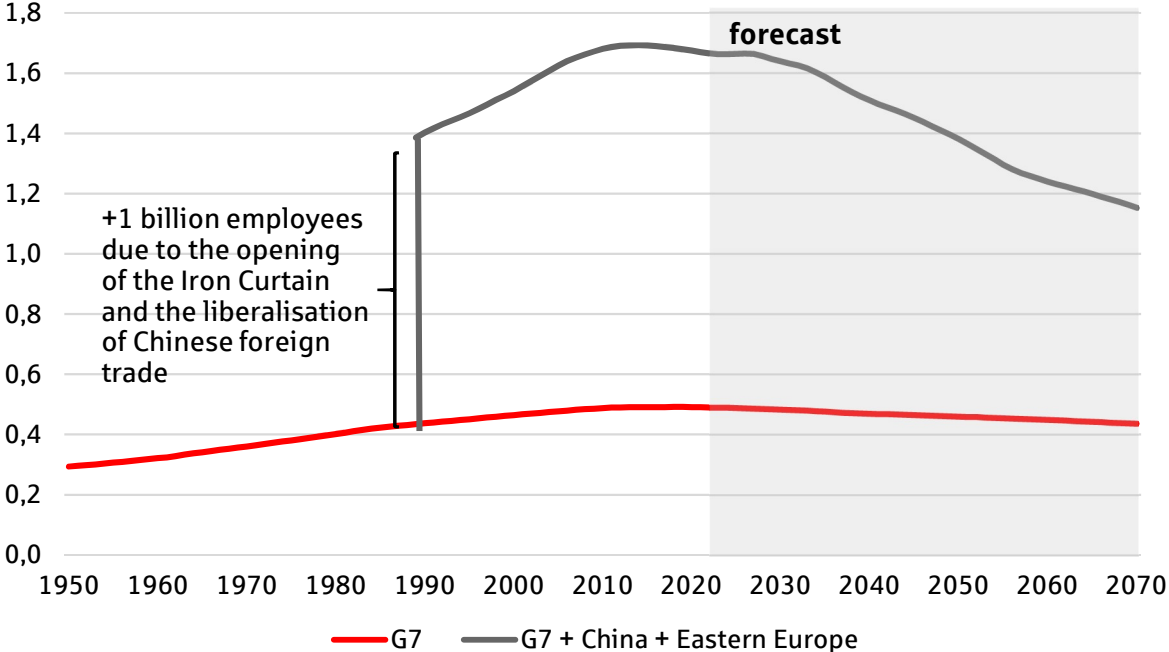
*Deglobalisation boosts inflation*

vertical integration of companies (“in-house manufacturing”). Quite apart from the fact that this will erode international competitiveness, companies are likely to pass on their higher production costs to consumers via rising prices. Inflation should therefore be higher in the future than before the Covid-19 pandemic.

The fact that international competitive pressure will tend to ease as the trend toward globalisation weakens likewise points in this direction. However, competition from Central and Eastern Europe (CEE) and the Far East has so far prevented trade unions in the industrialised countries from pushing through very sizeable wage increases in recent decades. One factor that could become more important in the future and lead to less global downward pressure on prices and wages is the way the labour force is trending in this context. The opening of the Iron Curtain and the liberalisation of China's foreign trade in the late 1980s/early 1990s produced a huge, virtually overnight, increase in the pool of workers available to developed economies. Since the mid-2010s, however, a downward trend can be observed on this score against the backdrop of demographic developments.

*Shifting production to low-wage countries contributed to the disinflation process for decades*

**Fig. 11: Employed population (15 - 64 years, in billions)**



Source: United Nations (from 2022 forecast data of the medium scenario projection), Refinitiv Datastream, Kreissparkasse Köln.

## Options for action

In view of the experiences of recent years and of the ongoing trade conflicts, German companies would be more than negligent if they did not consider adjusting their foreign-trade strategies, and if risk considerations did not gain in importance at the expense of efficiency considerations. However, the advantages of the international division of labour should not be foregone in an effort to reduce critical dependencies. What is of more importance is to engineer greater diversification of supply and sales markets: not less globalisation is the solution to the problem, but rather more. Strategic partnerships and trade agreements with emerging and developing countries, but also with other industrialised nations, promote trade with partner countries and thus make it easier for companies to diversify their value-added chains. Where possible, solutions should be found within the framework of the WTO, which provides a reliable and rule-based framework for the international exchange of goods and services.

*Diversification is the order of the day*

The goal of policymakers must be to strengthen fair trade relations and to create fair competitive conditions, without lapsing into protectionism themselves in the process. One major challenge will be to successfully manage trade relations with China - a country which, on the one hand, is one of the most important global markets for many German companies, but which, on the other hand, is also a major trading partner and key technology supplier for the Federal Republic. In view of the different political and economic systems in Europe and China, goal conflicts are inevitable on this front. China's brand of state capitalism does not shy away from competition-distorting measures to support the Chinese economy. These include trade and investment barriers as well as substantial subsidies for industry-policy purposes and enforced - and sometimes illegal - technology transfer.

*The goal must be to strengthen fair trade relations and to create fair competitive conditions*

The task of European policymakers must be to counter such competitive distortions with the help of trade-policy, competition-policy and investment-policy measures designed to ensure fair competitive conditions ("a level playing field"). The list of desiderata also includes the protection of intellectual property, data and high technologies as well as the safeguarding of cyber security (cf. Matthes, 2021, p. 3 et seq. and for a pertinent catalogue of measures see Matthes, 2020 as well as Bardt et al., 2020).

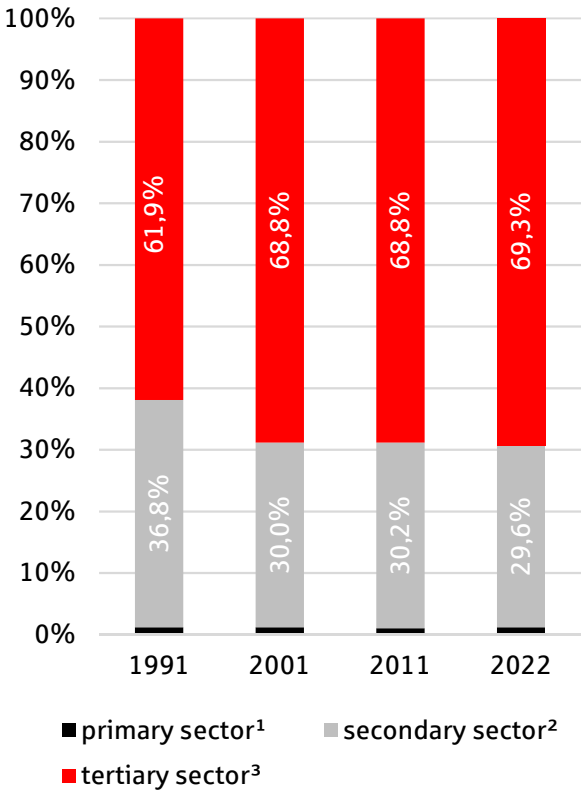
*Trade-policy, competition-policy and investment-policy measures are called for*

# Deindustrialisation: Is this “German Angst” or a serious threat to the German growth model?

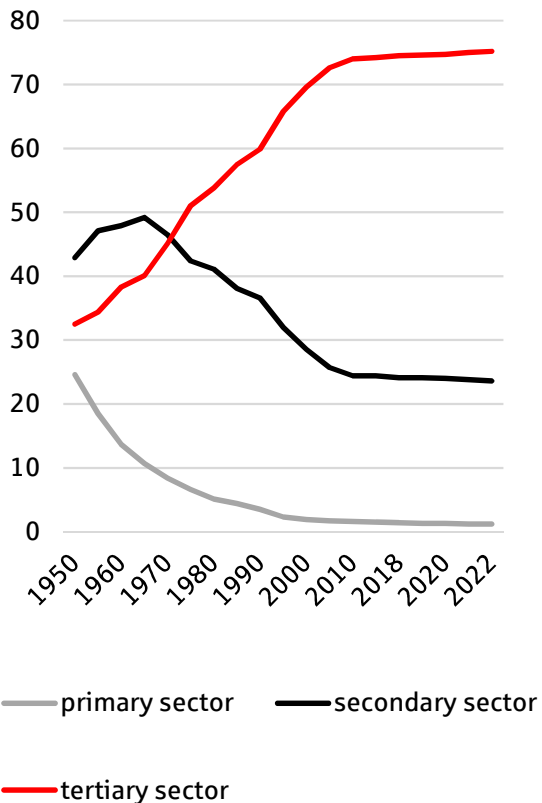
Like all established economies, Germany has undergone profound structural change from a sectoral perspective in recent decades. Until well into the 1990s, we saw a decline in the value added of the primary sector (agriculture) and of the secondary sector (industrial production) relative to overall gross value added, whereas the tertiary sector (services) gained in importance. A similar picture emerges for the trend in the number of those employed in these sectors. This corresponds to the typical process of structural change, as already predicted by Jean Fourastié (1949) with his three-sector hypothesis. However, it is doubtful whether this process deserves the label "deindustrialisation".

*The longer-term trend for German industry is in line with the typical process of structural change*

**Fig. 12: Gross value added in Germany according to economic sectors** (Sector value added in percent of total value added)



**Fig. 13: Share of economic sectors in total employment in Germany** (in percent)



Source: Federal Statistical Office, statista.de, Kreissparkasse Köln. Until 1990, former West Germany; 1950 excluding Berlin and Saarland; from 1991 onwards: <sup>1</sup>agriculture, forestry and fishing, <sup>2</sup>producing sector including construction, <sup>3</sup>trade, transport and catering, information and communication, financial and insurance services, real estate and residential sector, business services, public services, education, health, other services. Prior to 1991, the composition of the economic sectors was slightly different.

It is striking that the share of gross value added and total employment accounted for by the manufacturing sector has remained almost constant for around 20 years in Germany at around 30 percent and somewhat less than 25 percent, respectively, and is thus comparatively high compared with other advanced economies as well as not having declined further. In addition, there is a very pronounced industry-services alliance. According to Michael Hüther's calculations, the share of combined value added generated by industry's demand for services corresponds to between 8.8 percent and 11.5 percent of total value added. This too is above-average by international standards (cf. Brandt, A. et al., 2022, p. 918 and Hüther, M., 2023, p. 3).

*Germany boasts a broad industry-services alliance*

However, in view of the tense geopolitical situation, higher energy costs (which are, moreover, presumably going to get stuck at these new, more elevated levels), potential risks of a gas-shortage situation, the recalibration of supply and value-added chains, and industry's high degree of dependence on raw materials and intermediate inputs from specific regions and countries, in conjunction with the necessary digital and ecological transformation, the German economy is highly susceptible to exogenous shocks due to the vulnerability of its industrial sector. Quite a few analysts see the current combination of factors as a structural gamechanger both for Germany as an industrial location and for the industry-based and export-oriented German business model. In this connection, it is reckoned that above all the energy-intensive industries on the first rungs of the value-added ladder have a difficult time lying ahead.

*Multiple challenges face Germany as an industrial location*

The unfortunate "double whammy" of bipolar system conflicts and structural change (demographic change, digitalisation, decarbonisation and deglobalisation trends) rightly raises the question as to whether Germany's industry-heavy economic model will remain competitive in the long term or whether we will have to prepare ourselves in future for a deindustrialisation of the Federal Republic as a business location, which would be associated with considerable welfare losses due to the loss of industrial value added.

*Can we expect a wave deindustrialisation in the near future?*

The short answer - that ongoing deindustrialisation constitutes structural transformation in the sense of a process of "creative destruction" on the basis of Schumpeter's model - overlooks the enormous importance of energy-intensive industry, in particular, for the German business location. After all, this segment generated total value added of no less than around 241 billion euros in 2022. This means that the energy-intensive industries contribute around 4 percent to overall value added in the German economy and almost one fifth to the value added by the manufacturing sector (see Cologne Institute for Economic Research (IW), 2023).

*Energy-intensive industries are of great importance for Germany as a business location*

In addition, it should not be forgotten that many sub-sectors of energy-intensive industry are among the most research-intensive industries in Germany. It is precisely such innovative and research-intensive companies that are indispensable for the successful implementation of the transformation process which lies ahead. It should also be borne in mind that, sooner or later, the green transformation will take place in all areas of the economy, and of life in general, on a global scale. In the process of “creative destruction” described in Schumpeter’s model, it is creative, imaginative entrepreneurs, repeatedly driving economic and technological progress through new ideas and the use of new production methods, techniques and processing options, who play a decisive role. Currently, however, there is no such gamechanger in sight for Germany that could creatively supplant the old, established industries. The manufacturing sector accordingly remains the crucial sector par excellence, expediently supporting the transformation process through innovations and technological progress (cf. Hüther, 2023, p. 6).

*Germany’s energy-intensive industry segment is innovative and strong in research*

All the same, it should not go unmentioned that other countries have demonstrated that strong economic performance and rising productivity are also possible even if the services sector is claiming an increasing share of aggregate economic output. A study by the European Investment Bank has worked out that three-quarters of the disparities in economic growth between EU countries are attributable to the services sector. As a rule, countries with a relatively high growth rate also exhibit above-average productivity growth. Despite the tendency for productivity growth in the services sector to be on a lower trajectory than in manufacturing, this sector nevertheless makes a significant contribution to the overall increase in per-capita output due to its considerable economic importance. Countries with a high overall level of productivity growth usually also display relatively strong productivity gains in the services sector (see Uppenberg, K. et al., 2020).

### **Options for action**

As a consequence of this, policymakers and society in general would be well advised to create the legal, regulatory and infrastructural framework conditions that promote innovation and technological progress and enhance Germany's international competitiveness as a business location. Only in this way will it be possible in the long term, with start-up support from the state, for companies to acquire the necessary capital to see through the transformation process.

*A supply-side program designed to strengthen the German business location would be desirable*

Reducing crippling regulatory burdens, putting a stronger focus on competitiveness when designing tax policy, reorientating education policy to shift the focus onto the impending shortage of skilled workers, speeding up the approval and implementation of public-sector investment projects, anchoring digitalisation more securely in the public-administration sphere, diminishing dependencies and forging strategic alliances: these are just

*The ball is in the policymakers' court*



some of the building blocks that can help to prevent a deindustrialisation crisis and to recalibrate the German economic model with the future's interests in mind.

Of course, such a readjustment will entail changes in the industrial sector. There will be companies that will benefit from the structural, crisis-related and geopolitical shifts, while others will have to leave the market. Energy-efficient companies and those that manufacture products with a low energy intensity will be among the winners, while others will have to migrate or exit the market if they have not invested sufficiently in energy efficiency and/or have not sufficiently diversified their production structure. Assuming favourable framework conditions, however, these will all be normal developments within the paradigm of industrial structural change that has been prevailing in the German economy for decades now. Concerns about a “creative destruction” crisis involving an exodus of the German industrial sector seem exaggerated, even if the risk of deindustrialisation should not simply be denied. Germany's innovative and flourishing SME sector and the comparatively auspicious public-budget situation give cause for optimism, for example. Agility and flexibility are a hallmark of German entrepreneurship - entrepreneurs from the Federal Republic have often demonstrated in the past that they can rapidly redeploy resources, find new paths and update plans to take advantage of opportunities that arise in times of change.

*The risk of deindustrialisation should be taken seriously, but not over-dramatised*

## **Conclusion**

The German economy is currently facing numerous structural challenges. These include the need to accelerate the decarbonisation of value added, progressive digitalisation of business processes, advancing demographic change, increasing deglobalisation and emerging deindustrialisation tendencies in Germany.

If this process of structural change is to be successfully navigated, new, innovative technologies and business models are just as necessary as additional capital expenditure and the will to strengthen the organic growth potential of companies. For these goals to be achieved, the political framework needs to be made more innovation- and investment-friendly. Among other things, bureaucratic obstacles must be removed, gaps in infrastructure and e-government must be closed, and competitive research structures involving evaluation-oriented research funding must be created. It is incumbent on those who frame education policy to promote STEM skills and to improve educational opportunities. The goal of policymakers must be to strengthen fair trade relations and create fair conditions for competition without falling into protectionism itself.

## Attachment

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