

GUARDING AGAINST PROTECTIONISM, SUPPORTING STRUCTURAL CHANGE

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This is a translated version of the original German-language chapter "Protektionismus verhindern, Strukturwandel unterstützen", which is the sole authoritative text. Please cite the original German-language chapter if any reference is made to this text.

SUMMARY

The international integration of the goods and services markets has been increasing considerably since the 1960s. This has resulted in a **marked increase in prosperity levels** in almost all countries and has significantly reduced absolute poverty in developing countries. Opening markets up increases the opportunities available for the international division of labour, allowing resources to be used more efficiently and productivity gains to be made. This has a positive impact on incomes. It is estimated that, without the effects of trade liberalisation, real incomes in Germany would be around 22 % lower today.

There have recently been increased calls for **protectionist measures**. In order to counteract these trends, international organisations should be strengthened and open markets should be promoted further by a rule-based trading system. The potential for trade liberalisation should be exploited, in particular regarding non-tariff barriers to trade, in the service sector and in digital trade. In addition, new free trade agreements with countries like China, India or the Mercosur countries could pave the way for further welfare gains.

While the unilateral reintroduction of customs tariffs, for example by the United States, would leave its mark on the German economy, the effects would only be moderate as long as the scope of these measures remains unilateral. In this sort of scenario, it would be worth considering whether to take countermeasures within the framework of the WTO. Nevertheless, it is imperative to **avoid** the kind of **global trade** war that emerged back in the 1930s.

Whereas at an aggregate level, the effects of globalisation are almost exclusively positive, the impact at regional, sector and individual level is much less uniform. In Europe, for example, it is impossible to identify any clear pattern as far as the effects of trade on employment and incomes are concerned.

The state should use the existing social security systems and labour market policy tools to cushion the blow of any negative effects at a disaggregate level. Economic policy should focus on measures that increase the **general ability of employees and companies to adapt to structural change** and strengthen the country as a location for business. One main aspect is empowering workers to take advantage of the changes that accompany trade. This could be accomplished, for example, by improved access to and quality of education as well as a flexible labour market with up-to-date regulation. Measures to strengthen the country as a business location are best suited for supporting the adjustment processes at regional and sectoral level. The German Council of Economic Experts has developed numerous approaches to this end in the past.

However, measures that prevent or delay the necessary adjustment processes, such as specific trade funds and subsidies for affected companies and sectors designed to safeguard the status quo, are counterproductive. Nevertheless, this is not a rejection of all regional policy. But Germany already has no lack of subsidies motivated by regional policy, so there is no need to expand in this area.

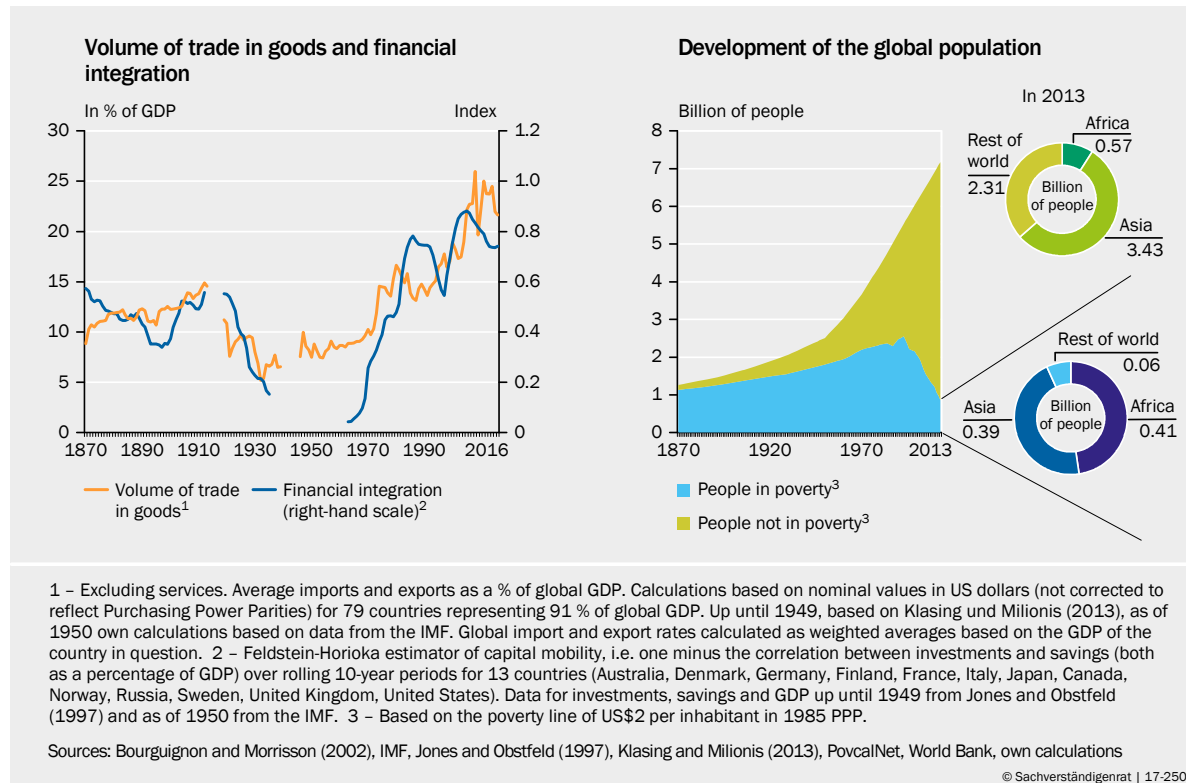
While the advantages of international trade are spread widely throughout the population, the negative implications are focussed on individual sectors and regions, making them more prominent in the public eye. The concentration of effects allows for **greater lobbying activity** which, in turn, translates into state intervention. More information on the macroeconomic advantages of globalisation should be provided to counteract this trend.

I. GLOBAL TRADE AND PROSPERITY

629. The global exchange of goods and services has shown impressive growth over the course of many decades, a trend that has been fostered, to a considerable degree, not only by lower transportation, information and communication costs, but also by the removal of trade barriers. These moves were motivated by a broad consensus that globalisation would increase **prosperity in all of the nations involved**. There has, however, been an increasing push in the opposite direction for some time now. One of the first things US President Trump did when he took office was to formally withdraw the United States from the Trans-Pacific Partnership (TPP) and announcing moves to introduce customs duties to protect domestic manufacturers. In China, foreign companies have bemoaned the preference given to Chinese companies for some time (European Chamber, 2017). The European Union (EU) on the other hand this year imposed punitive duties on Chinese steel imports. With Brexit significant barriers to the exchange of goods and services will be created between the United Kingdom and the EU.
630. Often globalisation in total is subject to scepticism in public debate. This has prompted the German Council of Economic Experts (GCEE) to analyse the **impact of a growing division of labour in the global economy** in greater detail. The first step involves looking at the effects of globalisation at country level, before moving on to look at sectoral and regional effects in the second step. The analysis focuses on the impact on Germany and Europe. This supplements the studies conducted by international organisations on the very same issue this year (IMF, World Bank, WTO, 2017; European Commission, 2017; OECD, 2017; BIS, 2017).
631. International trade has increased considerably over the last few decades. [↘ CHART 75 LEFT](#) Global exports have quintupled in absolute terms since the start of the 1990s and in 2016, goods and services worth US\$21 trillion (around 27 % of global nominal gross domestic product (GDP)) were traded across borders. The increasing international division of labour has created value chains that are closely intertwined. It comes along with an increasing variety of goods available and decreasing prices for a large number of consumer goods. This has translated into economic growth and a marked **increase in prosperity** in almost all countries, as well as a dramatic **drop in absolute poverty levels**. [↘ CHART 75 RIGHT](#) African countries, in particular, which were plagued by war, dictatorships, tribal conflicts and political instability, are among the exceptions.
632. While globalisation has made nations more prosperous on the whole, its impact on individual regions, sectors and specific groups of workers is more heterogenous. Just like technological progress and changing consumer preferences, globalisation is driving **structural change** in the economies affected, a process that can have winners and losers. While inequalities between countries have become less pronounced and the global middle class has grown, many economies are witnessing increasing inequality in terms of market incomes (GCEE Annual Report 2016 items 788 ff.; Lakner and Milanovic, 2016).

↘ CHART 75

Volume of trade in goods, financial integration and global population living in poverty



However, this does not mean that the people whose incomes have deteriorated in relative terms as a result of this trend have sustained income losses in absolute terms. What is more, social security and transfer systems are making a considerable contribution to offsetting these effects at household income level, at least in part. This holds particularly true for Germany.

633. The discussion triggered particularly by the election of Donald Trump as US President focuses largely on restrictions on the international exchange of goods and services. As a result, this chapter focuses on this **aspect of globalisation**. Other aspects, such as the international financial markets, global data and information networks or migration ↘ **ITEMS 738 FF.**, as well as social or ecological aspects, are not addressed in detail.



This chapter concentrates on the economic effects of increased trade integration. However, the **ecological effects** are probably relevant as well. They arise, for example, due to a relocation of production which is accompanied by resource and environmental usage from wealthy economies to countries with lower environmental standards. A prominent example for such **leakage effects** can be observed with respect to the emission of greenhouse gases. The economic analysis shows the extent to which welfare would be reduced, if one would try to mitigate such ecological effects by abstaining from international trade integration. The better answer to possible trade-offs between ecological and economic effects lies not in such a renouncement, but with a consequent fixation of a global price for external effects. This way, particularly, by a global price for greenhouse gases the relocation of emission-intensive production would be made less attractive and consumption which is enabled by this production, would be restricted to a corresponding extent (GCEE Annual Report 2016 items 856 ff.).

II. MACROECONOMIC EFFECTS OF TRADE

634. A look into economic history provides a useful first step for the assessment of **macroeconomic effects** of international trade and the evaluation of the effect of potential trade barriers erected by protectionist measures. It becomes apparent that economic effects of foreign trade and protectionism are to a large extent in line with the conclusions of trade theory. Those models present aggregate efficiency and welfare gains from trade and make them accessible for an empirical evaluation.

1. Globalisation in a historical context

635. The close international links through the flow of goods, capital and information are not a new phenomenon. Trading routes transcending national borders and the opportunities that they created for material and cultural exchange between peoples could **already be observed in the third millennium B.C.** (Beckwith, 2011). Along the Silk Road goods were traded between China and India at one end, and the countries bordering the Mediterranean Sea at the other. The European discovery and colonisation of the North and South American continent in the 16th century and the establishment of a maritime route around Africa came together with a significant increase in global trade.
636. Already by the end of the 19th century, global trade and financial integration had already reached a level similar, in relation to economic output, to the level seen in the 1990s. [↘ CHART 75 LEFT](#) The strong increase in globalisation in the period from 1840 to 1914 was due primarily to a massive **drop in transportation costs**. [↘ CHART 76 TOP LEFT](#) The invention of the steamship, the opening of the Suez Canal and the use of steam locomotives played a key role in this development. This caused commodity prices to converge. Whereas in 1870, for example, grain prices in Liverpool were 58 % higher than in Chicago, this gap had narrowed to only 16 % by 1913 (O'Rourke and Williamson, 1994).

In an environment characterised by high communication and cooperation costs, however, production and innovation processes continued to be organised at local level. This development contributed to the “**Great Divergence**” (1820 to 1970) in economic development between today's G7 countries and the rest of the world (Baldwin, 2016). [↘ CHART 76 TOP RIGHT](#)

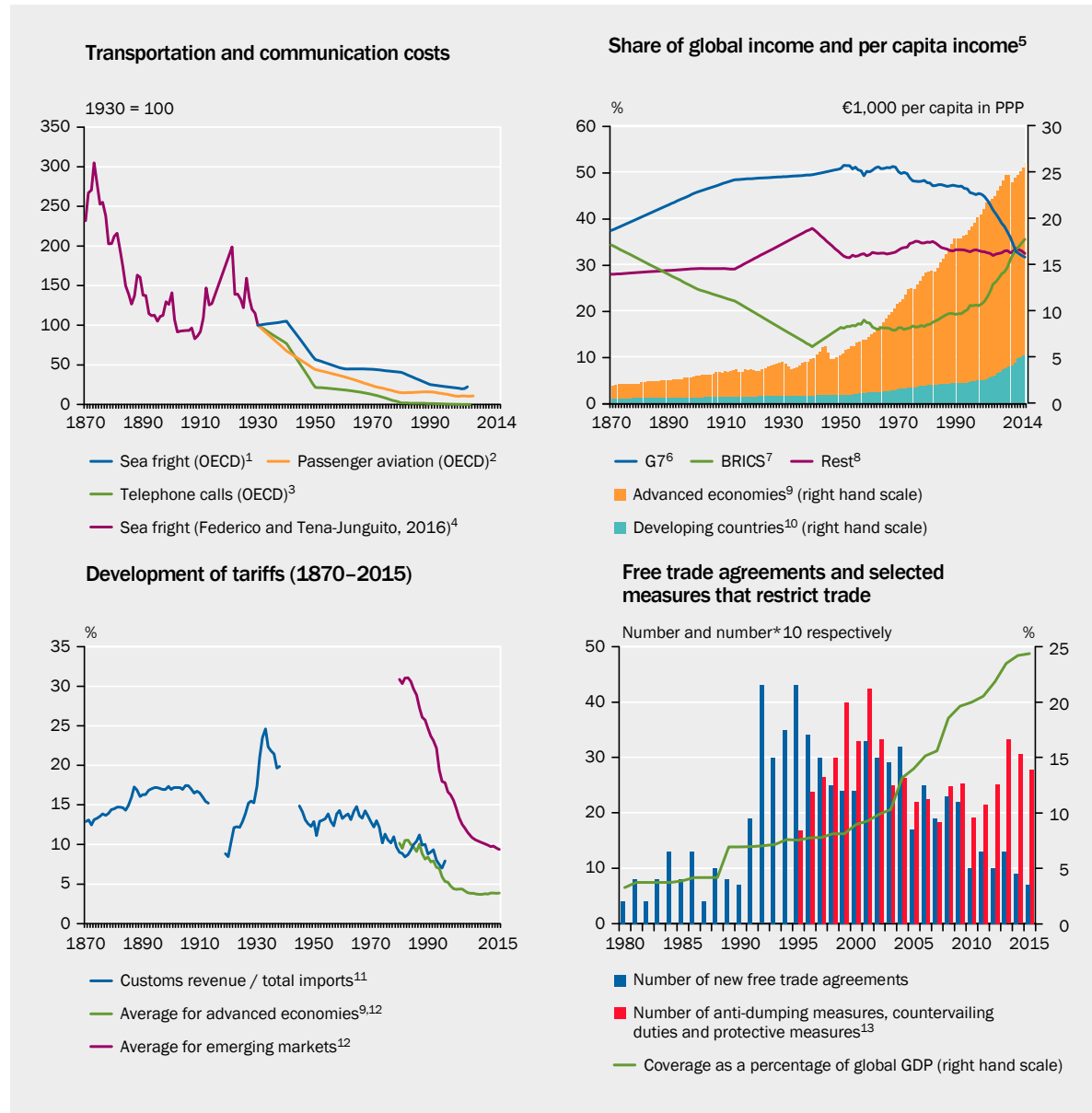
637. The interwar period (1919 to 1939) was characterised by **considerable protectionism**. The United States increased tariffs significantly with the introduction of the Fordney-McCumber Tariff (1922) and the Smoot-Hawley Act (1930). With these measures politicians tried to protect domestic factories and farmers during the Great Depression, in particular. Countries like Canada, France and Germany upped the tariffs they levied on the United States in return. These developments triggered a wave of further protectionist measures around the globe, fuelling a surge in tariffs. [↘ CHART 76 BOTTOM LEFT](#) This exacerbated the

Great Depression (Crucini and Kahn, 1996) and the volume of global trade decreased by more than half between 1920 and 1934. ↘ CHART 75 LEFT

638. The negative experience of the protectionism witnessed in the interwar years led to the establishment of **supranational organisations** after World War II: the International Monetary Fund (IMF), the World Bank and the General Agreement on Tariffs and Trade (GATT). Originally, the main responsibility of the IMF was supposed to be to prevent competitive devaluation (“currency

↘ ABBILDUNG 76

Trade costs, shares of global income and free trade agreements



1 – Average international freight tariff per tonne. 2 – Average revenue per passenger mile. 3 – Costs of a 3-minute phone call from New York to London. 4 – Index of average freight costs (inbound and outbound). 5 – Up until 2008: Maddison Historical Database, missing data has been interpolated. As of 2008: Chain-linking of the percentage change based on the Penn World Tables. 6 – Germany, France, United Kingdom, Italy, Japan, Canada, United States. 7 – Brazil, Russia, India, China, South Africa; Russia calculated, before 1990, as a constant percentage (1973) of the USSR. 8 – Calculated as the difference to the rest of the world. 9 – In line with the IMF's definition of "advanced economies, excluding Luxembourg, Macau, Malta, Cyprus, Iceland and San Marino. 10 – World excluding "advanced economies". 11 – Unweighted average share of customs revenue in relation to the value of imports (excluding 100 % or prohibitive tariffs), for 35 countries. Up until 1996, from Clemens and Williamson (2004), as of 1996 from the IMF (2016). 12 – Unweighted average tariff. 13 – Number is divided by 10. Data not available until 1995.

Sources: Clemens and Williamson (2004), Federico and Tena-Junguito (2016), IMF, Maddison Historical Database, OECD, Penn World Tables, WTO, own calculations

wars”) on the international stage. The GATT, which was complemented by the creation of the World Trade Organisation (WTO) in 1995, established a **rule-based system** for global trade.

Multilateralism is one of the defining characteristics of this system. If member states grant another member state more favourable conditions for trading in a particular product, they have to do the same for all member states (**most-favoured-nation principle**). Free trade and customs union agreements among WTO members are an exception to this rule. In addition, the WTO rules state that foreign and domestic goods have to be treated the same on the domestic market.

639. Numerous free trade agreements [↪ CHART 76 BOTTOM RIGHT](#) and various rounds of GATT and WTO negotiations resulted in the tariffs between member states being cut considerably. [↪ CHART 76 BOTTOM LEFT](#) **Tariffs** between the world’s advanced economies **have been virtually non-existent** since as far back as the early 1990s. By 1999, the average duty rate had dropped to 4.4 %. As a result, more recent free trade agreements have focused on removing **non-tariff barriers to trade** and reducing uncertainty regarding trade policy (Handley, 2014; Handley and Limão, 2015; Pierce and Schott, 2016).
640. In the 1970s and 1980s, global trade was the domain of the developed economies. In the 1990s, the **opening up of the Chinese** economy and the **fall of the Iron Curtain** resulted in a significant drive towards integration, boosting economic growth in the world’s developing countries and emerging markets. In addition to goods trade, globalisation increasingly started to cover the exchange of information and services.
641. The Internet and telecommunications revolution, coupled with the marked wage differences between rich and poor countries, prompted companies not only to shift their production sites abroad, but also to transfer knowledge at the same time in order to ensure efficient production processes. Consequently, global value chains enabled knowledge transfer and allowed poorer regions to participate in global growth (Baldwin, 2016). [↪ CHART 76 TOP RIGHT](#) The dramatic **reduction in information and cooperation costs**, which is evident, among other factors, from communication and travel expenses [↪ CHART 76 TOP LEFT](#), promoted the dissemination of knowledge that had previously only been available in the advanced economies, encouraging the development of a strong export sector in the emerging markets (Anderson et al., 2006).
642. The pace of global trade integration has slowed considerably since the **financial crisis of 2007 and 2008**. In this context, lower rates of growth in global trade are both a cause and an effect of weaker economic growth across the globe (Constantinescu et al., 2016). The stronger orientation on consumption in China [↪ ITEM 213](#) and the regional distribution of global growth both have their part to play in this trend (GCEE Annual Report 2016 box 5), as do structural factors such as changes in global value chains resulting in an increase in production in the export markets themselves (ECB, 2016) and increasing protectionist tendencies (IMF, 2016). In 2015 and 2016, WTO members adopted a total of 529 anti-dumping measures, 65 punitive duties in response to subsidies (known as

countervailing duties) and 41 protective measures to restrict trade. ↘ CHART 76 BOTTOM RIGHT Thereby the barriers to trade imposed on the EU came largely from the G20 countries (European Commission, 2016).

643. In developed countries, potential for achieving a further marked reduction in trade barriers by cutting global tariffs is today confined to certain sub-segments of the economy, such as agricultural goods. ↘ CHART 76 BOTTOM LEFT Bilateral trading costs, however, still vary considerably and can be very high, particularly in emerging markets and developing countries and in cases involving agricultural goods, amounting to up to 350 % of the domestic price of a good (“ad valorem value”) (Arvis et al., 2013). There is additional potential for trade liberalisation when it comes to **non-tariff barriers to trade**, as well as in the **service sector** and **digital trade**.
644. The term **non-tariff barriers to trade** refers to all restrictions on international trade other than tariffs. On the one hand, these can include measures aimed directly at foreign trade, such as import quotas, import bans, licensing and subsidies for domestic companies. As a result, these measures are covered by the provisions set out in the GATT and WTO agreements. On the other hand, national regulations, processes and norms can have an indirect impact in terms of restricting trade. These include, for instance, technical regulations, approval regulations, access to public-sector procurement, quality and environmental requirements, registration formalities, and packaging and administrative provisions.

Small-scale interventions can have a major impact. The different approval requirements that apply in the United States and the EU, for example, mean that motor vehicles have to be specially configured for their destination market. In automotive trading, the costs associated with non-tariff barriers to trade between the United States and the EU account for 26 % of trading costs (Berden et al., 2009). This is why **the harmonisation of standards and norms** is a focal point of new free trade agreements. It can result in a marked increase in trade.

Customs procedures also offer considerable potential. The IMF (2016), for example, estimates that a 10 % increase in the duration of customs procedures is associated with a 4 % drop in foreign sales. The OECD (2015a) estimates that better speed and efficiency of border procedures, e.g. by harmonizing and simplifying necessary trade documents or automation of controls, offer potential equating to a reduction of up to 12 % of global trading costs on average in OECD countries.

645. Depending on the definition used, **digital trade** comprises a range of goods and services (UN ESCAP, 2016):
- digital infrastructure goods such as hardware, i.e. computers and mobile phones,
 - digital infrastructure services, such as telecommunications and IT services,
 - digitalised products, such as software, books and films and

- trading supported by digital media, an area under which currently a very large number of transactions can be classified which were supported by websites or Internet-based systems. [↘ ITEMS 799 ff.](#)

Due to the difficulties involved in defining digital trade and determining when a border has been crossed, and also due to the often relatively small amounts involved, estimates for digital trade are currently based solely on corporate and customer surveys (UNCTAD, 2016). These surveys estimate that digital trade already accounts for between 8 % and 17 % of global revenue. iResearch (2016) reported that in 2016, digital trade accounted for around 19 % of Chinese export and import volumes. The growth in digital trade is expected to continue at a rapid pace in the future. Since the turn of the millennium, **growth in global data** flows has been several times higher than growth in the flow of goods and capital (McKinsey GI, 2016). At the moment, however, there are still a large number of tariff and non-tariff barriers in digital trade. These include e.g. customs duties on digital hardware and software, restrictions on Internet access and localisation requirements. The latter, for example, prevent foreign streaming services from being used in Germany.

646. Although global **service imports** grew five times faster than goods imports between 2010 and 2015, despite the considerable barriers that remain, trade in services accounts for only one-quarter of global trade, even though services account for around two-thirds of global GDP. Particularly in the transport and telecommunications industries, market entry, operating and ownership restrictions are still standing in the way of deeper integration. This applies equally to developed economies, as well as emerging markets and developing countries (IMF, World Bank, WTO, 2017).
647. Consequently, non-tariff barriers to trade, digital trade and the service sector provide considerable **scope for further liberalisation**. At the moment, however, there is more of a risk that the world will relapse into the protectionist tendencies of the 1930s. Back then, attempts to supposedly protect the domestic economy from foreign competition sparked a global scramble to implement reciprocal hikes in customs tariffs. This triggered a dramatic slump in global trade, which only served to exacerbate the Great Depression.
648. The existence of the rule-based multilateral trading system funded on the international agreements concluded under the umbrella of the WTO means that the sort of scenario witnessed back in the 1930s is less likely today. Under the WTO agreements, countries are no longer able to increase trade barriers as they wish and if they do they are facing court proceedings and the possibility of sanctions. Nevertheless, particularly in light of the protectionist tendencies that have emerged of late, there is a need for moves to protect and **strengthen the international trading system and its institutions**. In order to achieve this, measures that restrict trade should be prevented or abolished. In addition, faster procedures, more extensive sanction options and the establishment of multilateral arbitration panels and appellate bodies (GCEE Annual Report 2015 items 75 ff.) could serve to strengthen the institutional agreements. The WTO

could incorporate the measures already introduced as part of regional trade agreements, such as increased regulatory cooperation, at multilateral level.

2. The impact of trade liberalisation

649. Many of the relocations of production sites and shifts in the flows of goods and capital observed in the past can be explained by **old and new trade theories**. On the one hand, these explain the economic gains and growth processes resulting from an increase in the cross-border exchange of goods. On the other hand, they illustrate the distribution effects and adjustment processes that may come hand-in-hand with such developments.
650. Most of the advantages associated with the international exchange of goods apply irrespective of how developed an economy is and, in particular, arise even if one of the trading partners is less productive, in absolute terms, than the other in the production of all goods. **Trade is not a zero sum game** in which a country wins by exporting more than its trading partner, who loses in turn. International trade leads to welfare gains via various channels.

Specialisation and the division of labour allow production factors to be used more efficiently. This results in **higher individual and macroeconomic productivity**, increasing overall welfare in the process. Adam Smith (1776) and David Ricardo (1817) already demonstrated how the international division of labour, the opportunities that it creates for countries to specialise and the international trade required as part of this process boost the welfare of all trading partners.

651. Costinot and Donaldson (2012), who analysed productivity data for 55 countries in the agricultural sector, provide recent evidence to back up these theories. They observed which types of crop were cultivated on agricultural land in these countries. The evidence shows that the model propagated by Ricardo provides a good explanation for these cultivation decisions. Central are the **comparative advantages** due to higher productivity, which emerges because of the available input factors, such as water, soil or climatic conditions,. Hanson (2012) also shows that the traditional models are able to explain past changes in trading patterns between developed and developing countries.
652. Even when productivity is identical, trade can result in welfare gains for the countries involved if there are differences in the relative abundance of production factors (Heckscher-Ohlin model). The question as to how countries specialise in this model after opening themselves up to trade depends on the **relative abundance of comparatively immobile factors**, such as natural resources and employees. A country specialises in the production of those goods that make more intensive use of the factor that is more abundant in relative terms. This reduces the price of the production factor that is less abundant in relative terms, which is therefore at a disadvantage as a result of trade opening.
653. More recent studies prove the **empirical relevance** of this model (Romalis, 2004; Chor, 2010; Wood, 2017). Regions that have more soil in relation to

human capital, for example, export the more soil-intensive primary goods. [↘ CHART 77 LEFT](#) If a region's population is better educated, it tends to have a larger export share of industrial goods that require better qualified human capital. If countries have greater human capital in relation to soil resources, production, expressed as a percentage of GDP, is more tilted towards the manufacturing industry than the primary sector. [↘ CHART 77 RIGHT](#)

Historical analyses show that **factor-price equalisation**, a central concept in the Heckscher-Ohlin model, is one of the main reasons behind the convergence in real wages between the western European countries and the majority of the peripheral countries between 1870 and 1914 (O'Rourke et al., 1992; Williamson, 1996).

654. **Product differentiation** and **increasing economies of scale** mean that specialisation and trade pay off even when there are no comparative advantages or differences in factor endowment. As exporting companies become more productive, average costs and sale prices fall, forcing companies that are no longer productive enough off the market. This boosts overall productivity and aggregate welfare (Bernard et al., 2006; Helpman, 1981; Krugman, 1980, 1979; Melitz, 2003; Melitz and Ottaviano, 2008).

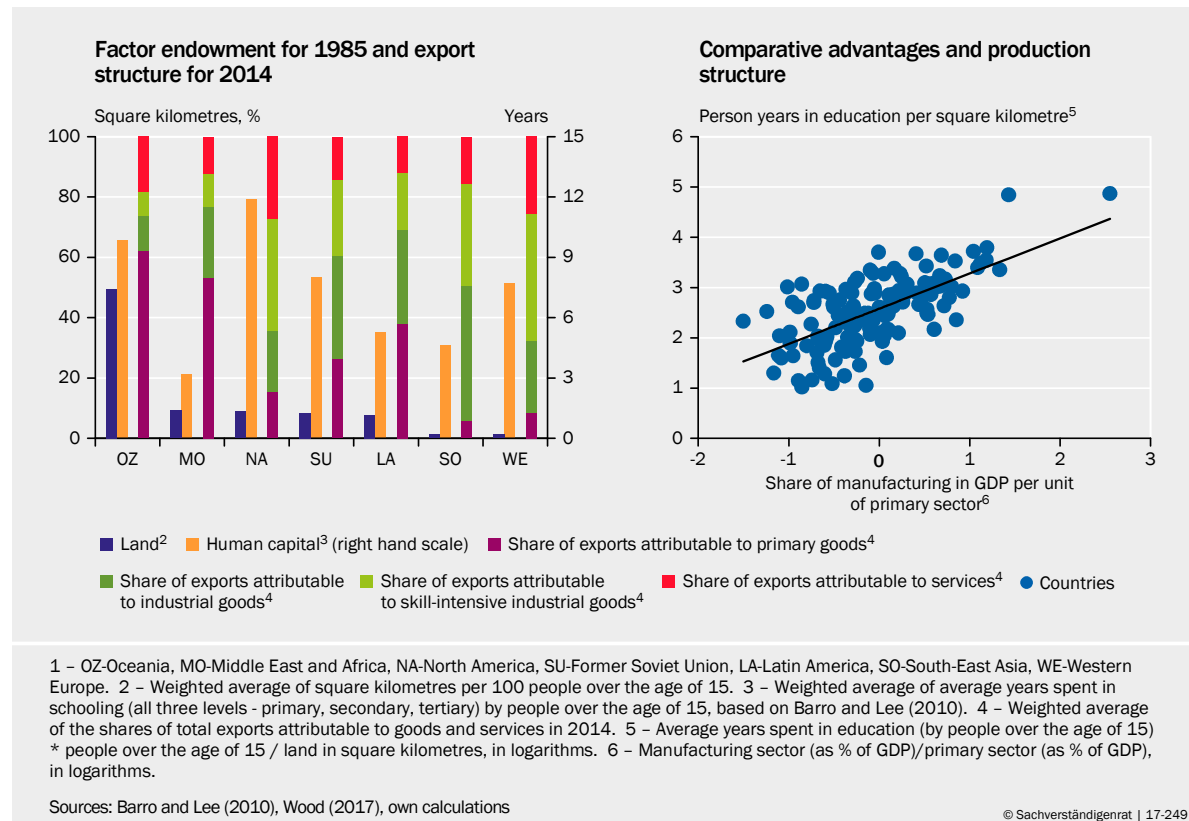
Companies faced with more competition from abroad focus on their core competencies, thereby increasing productivity (Bernard et al., 2011). In addition, companies that participate in global trade have the opportunity to learn from foreign companies, allowing them to enhance the quality of their products (Atkin et al., 2014; De Loecker, 2013). As dynamic effects like these are difficult to show empirically, they are often overlooked in the public debate.

655. Greater market access produces incentives for investing in new technology (Bustos, 2011; Lileeva and Trefler, 2010), stimulating **innovation and spending on research and development** (Bloom et al., 2016). Moreover, international trade increases the number of more cost-effective and higher-quality inputs available in the production process (Grossman and Helpman, 1991; Rivera-Batiz and Romer, 1991). Better or less expensive intermediate products also have an effect on productivity (Amiti and Konings, 2007; Erdem and Tybout, 2003; Pavenik, 2002; Topalova and Khandelwal, 2011).
656. The **welfare gains** made possible by the growing international exchange of goods and services, however, require a considerable willingness for structural change. This is reflected in the main models of trade theory. In the Ricardo model, for example, workers have to move from one economic sector to another or, in the Melitz model, from unproductive to productive companies.

The Stolper-Samuelson theorem, which is based on the Heckscher-Ohlin model, shows that international trade can produce **winners and losers**. After all, the relative demand for skilled and unskilled workers changes in the individual countries, which is linked to corresponding adjustments in real wages. So while globalisation has positive effects at macroeconomic level, it can, like all economic adjustment processes, result in losses at an individual level, for example due to technological change or shifts in consumer preferences. The

↘ CHART 77

Factor endowment, comparative advantages and exports¹



following aspects play a key role in determining the welfare of the lower income groups:

- the increase in general welfare associated with trade liberalisation,
- the extent to which the social security systems supplement low market incomes and
- the extent to which suitable economic policy measures are taken to cushion the blow of transition processes. ↘ ITEMS 683 FF.

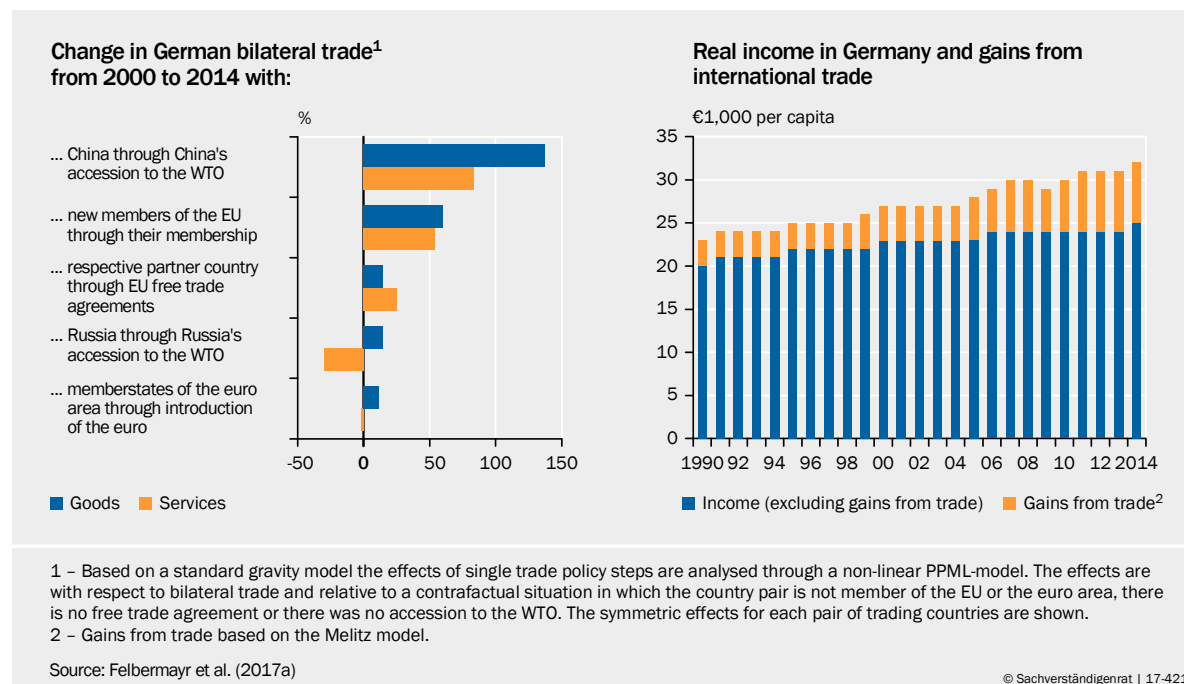
3. Quantification of the welfare effects of trade liberalisation and protectionism

657. Empirical studies show a **positive link between trade openness and per capita incomes** (Romer and Frankel, 1999; Feyrer, 2009; Estevaderodal and Taylor, 2013). This is consistent with the hypotheses of the foreign trade theories, which claim that trade liberalisation generates economic growth by boosting productivity (IMF, World Bank, WTO, 2017). The GCEE commissioned an expertise to quantify the effects that the international movement of goods and services and certain trade policy measures have on Germany (Felbermayr et al., 2017a).

658. In general, the international division of labour has been increasing at an impressive rate in Germany since the 1990s. Exports and imports, for example,

▾ **ABBILDUNG 78**

Estimated effects of trade policy liberalisation



each accounted for only 24 % of German GDP in 1991, a share that had increased to 46 % and 38 % respectively by 2016. Various **trade policy measures** made a significant contribution to this development (Felbermayr et al., 2017a). The EU membership of both countries of a country pair, for example, was associated with a 60 % higher bilateral trade in goods and a 75 % higher trade in services in the period from 2000 to 2014. [▾ CHART 78 LEFT](#)

Free trade agreements and the **WTO** have been particularly significant. In Germany, free trade agreements (outside of the EU) are associated with a 15 % higher trade in goods between 2000 and 2014, while trade in services was higher by 26 %. In 2016, 164 countries were member states of the WTO, meaning that the organisation's rules cover 99 % of global GDP. China joined the WTO in 2001. Between 2000 and 2014, global trade in goods increased by 85 %, with trade in services growing by 53 %. Germany reaped above-average benefits from this trend, with German-Chinese trade in goods swelling by 137 % (Felbermayr et al., 2017a). [▾ CHART 78 LEFT](#)

659. The impact of the trade effects **vary considerably from sector to sector**. The effect that the EU had on German trade in chemical and pharmaceutical products, for example, was particularly pronounced, equating to an increase of 106 %. The trade growth resulting from other free trade agreements and China's accession to the WTO was the highest in the sector responsible for automotive manufacture and other means of transport, coming in at 71 % and 378 % respectively. As for services, the wholesale sector witnessed the highest growth resulting from trade liberalisation.
660. But the impact on trading volumes only reflects some of the effects from increased globalisation. Other effects are produced by trade diversion, trade creation due to growth effects or third-party trade policy. This is why

Felbermayr et al. (2017a) use a **general equilibrium model** from the new quantitative foreign trade model category (Arkolakis et al., 2012; Costinot and Rodríguez-Clare, 2014), which is based on international input-output tables, to estimate the welfare effects. This data initially shows that the share of value added in Germany attributable to goods and services exports, expressed in relation to total value added, rose from 24 % in 2000 to 32 % in 2014.

661. The estimates based on the Melitz model put real incomes per inhabitant in Germany in 2014 22 % higher, and real consumption per inhabitant 13 % higher, than in a **hypothetical autocracy scenario** (Felbermayr et al., 2017a). Whereas real trading gains amounted to around €3,000 per capita back in 1990, the same figure had increased to around €7,000 by 2014. This means that the contribution by deeper international integration to real per capita income growth came to around 45 %. [↪ CHART 4 RIGHT](#) Given the static nature of the models used, the estimates shown rather represent a floor of the effects.

The effects are particularly pronounced for economies that are more open than average, and for those that are still in a relatively early stage of trade liberalisation. For example, the welfare effects generated by trade, in terms of per capita income, compared to 2014 were more than twice as high for Belgium, China, Hungary, Ireland, the Czech Republic and Estonia than they were for Germany (Felbermayr et al., 2017a). Nevertheless, the **advantages for Germany** are very high compared with economies of a similar size but less open. The impact on per capita consumption, on the other hand, is merely average due to Germany's high export surplus.

[↪ BOX 19](#)

Effects of a hike in customs tariffs in the United States

The new US President Trump has emphasised, particularly during the election campaign, that he wants to restrict free trade in goods and take **protectionist measures** to safeguard the US economy. After nine months, however, it is still unclear whether and how the United States' trade policy will actually change as a result. Although the President has commissioned a review of laws, trading practices and trade in various sectors of the economy, called for the more stringent application of existing trading restrictions and had statements against protectionist measures removed from the final communiqué of the G20 summit in Hamburg, the only specific measures taken by the government to date include the imposition of duty of up to 24 % on softwood imports from Canada, an increase in the number of anti-dumping and punitive duty proceedings, for example against the Canadian aircraft manufacturer Bombardier, and restrictions on trade with Cuba and North Korea. By contrast, it has opened trade further, for example in agricultural products, particularly meat and rice, with China.

The biggest changes in the US stance to date can be seen in the context of **regional free trade agreements**. These moves, however, have more of a negative impact on additional future trade liberalisation than on the status quo. For instance, the United States withdrew from the Trans-Pacific Partnership (TPP), shelved the TTIP negotiations with the EU temporarily and kicked off a process for the renegotiation of the North American Free Trade Agreement (NAFTA) with Canada and Mexico.

It is, however, impossible to rule out a situation in which the United States takes further-reaching protectionist measures after completing its review of various trading laws. Felbermayr et al. (2017b)

use a similar model to that used in the Felbermayr et al. (2017a) expertise to investigate the **effects of the introduction of customs tariffs** in the United States and the rest of the world.

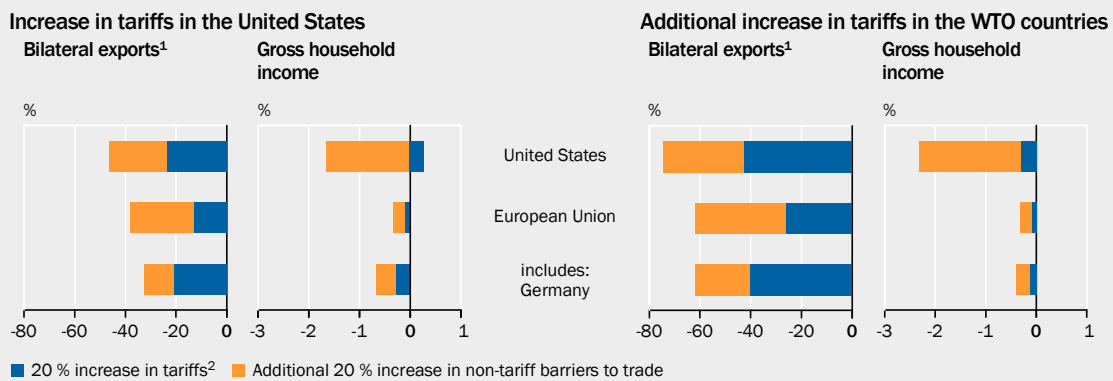
If the United States were to unilaterally increase their customs tariffs and non-tariff barriers to trade by 20 % in each case, this would have a **significant negative impact on the exports of the United States and the member states of the EU**, including, first and foremost, Germany. [↘ CHART 79 LEFT](#) If we take real household income as a measure of overall welfare, the United States would make slight gains by increasing its customs tariffs. This is due to the size and global relevance of the US market, and to the improvement in the terms of trade and customs revenue resulting from the higher customs tariffs. Canada and Mexico would sustain the greatest losses.

However, this sort of unilateral 20 % hike in customs duties across all product categories would not be permitted under the WTO rules. During the GATT/WTO negotiations, the participants agreed on maximum customs tariffs per product category (bound tariffs). Once again, the **WTO's most-favoured-nation principle** applies, meaning that there can only be one maximum customs tariff per product for each country, which then has to be applied to all countries. The majority of the customs duties currently in force in the United States are already on a par with these maximum tariffs (Felbermayr et al., 2017b). This means that the WTO rules only allow very little leeway for hikes in customs duties.

If the United States were to break the **WTO rules**, the other member states could also **hike both their customs duties** and their non-tariff barriers to trade against the United States **in return**. Such a process, known as tariff echoing, has been witnessed several times in the past. If a country increases the customs duty on a particular product, then it is very likely that one or more other countries will raise their customs duties for the same product category (Tabakis and Zanardi, 2017). This would be the worst scenario for the United States. [↘ CHART 79 RIGHT](#) But even if some countries were able to reduce their economic losses using this type of tactic, the **effects would not be positive for any country**. This is because many countries have strong links with the United States. In addition, no country in this scenario would appear to have comparative advantages capable of producing a positive effect via trade diversion (Felbermayr et al., 2017b).

[↘ CHART 79](#)

Effects of barriers to trade on bilateral exports and on real gross household income



1 - For the United States: Weighted average change in bilateral exports from the United States to all trading partners; for Germany and the European Union: Change in bilateral imports into the United States from Germany and the 28 member states of the European Union respectively. 2 - Increase across all product lines as against the prevailing tariff level.

Source: Felbermayr et al. (2017b)

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All in all, the unilateral introduction of protectionist measures by the United States would have a negative impact worldwide. The United States would be the hardest hit, especially if other countries ended up retaliating. Deutsche Bundesbank (2017) has estimated, using the NiGEM model and a New Keynesian DSGE model, that the effects would actually be even more pronounced. If the United States were, in fact, to plan the introduction of new or higher customs duties, measures would primarily have to be taken to prevent a **global trade war**. A hike in customs tariffs and moves by the

rest of the world to do the same would have a negative impact for all of the countries involved. This is why the utmost aim must be to guard against protectionist measures.

If the United States increased its customs duties to a level that exceeds the maximum tariffs set, the other members would be able to have recourse to the WTO Dispute Settlement Body. The Dispute Settlement Body could grant them the right to retaliate by also increasing the customs duties they impose on the United States or to claim compensation from the latter. Customs duties imposed on the other members would remain unaffected. This would, however, produce a **paradox situation** in which additional restrictions would be imposed on free trade to defend free trade.

662. **Significant welfare losses** would result not only in comparison with a hypothetical autocracy scenario, but also in a scenario in which the liberalisation measures taken since 1990s were reversed. If all of these measures were reversed, this could result in a 5.3 % decline in total welfare in Germany. EU integration plays a particularly decisive role in this regard (Felbermayr et al., 2017a). All in all, at least one quarter of trading gains since 1990 can be traced back to specific bilateral or regional trade policy measures. However, because of the design of the study of Felbermayr et al. (2017a), these estimates do not even account for multilateral steps, such as the establishment of the WTO, or unilateral steps, such as unilateral moves to slash customs duties.
663. Consequently, **welfare effects** of international trade are **highly significant compared with an autocratic situation**. By contrast, individual steps towards integration, such as the conclusion of a free trade agreement or the introduction of unilateral customs tariffs, have relatively little impact - at least in the model calculations. ↘ [BOX 19](#) Nonetheless, the negative impact of trade wars or reciprocal protectionist measures between countries would likely be considerable.
664. A further liberalisation of global trade, on the other hand, holds the promise of positive growth effects. At the moment, **free trade agreements** cover only one quarter of global GDP. ↘ [CHART 76 BOTTOM RIGHT](#) This means that there is still considerable scope for expanding global trade liberalisation. Free trade agreements could play a key role, particularly in times of heightened uncertainty regarding global trade policy and fears of protectionist intervention. The conclusion of further free trade agreements, for example by continuing the negotiations with the United States (GCEE Annual Report 2014 items 66 ff.), Japan, India or the Mercosur, or negotiating with new partners such as China or Australia, could open up new trading opportunities for the EU.

III. DISAGGREGATE EFFECTS OF TRADE

665. At macroeconomic level, trade liberalisation is advantageous to all of the partners involved and results in macroeconomic gains. [↘ ITEMS 649 FF.](#) At **disaggregate level**, i.e. for regions, sectors or certain groups of workers and private households, however, the effects can vary considerably. The section below starts by looking at the corporate level. The effects on workers and households are then analysed from three angles: the quantity and regional distribution of jobs, the incomes and the consumption opportunities.

1. Companies active in foreign trade are more productive

666. Companies that participate in international trade are generally part of global **value chains**. They are characterised by higher productivity growth, a wider variety of goods to be exported and a high proportion of complex goods (Kowalski et al., 2015). In addition, companies that are well integrated into the global value chains benefit more from technological spillover effects.

667. Nowadays, global value chains play a key role in goods production. Many goods would now be hard to manufacture without international trade. More than 50 % of all imports into Germany are intermediate products destined for further processing. Many of these **imported products** already contain **components originating from the country they are being imported into**. For example, 12 % of all German imports from Hungary contain intermediate products from Germany (OECD, 2017). For imports into the United States from Mexico, this share is as high as 40 % (Koopman et al., 2010).

668. In Germany, only 10.8 % of all companies have an export or import intensity of more than 5 % (Kaus and Leppert, 2017). These companies tend to be found in the manufacturing and wholesale and retail trade sectors. [↘ CHART 80](#) The **companies with significant foreign trade activities** account for a disproportionately large share of gross value added and employment. [↘ CHART 80](#) Companies that are exporters, importers and part of a corporate group are responsible for by far the biggest shares. For example, there are 4,700 of these companies in the manufacturing and wholesale and retail trade sectors. Although they make up only 0.2 % of all economically active companies in Germany, they were responsible for 55 % of imports and 70 % of exports in 2013 (Kaus and Leppert, 2017). According to another expertise commissioned by the GCEE, Germany's **exporting companies** have the following special features (Görg and Hanley, 2017):

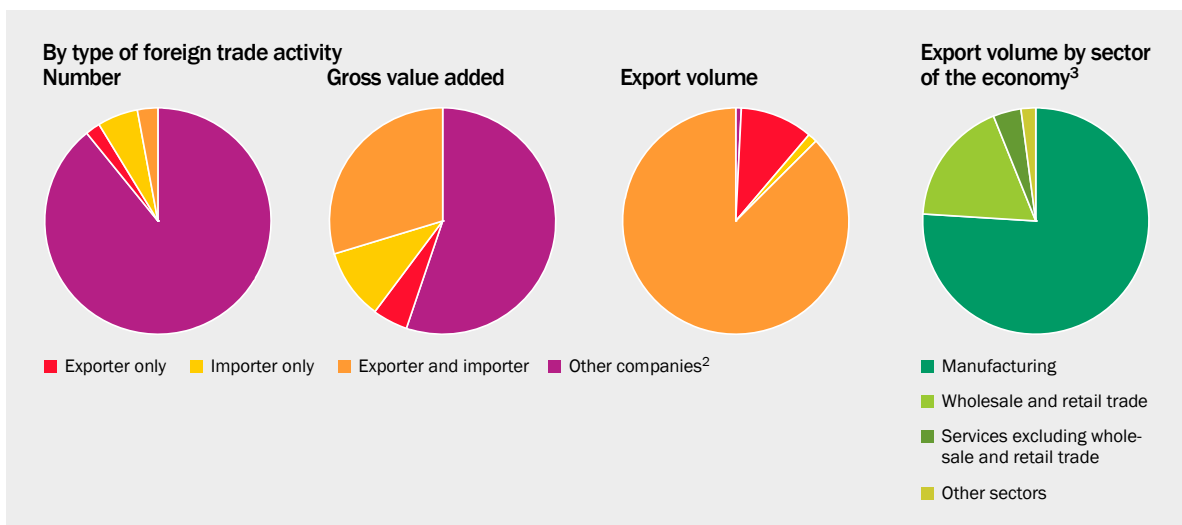
- They are on average 50 % **more productive** than non-exporting companies. There are two channels that might be responsible for this: firstly, only particularly productive and profitable companies can bear the costs associated with exports (Clerides et al., 1998; Melitz, 2003). Secondly, the

foreign markets create potential for generating economies of scale and have positive “learning-by-exporting” effects on productivity (Wagner, 2007). The literature usually points to learning effects resulting from interaction with foreign buyers, improvements in product quality, learning effects relating to logistics or investments in marketing or technology (De Loecker, 2013).

- Exporters are **more innovative**, particularly in the group comprising small and medium-sized enterprises. Access to larger export markets makes innovation and technological adaptation more profitable for companies (Yeaple, 2005; Bustos, 2011).
 - Exporters pay **wages** that are 40 % **higher**, with an even bigger gap in the SME segment compared with large companies. This result can be found in a large number of studies (Black and Brainerd, 2004; Schank et al., 2007; Frías et al., 2009; Klein et al., 2010; CEA, 2015). Wage policy institutions also play a role in this regard. Felbermayr et al.(2016) for example, show that export-oriented companies bound by collective pay scale agreements pay lower wages than companies that are not bound by such agreements.
669. However, **identifying the causal mechanisms** that lead to the observed better performance of exporting companies proves to be difficult. The literature does not provide any definitive answer to the question of whether the differences observed between exporting and non-exporting companies relate to causal effects of export activity on the characteristics of the companies concerned, or whether only companies with certain characteristics opt to engage in export activity (Fryges and Wagner, 2010; Hansen and Nielsen, 2010; Görg and Hanley, 2017).
670. Importers accounted for 8.7 % of companies in 2013, a much higher share than the 5.0 % accounted for by exporters (Kaus and Leppert, 2017). However, the characteristics that apply to **importing companies** are similar to those that

▸ ABBILDUNG 80

Foreign trade activity of German companies in 2013¹



1 – Shares of all commercially active companies in Germany. 2 – Includes all companies whose export intensity (exports divided by revenue) and import intensity (imports divided by goods and services purchases) is less than 5 %. This includes companies that do not participate in foreign trade at all, as well as occasional traders. 3 – Classification of Economic Activities, Edition 2008.

Source: Kaus and Leppert (2017)

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apply to exporting companies (Görg and Hanley, 2017). They also tend to be more productive, more innovative and to pay higher wages. Once again, this could, for one thing, be because of the additional costs associated with imports, which can only be borne by the more productive companies. For another, importers reap benefits from higher-quality input and lower prices.

671. Only 3.5 % of German companies are majority foreign-owned, while 7 % have (shares in) foreign subsidiaries (Görg and Hanley, 2017). These companies, however, are responsible for a large proportion of total exports and imports (Kaus and Leppert, 2017). These **multinational companies** are also particularly productive. Empirical studies have consistently found that multinational companies do not have any negative effects on the domestic labour market. Investing abroad allows companies to boost their international competitive standing, which is associated with positive effects for the domestic market (Görg and Hanley, 2017).

Stiebale and Reize (2011) and Stiebale (2016), however, point to a potential disadvantage associated with foreign takeovers of domestic companies. Research and development activities are often shifted to the parent company's country, which can have an adverse effect on the capacity for innovation and on employment in the research and development sector on the domestic market.

672. The fact that the companies participating in foreign trade are more productive makes the competition more intense. Companies that only produce for the local market are forced off the market (Melitz, 2003). Similar effects are produced by companies with foreign owners or subsidiaries abroad. This means that, all in all, foreign trade results in **higher productivity, more innovation and higher wages**.
673. The more intense competition associated with international trade therefore requires companies to be highly **competitive** and productive. Those companies that were already more successful before foreign trade was opened up generally find it easier to adapt to the increased competition created by imports, and to exploit the opportunities arising due to new potential for exports (Harrison and Rodriguez-Clare, 2010; De Loecker and Goldberg, 2014; Melitz and Redding, 2014).

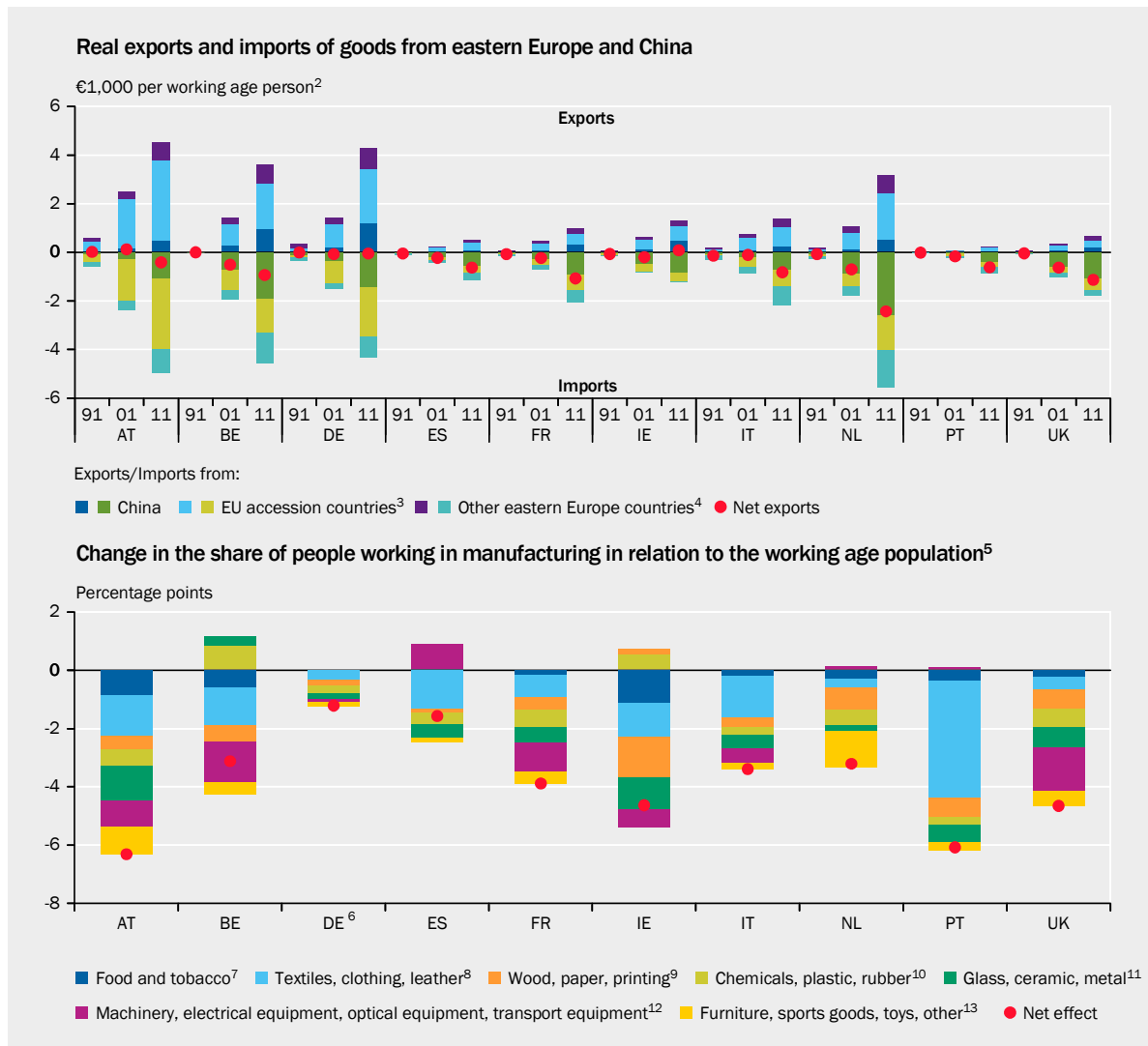
This means that the **overall institutional framework and attractiveness as a location for business** play a key role in determining the impact of trade liberalisation on companies and their employees. These include, in particular, a competitive tax system, effective public administration, an efficient legal system, state-of-the-art infrastructure, well trained and motivated employees and a reliable and affordable energy supply.

2. Heterogenous Effects on regional and sectoral employment

674. Imports from China and eastern Europe have increased dramatically over the last 25 years. [↪ CHART 81 TOP](#) In political debate, this trend is repeatedly held responsible for the **decline in manufacturing employment in developed economies** and the resulting social challenges. [↪ CHART 81 BOTTOM](#) The manufacturing share in total real value added has remained more or less the

↪ ABBILDUNG 81

Change in net exports and employment in manufacturing in selected member states of the European Union from 1991 to 2011¹



1 – AT-Austria, BE-Belgium, DE-Germany, ES-Spain, FR-France, IE-Ireland, IT-Italy, NL-Netherlands, PT-Portugal, UK-United Kingdom. 2 – Data on working age population, import and export deflator and US dollar/euro exchange rate from Eurostat. 3 – Bulgaria, Estonia, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, Czech Republic, Hungary. 4 – Definition based on Dauth et al. (2014): Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan. 5 – Periods may vary slightly: 1990-2010 for FR; 1991-2011 for AT, BE, ES, IE, IT, PT, UK; 1993-2013 for DE, NL. Conversion of former NACE classifications based on correspondence tables (Eberle et al., 2014). Data for Germany from SIAB data the IAB, for other countries based on census data of national statistical offices. 6 – Includes only employees subject to social insurance contribution and recipients of benefits. 7 – Manufacture of food products, beverages and tobacco products. 8 – Manufacture of textiles, wearing apparel, leather and leather related products. 9 – Manufacture of wood and of product of wood and cork, manufacture of paper and paper products, publishing and printing. 10 – Manufacture of coke and refined petroleum products, nuclear fuel, manufacture of chemical products, manufacture of rubber and plastic products. 11 – Manufacture of other non-metallic mineral products, metal production and processing, manufacture of fabricated metal products. 12 – General mechanical engineering, manufacture of office machinery and computers, manufacture of electrical and optical equipment and manufacture of transports equipment. 13 – Manufacture of furniture manufacturing n.e.c..

Sources: Eurostat, national statistical offices, SIAB 7514, UN ComTrade, own calculations

same worldwide since 1970 (Haraguchi et al., 2017). The proportion of employment attributable to this sector, however, has decreased across the globe (Haraguchi, 2015). This applies not least to Europe. [↘ CHART 81 BOTTOM](#) This means that the drop in employment in the developed economies probably cannot be explained exclusively by a shift in jobs from industrialised nations to developing countries. It is probably attributable, to a significant degree, to other factors, in particular to technological progress.

675. A large number of studies have discussed the reasons behind the decline in industrial employment. The biggest part of this development is attributed to **technological change and changes in consumer preferences**, while only around one fifth can be explained by effects relating to international trade (OECD, 2017). The effect resulting from technological progress, for example, relates to the increased use of robots or 3D-printers. Changes in consumer preferences are evident, for example, from the shift from printed media to digital media, and the increasing trend towards shared vehicle use.
676. As regions typically specialise in certain products and economic sectors, the effects of international trade show a high level of **regional concentration**. The drop in employment in the manufacturing sector in western Europe, for example, is spread very unevenly among the various regions [↘ CHART 82](#) and economic sectors [↘ CHART 81 BOTTOM](#). In 78 % of the approximately 1,100 western European NUTS-3 regions, the proportion of people working in the manufacturing sector compared with the working population as a whole fell between 1991 and 2011; it only dropped by more than 10 percentage points in 3 % of these regions. The average decline across all regions was 2.5 percentage points.

Impact of the opening of China and eastern Europe to trade

677. Many of the studies on the economic effects of exports and imports from China and eastern Europe are based on Autor et al. (2013, 2014, 2016). They use the exogenous variation in the supply shock in China which results from the opening up to trade to investigate the **causal effects of an increase in imports from China** into the United States. The results show that, in the period from 1990 to 2007, the regions that witnessed a significantly more pronounced drop in the proportion of employment in the manufacturing sector were those regions that were home to branches of industry with a higher exposure to Chinese imports (change in import exposure). According to Autor et al. (2013), an exogenous increase in import exposure of US\$1,000 per employee over a period of 10 years results in a 0.6 percentage point decline in the proportion of employment in the manufacturing sector to working population over the same period.



Autor et al. (2013) calculate a region's change in **import exposure** as follows. First of all, the proportion of workers in a particular economic sector in each region is calculated in relation to overall national employment in this sector. This shows which sectors of the economy are strongly represented in the region in question in relative terms. This weighting

is then used to distribute the change in national imports per worker for the products attributable to each manufacturing sector among the individual regions. Consequently, the resulting change in import exposure shows how much imports in the sectors strongly represented in a particular region have changed. Change in **export exposure**, on the other hand, relates to change in exports in a particular sector.

678. Similar results emerge for the United States in relation to the increased low wage competition during the 1990s (Pierce and Schott, 2016), and for Canada as a result of the free trade agreement between Canada and the United States (Trefler, 2004). Nevertheless, these results only reflect a partial effect. Trade liberalisation with China had **positive welfare effects overall** for the United States, and the job losses were more than compensated for in other sectors of the economy (Caliendo et al., 2015; Handley and Limão, 2015; Amiti et al., 2017).
679. Dauth et al. (2014) use the same econometric method as Autor et al. (2013) and analyse the effects of increased imports and exports for **Germany** in the period from 1988 to 2008. They look not only at foreign trade with China, but also at trading activity with eastern Europe, which is important both to Western Europe and Germany. Like Autor et al. (2013), their study finds a negative effect on manufacturing sector employment and on regions with a higher import exposure. In Germany, however, they also find a significant **positive effect from increased export exposure**. This effect amounts to 0.4 percentage points of the share of employment in the manufacturing sector at regional level.

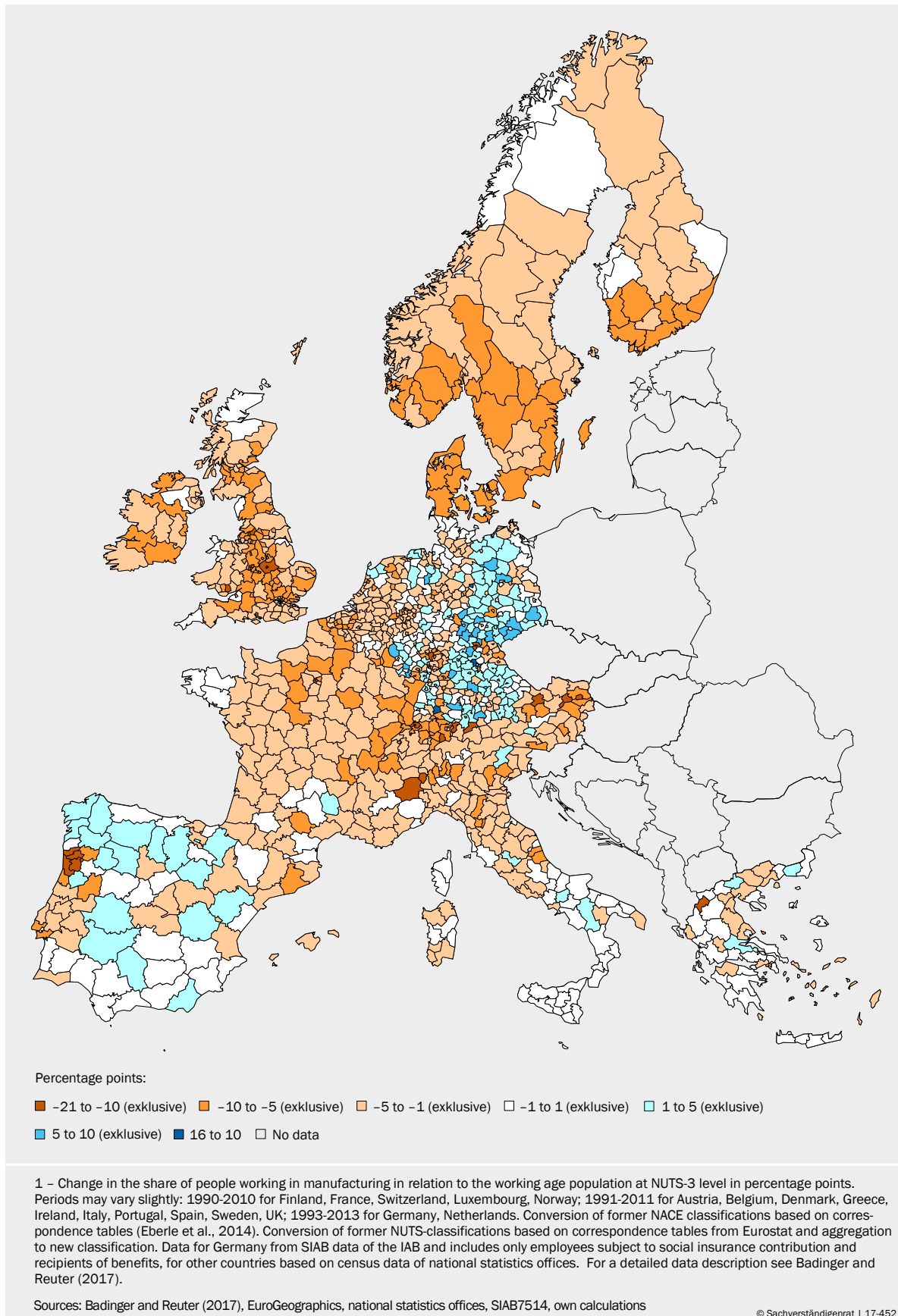
Overall, Dauth et al. (2014) conclude that the increased trade with China and Eastern Europe has created 442,000 additional manufacturing jobs in Germany. This is in stark contrast to the results for the United States, where Autor et al. (2013) calculated a decline of more than 1.5 million jobs as a result of trade with China.

680. Economic sectors in **western European regions** have been very differently affected by the increase in competition from imports (change in import exposure) and the opportunities offered by exports (change in export exposure). [↪ CHART 83](#) A change in net export exposure (i.e. the difference between the change in export and import exposure) of between €–4,000 and €4,000 per worker was seen in almost two-thirds of the regions during this period. In Germany, however, the change in export exposure outweighs the change in import exposure in almost all regions, [↪ CHART 88 APPENDIX 375](#) of the 402 German regions show a positive value.

Due to their regional industrial structure, in all of western Europe regions such as Basel in Switzerland, Groningen in the Netherlands and Altötting and Leverkusen in Germany had the best opportunities to increase exports to China and eastern Europe. Other regions by contrast, such as Limburg in Belgium, Hedmark and Oppland in Norway and South West England, were more severely affected by import competition given the structure of their industry. In general, the change in net export exposure is very unevenly distributed across European countries. [↪ CHART 83](#)

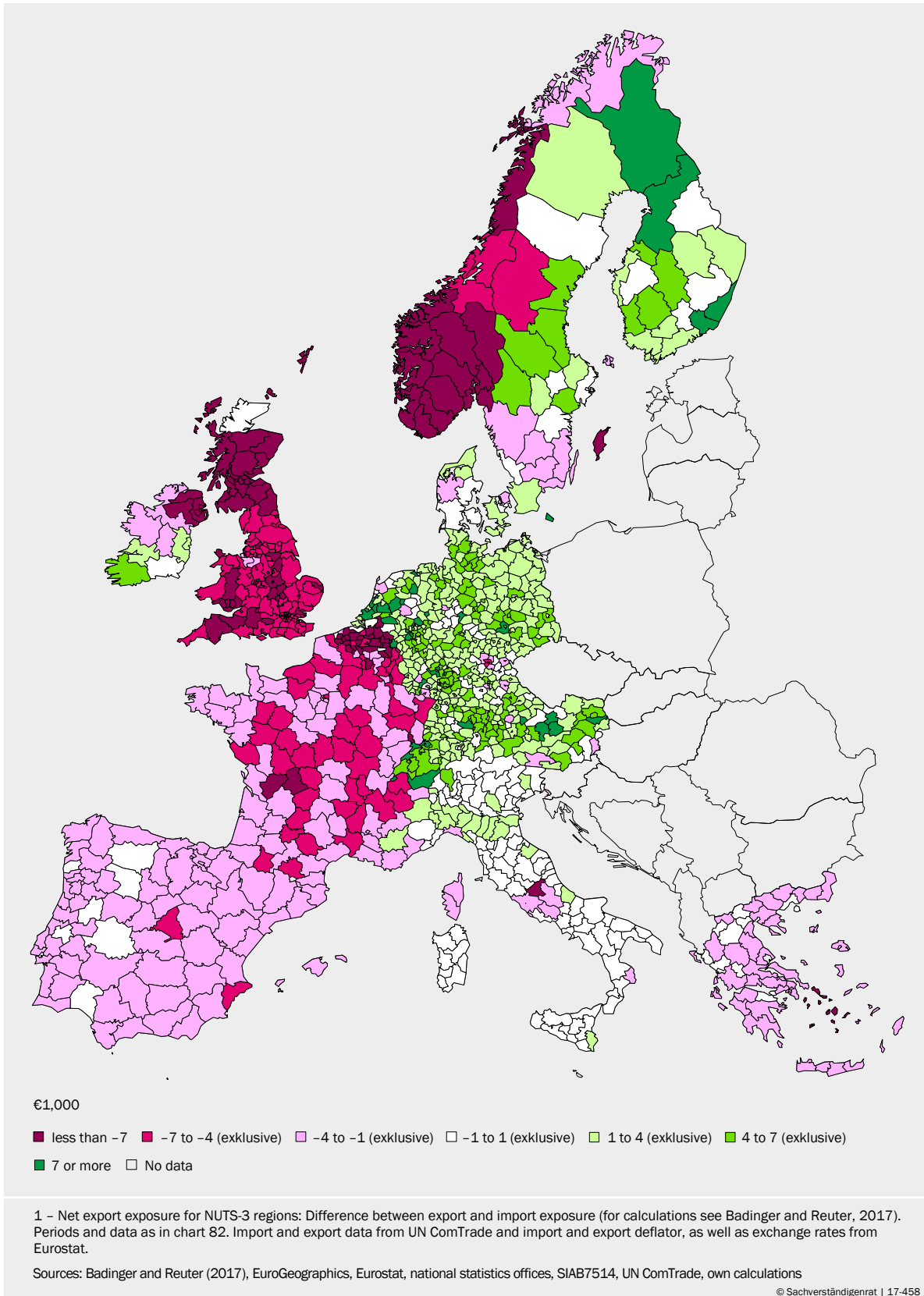
▾ CHART 82

Change in the share of people working in manufacturing in relation to the working age population from 1991 to 2011¹



▾ CHART 83

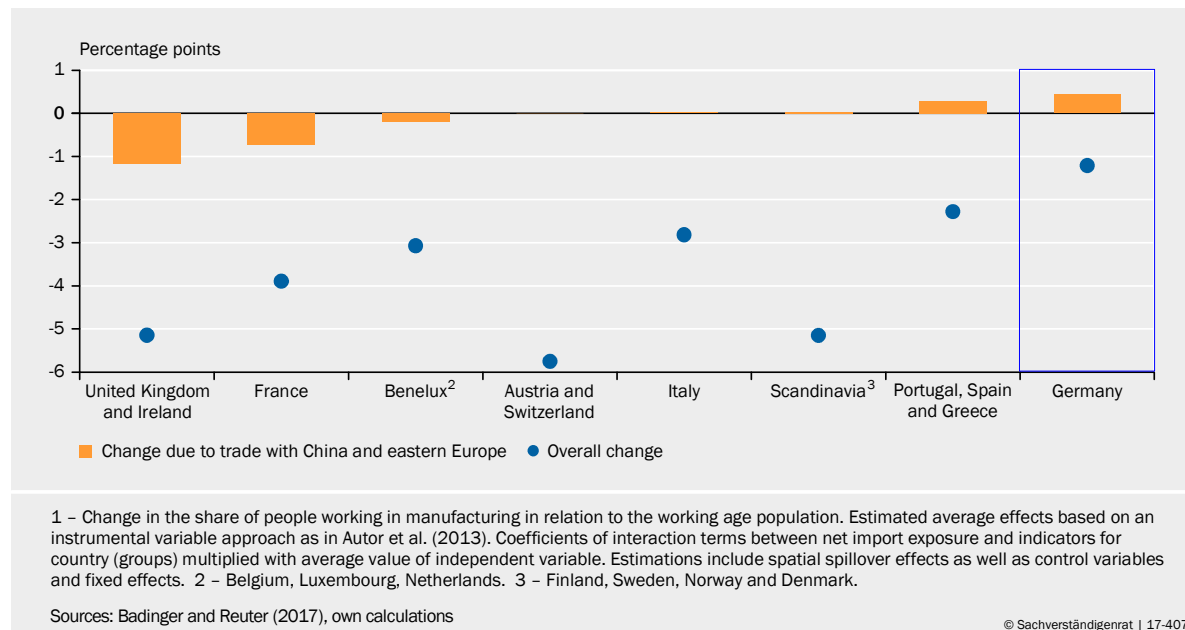
Change in net export exposure from China and eastern Europe from 1991 to 2011¹



↘ CHART 84

Estimated change in the share of people working in manufacturing¹

Change from 1991 to 2011 due to trade with China and eastern Europe



681. Estimates based on data from western Europe show that, given this **highly heterogeneous distribution**, it is only possible to draw limited general conclusions. On the one hand, generally the negative effect of increased export exposure with China on the manufacturing employment share, as in Autor et al. (2013), and the positive effect of exports to Eastern Europe, as in Dauth et al. (2014), can be confirmed. On the other hand, in contrast to previous studies Badinger and Reuter (2017) analyse the adjustment processes in more than one country. Large differences arise in relation to the effects of trade with China and Eastern Europe arise, depending on the country and country group. ↘ CHART 84

While the manufacturing employment share decreased due to the increased trade in France and the group United Kingdom and Ireland, the share increased in Germany and the group Portugal, Spain and Greece. This suggests that some countries were **better able to take advantage of the opportunities** arising from globalisation. It is also evident that increased trade with China and eastern Europe can only explain a small part of the decline in manufacturing employment.

682. One reason for this heterogenous result could be that the individual countries participate very differently in international trade ↘ CHARTS 81 TOP AND 83. Moreover, regions in different countries respond very differently to the same changes in imports and exports. Hereby, **Germany** seems indeed to be in a **special position**, especially with respect to trade with Eastern Europe.

Adjustment processes in the labour market

683. Estimates show that the effects of increased trade with China and Eastern Europe were not homogenous on the regional level. This may be because the advantages of globalisation can only be realised if the workforce is prepared to face up to the associated structural change. Frictions preventing workers from

moving between companies, sectors and regions may have contributed to the uneven regional effects of opening up trade with China and Eastern Europe. Political and institutional frameworks play an important role here. Rodrik et al. (2004), for instance, show that the benefits of trade openness depend on the **quality of a country's institutions**.

684. **An efficient adaptation** to the employment effects triggered by globalisation requires **high mobility** of workers between companies (intrasectoral mobility), sectors (inter-sectoral mobility) and regions (inter-regional mobility). Insufficient mobility not only prevents positive trade effects from unfolding but can even exacerbate negative effects. In the case of Brazil, for example, Dix-Carneiro and Kovak (2017) show that insufficient regional mobility among workers and a delayed capital adjustment have intensified the negative impact of an initial trade shock over time and are largely responsible for the long-term negative effects.

Some studies also show that after a major trade liberalisation, **effects can be highly concentrated at local level**, particularly in the short term, as a result of insufficient mobility of workers (Goldberg and Pavcnik, 2007; Topalova, 2010; McCaig and Pavcnik, 2014). Long-term, this local concentration is overcome, though not until considerable time has elapsed (Ashournia, 2017).

685. If jobs are lost because more productive companies force out less productive ones, affected workers can attempt to move to the more productive exporting companies within the same sector (**intrasectoral mobility**). If entire sectors move abroad, workers must look outside their sector for jobs in other parts of the economy (**inter-sectoral mobility**). A transition analysis of sectoral mobility shows how many people in Germany moved to another sector within three years of their employment being terminated. [↘ TABLE 27](#) This approach means that, unlike for example in Dauth et al. (2017), periods of short-term unemployment are not reported. The transition from one sector to another is therefore more clearly visible.
686. The transition analysis shows that most people whose job in an economic sector affected by **import competition** was terminated were able to find a new job in the same sector, though this trend declined over time. In the period from 1993 to 2003, 64.9 % of people employed in these industries found a new job in the same sector three years later. For the period 2004-2014, it was only 52.2 %. [↘ TABLE 27](#)
687. Workers were increasingly moving from import-oriented to export-oriented sectors. Such moves increased from 13.0 % of job changes (1993-2003) to 22.7 % (2004-2014). The move from manufacturing to the service sector is less pronounced by comparison. However, there was a slight upward trend in movement into the service sector, particularly among workers starting their first job. Overall, there is evidence of a **structural change** in which, firstly, employees are increasingly moving to the export-oriented manufacturing sector and, secondly, those entering the labour market for the first time are increasingly taking jobs in the service sector and other parts of the economy.

TABELLE 27

Sectoral mobility in Germany¹

%

From sector	To sector				
	services ²	export oriented manufacturing ³	import oriented manufacturing ³	other sectors ⁵	non-employment
Period 1993 – 2003					
Services ²	77.4	2.2	2.6	11.5	6.3
Export oriented manufacturing ³	6.0	73.5	7.4	8.1	5.1
Import oriented manufacturing ⁴	7.7	13.0	64.9	8.7	5.7
Other sectors ⁵	6.7	2.2	1.8	82.5	6.8
Non-employment	2.0	0.5	0.4	3.5	93.5
First employment	26.7	8.3	11.9	44.5	8.5
Period 2004 – 2014					
Services ²	76.0	2.3	2.1	12.6	6.9
Export oriented manufacturing ³	5.6	73.1	8.2	8.2	4.9
Import oriented manufacturing ⁴	8.6	22.7	52.2	10.0	6.5
Other sectors ⁵	7.2	2.5	1.5	81.6	7.3
Non-employment	5.6	1.3	0.9	9.8	82.4
First employment	28.1	7.7	5.4	47.2	11.6

1 – Share of sectoral moves in the labour market over a three year period, averaged over the respective period as a whole. Rows add up to 100, deviations because of rounding. 2 – Hospitality, information and communication, retail, transport, real estate and housing, financial and insurance services, professional, scientific and technical services. 3 – Manufacturing sectors in which the value of exports exceeds the value of imports. 4 – Manufacturing sectors in which the value of imports exceeds the value of exports. 5 – Agriculture and forestry, mining, construction, public administration, health and social care.

Sources: SIAB 7514, own calculations

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688. Regional mobility of workers is an important prerequisite for successful structural change. In 2013, around a third of people starting a new job in Germany moved to another district in order to take up the new job. This proportion has increased continually since the 1990s. Regional mobility in Germany is relatively high by EU standards (Eurofound, 2014). Only in the Netherlands and the United Kingdom it is somewhat higher. In the United States, however, regional mobility is markedly higher than in Germany (Gáková and Dijkstra, 2008).

689. Mobility of workers can be impaired by an over-regulated labour market. **Frictions in the search and matching process** can mean that workers are unaware of job offers in other regions. This is particularly detrimental when combined with the often highly geographically concentrated trade effects. Jensen (2012) shows, for example, that additional information on job offers in urban regions of India has increased mobility and the employment rate among the rural population.

Efficient placement services can also assist the matching process. Germany has achieved considerable improvements in this area in the course of the Hartz III

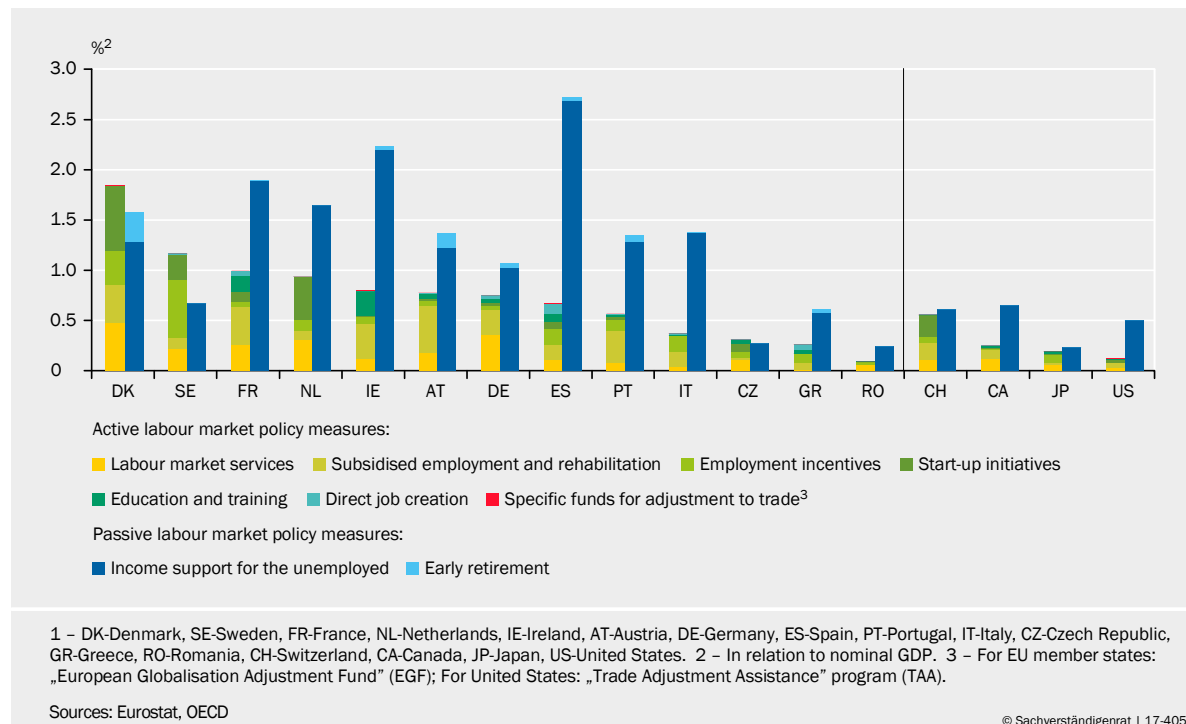
reforms (Fahr and Sunde, 2009; Launov and Wälde, 2016). Nevertheless, financial support for regional mobility, such as the commuter tax allowance or subsidised relocation, is counteracted by factual restrictions on relocation for “basic social security” (*Arbeitslosengeld II*) recipients, e.g. for under-25 year olds or due to the restriction that only unchanged housing costs are funded.

690. Governments are attempting to respond to the changes on the labour market with **active and passive labour market policy**. [↪ CHART 85](#) The **design** of those measures and the financial resources deployed differ substantially. While Sweden, the Netherlands and Denmark engage heavily in active labour market policy, such measures play only a small role in Spain, Portugal and Italy. In most countries, passive labour market policy makes up the larger share of public spending.
691. For **active labour market policy**, research has identified varying but at best moderate effects (Jacobi and Kluge, 2007; Crépon and van den Berg, 2016; GCEE Annual Report 2016 Box 26; McKenzie, 2017). In particular, the high costs of such programmes limit their efficiency. Many of the measures are not targeted, and their effects differ greatly between various characteristics of the recipients (Card and Hyslop, 2005; Bitler et al., 2006; Bergemann and van den Berg, 2008). Another problem is the low participation rate in labour market policy programmes (Heckman et al., 1999). Training measures can be more effective if they are aimed directly at disadvantaged groups (Brown and Koettl, 2015) and implemented in partnership with the private sector – especially in the form of on-the-job training (Carling and Richardson, 2004; Forslund and Krueger, 2004).

↪ ABBILDUNG 85

Public spending on labour market policy measures¹

Selected countries from 2009 to 2015 (average figures)



692. Moving between companies, sectors and regions requires people to be highly **adaptable** and willing to acquire new skills and additional knowledge. As with the challenges arising from digitalisation, **general education** has a key role to play here. ↘ [ITEMS 810 ff.](#) This in turn depends on a high-quality, permeable education system.
693. As trade effects are concentrated on specific regions and sectors, they are becoming more prominent in the public eye. This has led to the creation of **special trade adjustment funds** ↘ [BOX 20](#) and calls for targeted **regional support**. However, such measures delay or even avoid the adjustment process, intensifying the damage done by the original shock and enabling regional structural weaknesses to become entrenched (GCEE Annual Report 2009 items 323 ff.).

This is the case, for example, if companies that are no longer productive are not closed quickly enough and adjustment of the capital stock is slow (Dix-Carneiro, 2014). **Special subsidies** would not be economically efficient in such cases. Germany's system for fiscal equalisation between the federal states already provides strong regional redistribution, meaning that the differences in regional competitiveness are only reflected to a limited extent in the states' available funds. ↘ [ITEM 593](#) In addition, Germany has a large number of instruments to promote regional economic development, not least the "Joint Federal Government/Länder Scheme for the Improvement of Regional Economic Structures" (GRW), the "European Regional Development Fund" (ERDF), the "European Social Fund" (ESF), as well as various funding programs by the "Reconstruction Credit Institute" (KfW). Thus, there is no lack of subsidies motivated by regional political considerations in Germany.

↘ [BOX 20](#)

Specific funds for adjustments to trade

Both the EU and the United States have launched **special trade adjustment programmes** in the form of the "European Globalisation Adjustment Fund" (EGF) and the US "Trade Adjustment Assistance" programme (TAA). Member states can request EGF funds for active labour market policy (active LMP) measures (such as training or help with job seeking) if they can prove that at least 500 employees in a company (including suppliers), region or industry have lost their jobs due to globalisation. In the TAA programme, unemployed US citizens affected by globalisation can request support directly. In addition to active LMP, the US programme also supports them with passive LMP measures such as weekly direct payments. In the EU, social security nets perform this function.

The EGF has **relatively limited funds**. It has a maximum annual budget of €150 million and can fund up to 65 % of the measures' costs. On average, from 2007 to 2016, only €59.3 million was allocated per year. This despite the fact that in 2009, for example, the fund also provided resources for regions affected by the financial and economic crisis (52 % of the total amount distributed) and programmes for young job seekers. From 2009 to 2015, the TAA programme had an average volume of US\$745 million. The annual budget of those funds is thus equivalent to an average 0.0002 % of GDP of the EU member states and 0.0049 % of GDP of the US. In the EU member states that have used assistance from the EGF, the share of the fund in all LMP amounts to no more than 0.284 %.

Compared to active and passive labour market policy measures at the national level, the fund thus has next to no importance. [↘ CHART 85](#)

The **use** of even this small fund is **questionable**. Firstly, the effectiveness of such programmes cannot be clearly proven (OECD, 2005; D'Amico and Schochet, 2012; Park, 2012; European Commission, 2015). Secondly, in contrast to other labour market measures the money only reaches an arbitrary group of affected individuals and regions, among others because of the the low profile of such programmes (European Commission, 2015; Cernat and Mustilli, 2017). Furthermore, many affected people who have lost their job indirectly as a result of trade liberalisation are not included in potential recipients of measures such as the TAA or EGF at all (Dix-Carneiro and Kovak, 2017). The system also encourages free riding. Studies on the TAA suggest that the programme only follows a political calculus rather than an economic one (Destler, 2005; Kletzer and Rosen, 2005; OECD, 2005).

3. Small effects of trade opening on wages

694. The effects of trade opening on incomes are examined in microeconomic studies. These take advantage of the quasi-experimental conditions emerging from differences in the integration of markets. A central finding of these studies is the tendency for remuneration to **become more skill-specific** (Guadalupe, 2007). As trade increases, highly skilled workers see greater wage increases than their less skilled counterparts. Various mechanisms are at play here. Additional skills are required by exporting companies seeking to adapt and implement new technologies and innovations (Bustos, 2011) and also for the production and marketing of higher-quality products (Verhoogen, 2008; Brambilla et al., 2012).
695. The analysis of effects on wages yield differing results (Harrison et al., 2011). For example, trade opening as a result of the fall of the Iron Curtain in 1990 generated positive effects on regional wages and employment in Austria (Brühlhart et al., 2012). In companies located on Austria's eastern border **wages rose in the short-term** and employment in those border companies rose with some delay. However, Braakmann and Vogel (2010, 2011), who took a similar approach, found no statistically significant wage effects on Germany. They analysed the EU's eastern enlargement in 2004 and its impact on German businesses' employment, wages and productivity.
696. There are also **contradictory results** on the effects of Germany's trade expansion with China and eastern Europe. Dauth et al. (2014) show that the growing trade with eastern Europe and China increased wages in export-oriented regions in Germany but had no impact on wages in regions dependent on imports. Dauth et al. (2014) studied the periods from 1988 to 1998 and from 1998 to 2008. In another analysis, based on Badinger and Reuter (2017), however, no significant effects can be found for the periods from 1993 to 2003 and 2003 to 2013.

The analysis is based on an instrumental variables estimation to examine the impact of globalisation on both the **wage distribution in German regions** and the average wage effect, relying on the Sample of Integrated Labour Market Biographies (SIAB) data of the Institute for Employment Research (*Institut für*

↘ TABLE 28

Regression results of the estimation of the effect increased trade intensity on gross wages¹

Dependent variable	Import exposure	Export exposure
Average wage ²	- 0,025 (0,023)	0,019 (0,047)
Standard deviation of wages ²	- 0,017 (0,028)	0,052 (0,043)
Gini coefficient of wages ³	0,012 (0,032)	0,040 (0,059)

1 - Instrumental variable estimation based on Autor et al. (2013). Effect of an increase in the import or export exposure by €1,000. Standard errors in parentheses; clustered at district level. 2 - Including non-profit institutions serving households. 3 - Effect in Gini points.

Sources: SIAB 7514, own calculations

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Arbeitsmarkt- und Berufsforschung - IAB), which represents a 2 % random sample of all employed persons in Germany. The income inequality metrics of wage distribution at district level calculated on this basis served as the dependent variables. ↘ ITEMS 677 FF.

697. **No significant impact of the rise in global trade on gross wages** in Germany as a whole was determined for the period from 1993 to 2013. ↘ TABLE 28 The wage effects in export-oriented regions found in the study by Dauth et al. (2014) cannot be verified as statistically significant for the later period. The estimation approach also allows calculation of the distribution effects of trade expansion in export-oriented and import-dependent regions. Ultimately, the specifications show **no significant distribution effects** of the growth in trade from 1993 to 2013, either on wage dispersion (as measured by standard deviation) or on the Gini coefficients in the respective regions. Germany's industry-wide collective bargaining agreements, which result in similar wages across regions, might be one reason for the lack of regional effects.
698. The tax and transfer system is a central mechanism for compensating negative income effects of structural change whether due to expanded trade, changed preferences or technological change. The compensation is directly correlated to the degree to which an individual is affected and is triggered automatically by the loss of a job or wage reductions due to international trade. Germany has a strong redistribution system on an international scale (OECD, 2015b; GCEE Annual Report 2016 item 789). Consequently, the **tax and transfer system** can ensure at least partial compensation of the negative impacts resulting from trade globalisation.

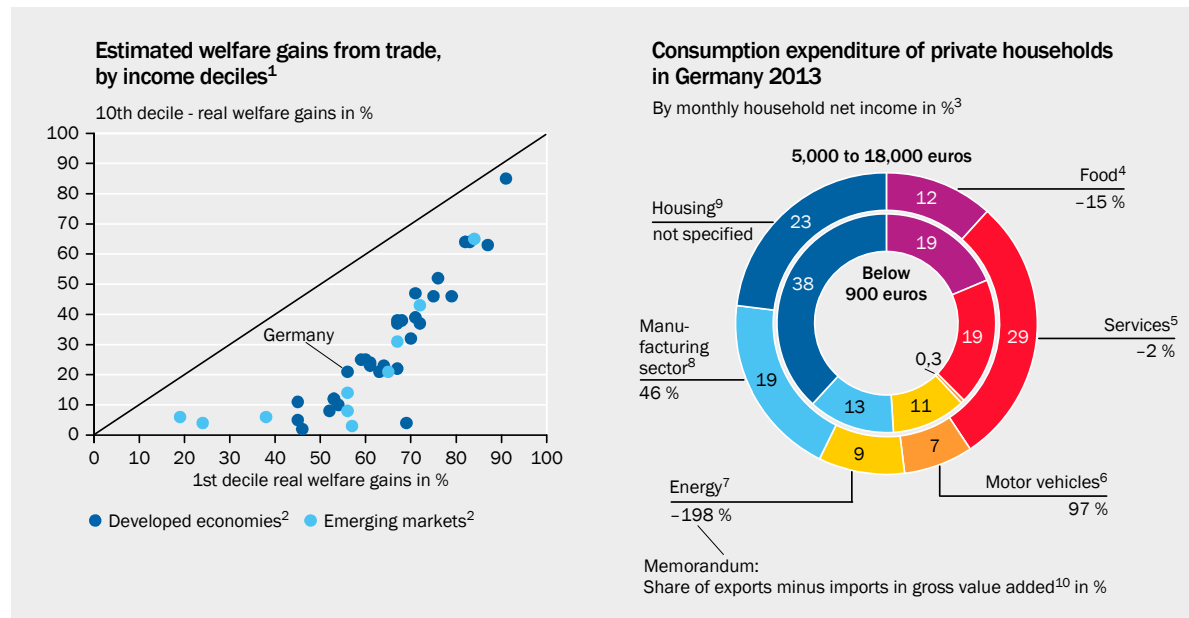
An even stronger redistribution for workers affected by trade could hinder the necessary labour market adjustment processes. The objective should not be to redistribute income as a means of fully compensating wage losses due to structural change. Instead, the affected individuals must be enabled to find new jobs in other sectors of the economy. ↘ ITEMS 799 FF. A modern and accessible infrastructure as well as regulations on flexible working could help to enable entry into new jobs without having to move regions.

4. Higher living standards and product variety due to trade

699. International trade results in greater product variety and lower prices for many goods and services. The relative **welfare gains** this creates are **particularly sizeable for poorer sections of the population**. For example, Fajgelbaum and Khandelwal (2016) estimate that the average real income of the poorest decile of Germany's population has risen by 56 %, while that of the richest population decile has risen by 21 % as a result of free trade. The authors come to qualitatively similar conclusions regarding other countries. [↪ CHART 86 LEFT](#) The differing welfare gains can be largely explained by the differences in consumption among the sections of the population. Individuals with lower income spend a relatively larger portion of their income on imported goods, whose prices have fallen considerably as a result of trade opening.
700. Data indicates significant differences in the consumption structure of low and high-income households in Germany. [↪ CHART 86 RIGHT](#) **Poorer households** spend a relatively large portion of their income on **food and energy**. Germany is a net importer of these goods, the production of which is labour and natural resource-intensive. The **wealthiest households**, in contrast, spend a relatively large portion of their income on **transport equipment and manufactured products**. Germany is a net exporter of these capital-intensive products.

[↪ CHART 86](#)

Welfare gains from trade and consumption expenditure of private households



1 – Fajgelbaum and Khandelwal (2016) estimate import elasticities using an expanded gravity model. This in combination with simulated expenditure preferences enables them to identify the welfare effects on different income deciles in a multi-sector model. 2 – Classification of country groups and the respective countries included based on IMF WEO. 3 – Results of continuous household budget surveys (laufenden Wirtschaftsrechnungen – LWR). 4 – Food, beverages and tobacco. 5 – Dwelling maintenance; household management services; health services; maintenance, upkeep and repairs of cars, motorcycles and bicycles and miscellaneous services; personal and other transport services, post and telecommunication services; recreation and culture services; books, magazines and newspapers; package tours; education; hotel and restaurant services; personal care services; miscellaneous services. 6 – Cars, motorcycles and bicycles, replacement parts and accessories for cars and motorcycles. 7 – Energy, fuel and lubricants. 8 – Clothing and footwear; household furnishings and appliances and objects excluding household management services and home textiles; durables and non-durables for healthcare; other transport, phone, fax machines, answering machines, other recreation, entertainment and culture, miscellaneous goods. 9 – Housing rental. 10 – Imports, exports and gross value added related to respective economic sectors.

Sources: Deutsche Bundesbank, Fajgelbaum und Khandelwal (2016), Federal Statistical Office, own calculations

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Further differences in consumption behaviour can be noted in the portions of expenditure on housing and services. However, these goods are not or hardly traded and thus play a lesser role in assessing the effects of trade opening.

701. A **return to autocracy** would result in a disproportionate rise in the prices of goods previously imported, as their production requires factors that are relatively scarce in Germany. By the same token, goods previously exported would become less expensive in relative terms. Overall, those households that now spend a greater portion of their income on imported goods would be at greater disadvantage. The converse is also true. **Poorer households' relative gains from trade opening are thus greater** than those of wealthier households. This effect is amplified given that poorer households tend to demand more of those goods for which small price increases induce relatively large changes in quantity demanded.
702. Porto (2006) confirmed these findings in an analysis of the impact of the Mercosur free trade agreement in Argentina. There poorer households also benefit more from trade liberalisation than wealthier households. For example, the prices of consumer goods for poorer households fell by around 6.0 % compared to the period prior to free trade, while those of consumer goods for middle-income households fell by only around 3.0 %. However, trade decreases not only the prices of traded goods but also those **of non-traded goods**. Porto's study (2006) demonstrated that the price of goods in healthcare and education decreased by 4.4 % percent and those in leisure by 4.0 %. In a different study, Amiti et al. (2017) demonstrated that China's accession to the WTO resulted in prices for manufactured goods in the United States decreasing by around 7.6 % from 2000 to 2006.
703. Welfare gains from international trade are not only based on declining prices but also on **greater product variety**. Access to other intermediate goods and materials gives companies the opportunity to make new products, thus providing households with additional consumption opportunities. Goldberg et al. (2010), for example, estimated that lower customs tariffs in India were responsible for 31 % of Indian companies' newly launched products. Broda and Weinstein (2006) estimate that increased import product variety in the United States generated a welfare gain of around 2.6 % of GDP for consumers in the period from 1972 to 2001. Moreover, Feenstra and Weinstein (2017) estimate that the welfare gain in the United States for the period from 1992 to 2005 increased by approximately a further 0.5 % of GDP for the same reasons.

IV. ECONOMIC POLICY IMPLICATIONS

704. The dramatic increase in the international integration of the goods and services markets in recent years has considerably raised the welfare level of countries and lifted many people out of absolute poverty. These **gains would be at stake** if governments were to listen to current calls around the world to close off national

markets to international competition. **Protectionist tendencies should be firmly rejected.** The alternative should be to exploit the remaining potential for further trade liberalisation, particularly in the areas of non-tariff barriers to trade, services and digital trade.

705. Above all, the existing multilateral trading system – the world trade organisation and its bodies in particular – should be reinforced. Measures should include swifter procedures for arbitrating disputes, a more comprehensive range of sanctions and the creation of multilateral arbitration panels. A multilateral approach promises greater efficiency gains than bilateral trade agreements. However, as long as advances in multilateral negotiations are difficult to achieve, governments should aim for **bilateral treaties**, i.e. those with one country or a group of countries. So negotiation of additional free trade agreements with Japan, China, India, Indonesia and South America's common market Mercosur, for example, would be a welcome development. The negotiations on the Transatlantic Trade and Investment Partnership (TTIP) should be revived.
706. The structural change that inevitably accompanies **globalisation** should be supported rather than impeded. The adjustment processes resulting from globalisation should be treated on a par with other structural changes such as those due to technological change or fundamental changes in consumer preferences. Social security and transfer systems contribute in a major way to the compensation of those negatively affected by such changes. Economic policy should focus on measures that increase **employees' and companies' adaptability** to structural change, thus empowering them to fully exploit the potential of globalisation. Stepping up protectionism in an attempt to increase the number of jobs in the manufacturing sector, on the other hand, would be doomed to failure.
707. Economic policy measures to **strengthen the country as a business location** are best suited for supporting the adjustment processes at regional and sectoral level. These include measures to increase location attractiveness and to support companies' competitiveness. The German Council of Economic Experts has developed numerous approaches to this end, such as tax policy measures to reduce the distortions in corporate taxation (GCEE Annual Report 2015 items 824 ff.), creation of a framework that promotes innovation for start-ups in particular (GCEE Annual Report 2015 items 680 ff.), and an energy policy more guided by market principles that puts an end to promotion of certain energy sources and technologies for industrial policy reasons (GCEE Annual Report 2016 items 882 ff.). [↪ ITEMS 79 FF.](#)
708. Another key aspect is **empowering workers** to take advantage of the changes that accompany international trade integration. Education policy could serve as a starting point, by improving **access to and the quality of education**. [↪ ITEMS 810 FF.](#) Labour market policy offers another approach, by improving job matching and provision of information, for example. A **flexible labour market with up-to-date regulation** is also necessary, for example, regarding working hours and rest periods. [↪ ITEM 78](#)
709. Flexible labour markets and top-quality education offerings are thus the best guarantees that the changes inevitably accompanying structural change do not

dead-end in higher long-term unemployment. These approaches are preferable to the usually ineffective and inefficient attempts to prevent the potentially negative consequences of trade-related structural change. These include subsidies to non-viable companies or industries in particular. **Specific trade funds and subsidies** to companies and economic sectors that aim to delay structural change should therefore **be abolished**.

710. This is not tantamount to rejecting all regional policy. The most important instrument of regional economic development in Germany is the **Joint Federal Government/Länder Scheme for the Improvement of Regional Economic Structures** (*Gemeinschaftsaufgabe "Verbesserung der regionalen Wirtschaftsstruktur"* – GRW), which was introduced in 1969 and most recently developed in 2016 and 2017. The scheme's measures are aimed at improving innovation, research and development, and infrastructure. Since 2015, for example, promotion has been extended to innovation clusters of companies and research institutions, and since autumn 2017 to non-profit non-university economic research institutions. Since 2016, broadband promotion has been available through the GRW (BMW, 2017).

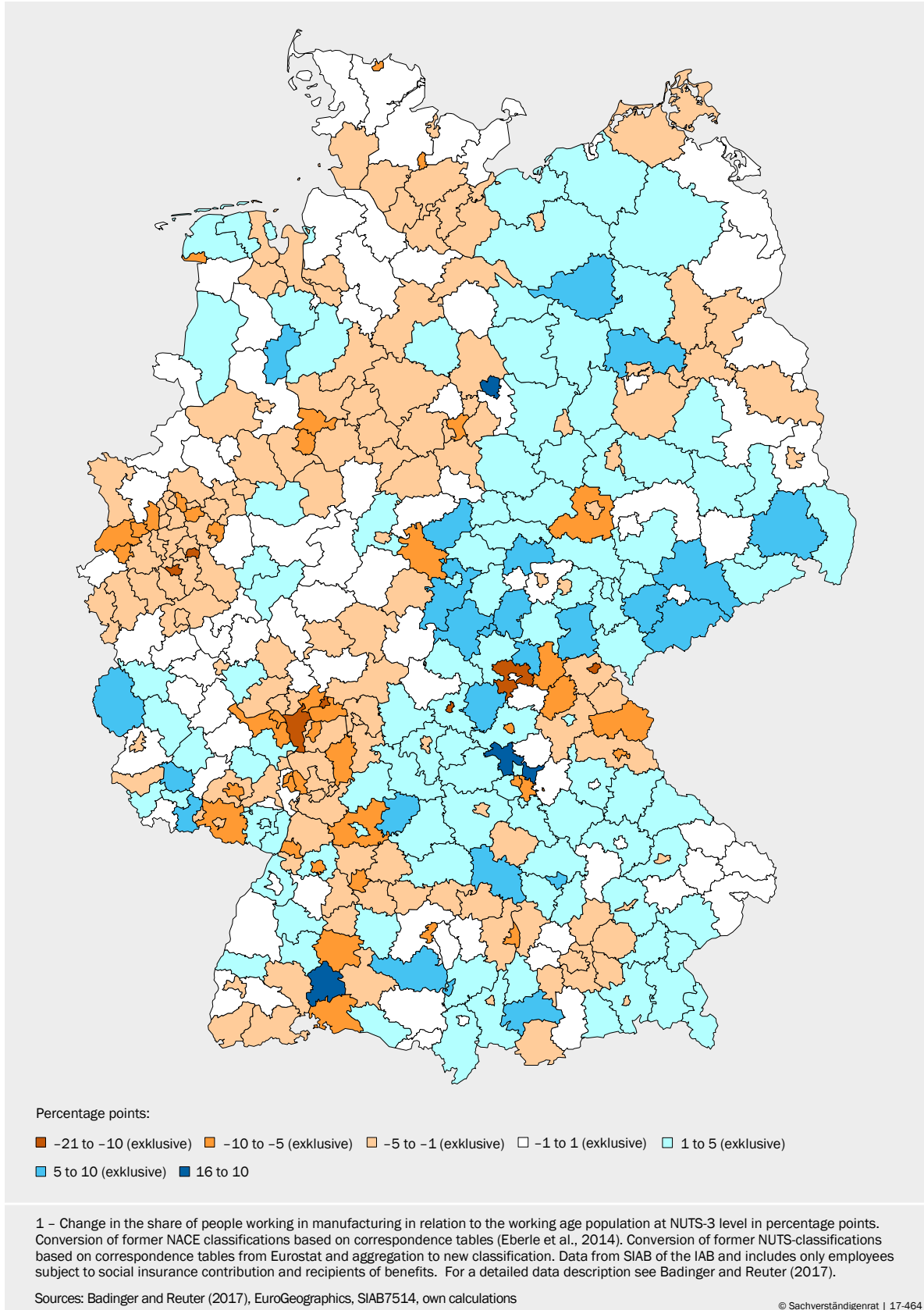
The GRW has undergone multiple assessments since its creation. Microeconomic approaches focus on the effects of promotion at company level while macroeconomic approaches focus on growth and convergence effects. These **evaluations** are evidence of the GRW's largely **rather positive impact** on regional economic development (GCEE Annual Report 2005 items 458 ff.; Bade and Alm, 2010; Alecke et al., 2013; Bade, 2013). However, they do not indicate a need to expand GRW's regional economic promotion. The Federal Government undertook further development of regional policy promotional instruments most recently during the last legislative term, with a view to the EU Regional Policy up for review in 2020. The necessary assessment of these measures in the regular review needs to be waited for.

711. The **advantages** of international trade **for consumers are spread widely** throughout the population. Consumers have already become accustomed to many of the advantages, such as the availability of internationally traded goods at more affordable prices. Such advantages are often rather abstract, as is the case with highly entangled global value chains. The negative implications, however, are focussed on individual sectors and regions, making them more prominent in the public eye. The fact that certain sectors bear the brunt of the adjustment process also facilitates lobbying that results in government intervention. Public communication of information, and **greater emphasis on the advantages of international trade** for the population at large in such communication, could counteract that.

APPENDIX

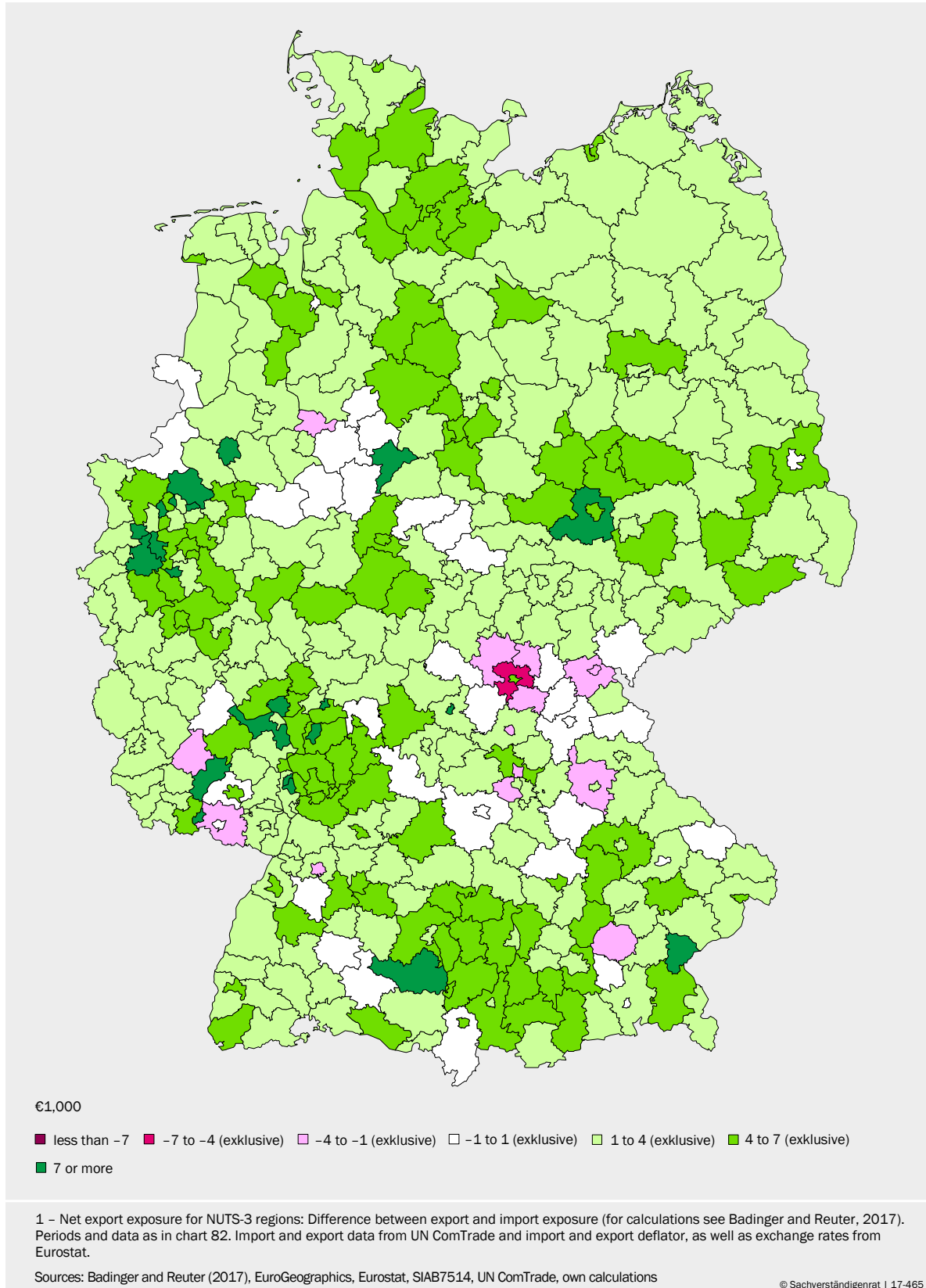
▾ CHART 87

Change in the share of people working in manufacturing in relation to the working age population in Germany from 1993 to 2013¹



▾ CHART 88

Change in net export exposure from China and eastern Europe in Germany from 1993 to 2013¹



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