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Competition from China in the EU market for Germany's manufacturing sector

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China has continuously gained market shares in the EU import market since 2000. At the same time, Germany's share in EU imports has declined since 2005. This divergence is particularly relevant for sophisticated manufacturing products in which Germany is specialized. The diverging trends can be found for all depicted 2-digit-sectors. Moreover, China's gains and Germany's losses in the EU market accelerated between 2020 and 2022 in many respects – which would be in line with China plans to upgrade its production structure, e.g. in the course of the strategy 'Made in China 2025'. This development raises questions about the competitive distortions emanating from China's state capitalism and about appropriate trade policy responses.

A recent study by Matthes (2023a) examined whether China is increasingly outcompeting with Germany in those manufacturing sectors where the German economy has its strengths. To investigate this question, the changes in China's and Germany's shares of EU imports are analysed descriptively over the period 2000 to 2022.

The overall results are remarkable:

- China's share of EU imports has risen very significantly and continuously. Initially, this applied mainly to the first decade (2000 to 2010) and less to the second one, as a previous study with data up to 2019 showed (Matthes, 2021a). Strikingly, the momentum of China's share increases has risen again since 2020. In many of the aspects analysed, China has expanded its share of EU imports in the two years between 2020 and 2022 alone by about as much as in the entire previous ten-year period, and in some cases by even more. This is particularly true for sophisticated manufacturing goods, in which Germany specialised up to now.
- Germany's share of EU imports has been declining overall and in numerous sophisticated manufacturing product groups since 2005. This decline has recently accelerated in many areas. However, rising competitive pressure from China is not the only threat to Germany's long-time successful industrial export model.

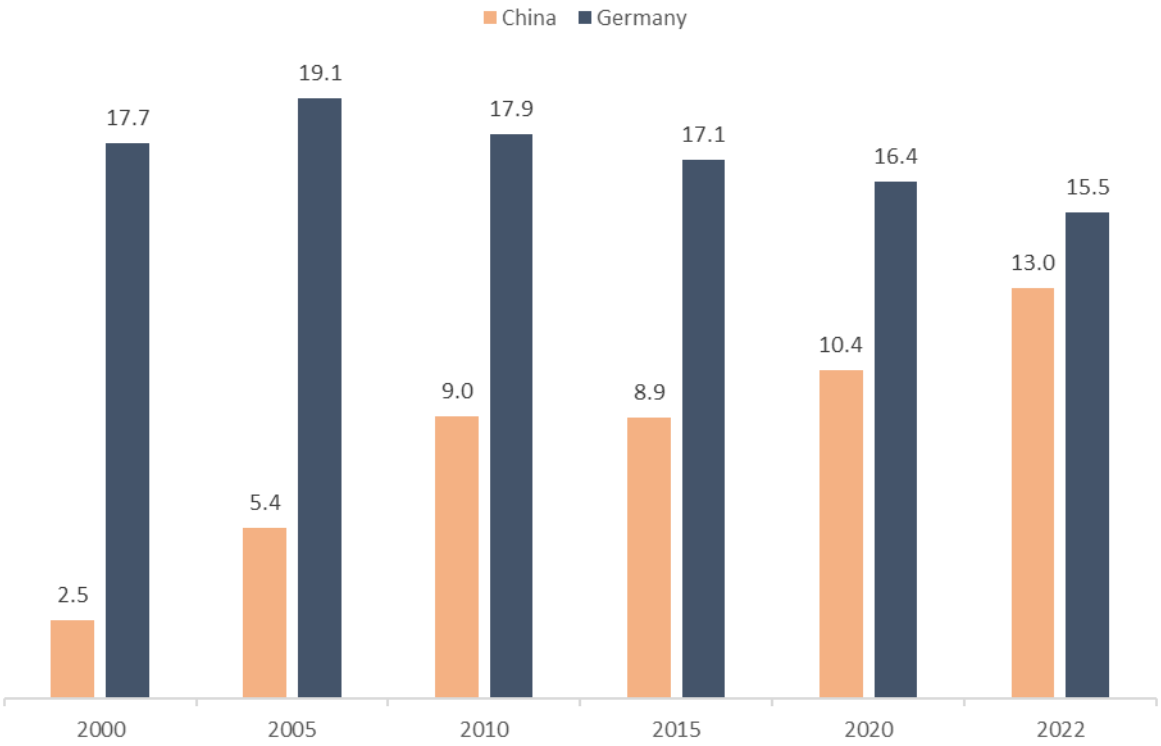
The analysis is carried out on different levels of aggregation in the trade statistics based on the CPA-goods classification and on data from Eurostat.

First, on a highly aggregate level, total merchandise EU-imports are considered as well as total EU-imports of sophisticated manufacturing goods, in which the German economy specialises (Figure 1). The share of EU-imports from Germany in sophisticated manufacturing goods stood at 19.1 percent in 2005. It was thus significantly higher than for merchandise goods overall (15.3 percent), indicating that Germany specializes in the depicted sophisticated manufacturing goods. However, Germany's share in EU imports in sophisticated manufacturing goods declined to 15.5 percent in 2022. In parallel, Chinas share in EU imports in sophisticated manufacturing goods increased from only 2.5 percent in 2000 (and 5.4 percent in 2005) to 13.0 percent in 2022. A particularly sharp increase is registered between 2020 (10.4 percent) and 2022.

Another interesting feature underscores China's increasing focus on higher value sectors. The share of sophisticated manufacturing goods in EU-imports from China increased continuously and significantly from 51 percent in 2000 to nearly 73 percent in 2022. At the same time, the share of sophisticated manufacturing goods in EU-imports from Germany has recently declined somewhat to 61 percent.

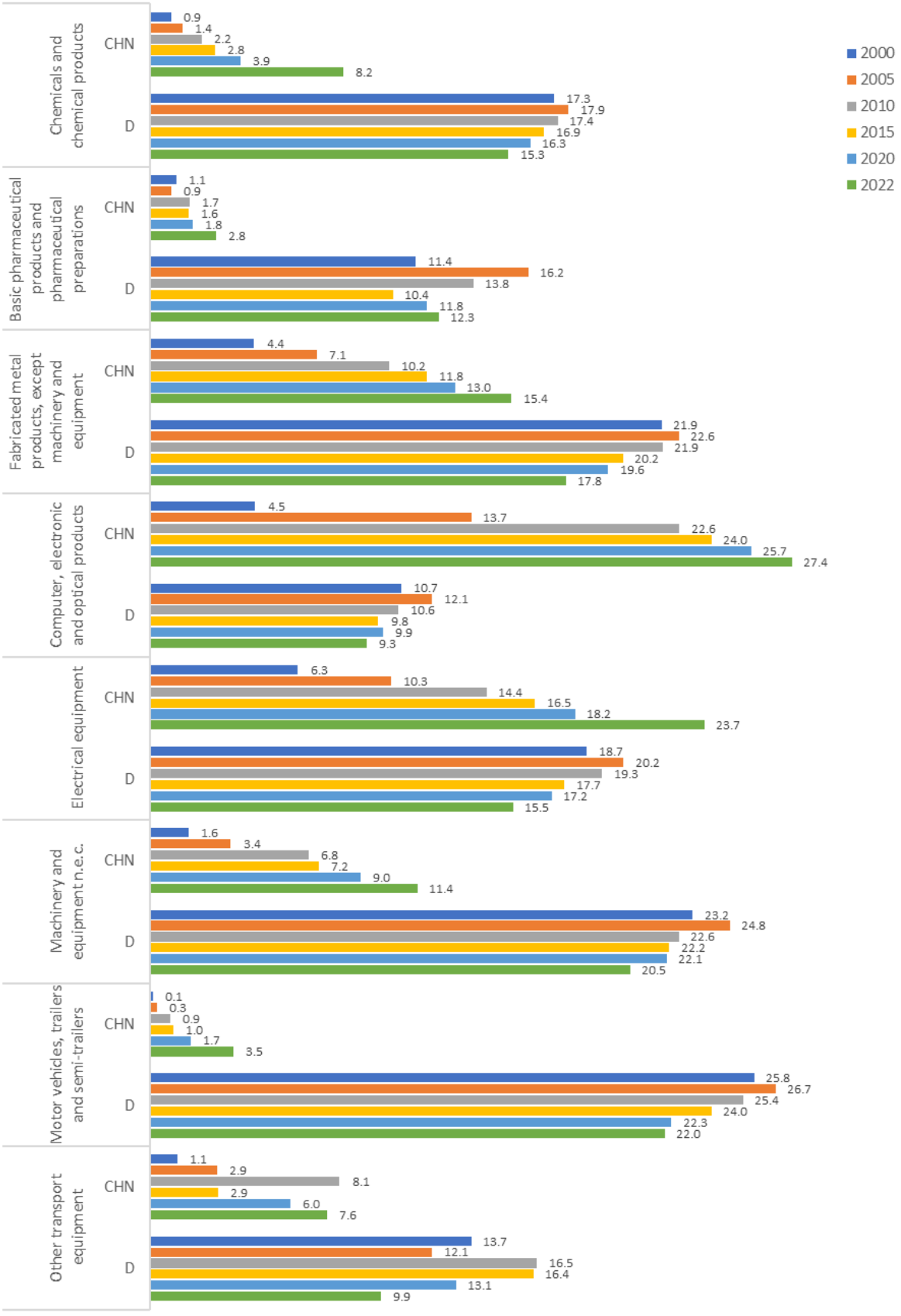
In a second step, EU imports of sophisticated manufacturing goods are analysed in more detail at the 2-digit product level of the CPA classification (Figure 2). First, share levels in 2022 are considered and then share changes over time. The level of EU import shares from China and from Germany differs significantly between the groups under consideration. In most product groups, the German economy is more strongly represented on the EU market than the Chinese. This is quite clearly the case for motor vehicles and for machinery, with shares of just over 20 per cent, and not quite as pronounced for pharmaceutical products. However, China has been clearly ahead of Germany for more than ten years in IT and optical equipment etc. Regarding electrical equipment, China only recently overtook Germany, but it significantly increased its lead between 2020 and 2022. While China was only 1 percentage point ahead of Germany in 2020, by 2022 it was already a good 8 percentage points in front.

Figure 1: EU-Imports of sophisticated manufacturing goods from China and Germany



Note: Selection of product groups included: CPA-Classification on 2-digit level: Chemicals and chemical products (Classification no. 20), Basic pharmaceutical products and pharmaceutical preparations (21), Fabricated metal products, except machinery and equipment (25), Computer, electronic and optical products (26), Electrical equipment (27), Machinery and equipment n.e.c. (28), Motor vehicles, trailers and semi-trailers (29), Other transport equipment (30).
Sources: Eurostat, 2023; German Economic Institute (Institut der deutschen Wirtschaft).

Figure 2: Figure 2: EU-Imports of sophisticated manufacturing goods from China and Germany in 2-digit product groups (CPA-Classification)
Shares in percent



Sources: Eurostat, 2023; German Economic Institute (Institut der deutschen Wirtschaft).

The development of EU import shares over time is also cause for certain concern in several other industrial sectors. China has recently been able to further increase its share in all of the industrial product groups considered, in some cases very significantly. In contrast, Germany's share of EU imports continued to fall almost everywhere:

- The only exception is pharmaceutical products. Here too, however, the German share was significantly higher in 2005 and 2010 than in 2022.
- In the machinery sector, Germany still had a lead in the EU market of 15 percentage points over China in 2015, when China only accounted for a good 7 per cent and Germany for over 22 per cent. In 2022, only 9 percentage points of this lead remained as China's share rose to 11.4 per cent and Germany's fell to 20.5 per cent. Between 2020 and 2022 in particular, the ratios shifted significantly.
- With regard to motor vehicles and parts, China is expanding its share from a much lower level. However, between 2020 and 2022 alone, it doubled its share of EU imports from 1.7 per cent to 3.5 per cent. In contrast, the German market share continued to fall slightly. From a lead of 23 percentage points in 2015, only 18.5 percentage points remained in 2022. German cars were therefore still much more in demand among EU partners than Chinese cars. However, due to the switch to electromobility, where China is well positioned in contrast to combustion engines, there are signs of a further noticeable shift here too. This is clearly evident in German trade with China in the first quarter of 2023, as German exports of motor vehicles to China declined sharply by about a fourth and German imports from China nearly tripled in value terms (Matthes, 2023b).
- In the EU market for metal products, China has almost caught up with the German economy. A lead of 10 percentage points in 2015 recently melted away to just 2.5 percentage points. Between 2020 and 2022 alone, China's share increased by 2.4 percentage points to 15.4 per cent, more than in the two previous five-year periods. In contrast, Germany's share of EU imports recently fell by almost 2 percentage points to just 17.8 per cent.
- The picture is similar for chemical products. However, China's strong share growth here is largely due to a special and only temporary development in imports from China in a subgroup of chemical products in 2022 (Matthes, 2023b). But here, too, there is a continuous decline in Germany's market share, which has also accelerated somewhat in the last two years.
- The development of other vehicles, which includes aircraft and ships, is strongly characterised by fluctuations, and is not discussed in detail.

In many cases, the changes were significant between 2020 and 2022 compared to former periods, indicating also from this perspective that the diverging trends appear to have accelerated.

Third, when 4-digit product groups of sophisticated manufacturing products are considered, a similar picture emerges. Out of 85 a total of product groups, in 77 groups China's share in EU imports increased between 2020 and 2022. Germany's share changes, however, are negative in 69 out of 85 cases. Obviously, Chinese share gains in sophisticated industrial products are accompanied by German share losses in most cases (62 out of 85).

Conclusion

As shown, Chinese share gains and German share losses often go hand in hand. Although no causality is examined in this report, this finding strongly suggests that China is increasingly competing with the German economy in its EU home market and in sectors where it has been traditionally strong.

The problem is that China's export successes are likely to be also based on extensive and widespread subsidies, which raises the question of trade policy responses. It is true that China is also catching up in terms of technology, education and research. However, it is combining the resulting true and basic competitiveness with intensive industrial policy subsidies (Matthes, 2020a; Chimits, 2023; OECD, 2023). With the Made in China 2025 strategy, the government uses massive subsidies to make the Chinese economy an innovation leader in the long term, including in sectors in which the German economy has its specialisation advantages (Zenglein/Holzmann, 2019). This combination poses threats to German export markets worldwide - including the risk of welfare losses for Germany as a whole (Matthes, 2020b). The information on the relevance of competitive pressure from China is surprisingly sparse in the economic literature (Matthes, 2021a; 2021b). According to a survey by the German Economic Institute (IW), German industrial companies already attributed significantly greater importance to competitive pressure from Chinese companies than to protectionism at the end of 2020 (Matthes, 2021b).

More generally, the empirical findings raise concerns about the German industrial export model – not only regarding increasing competitive pressures from China but also in view of the energy transition challenges and the fundamental competitiveness problems in Germany.

- In the electrical industry, which is set to profit from climate change abatement, China has overtaken Germany in terms of EU import shares for some time already.
- In the automotive industry, which is an important pillar of Germany's export success, the energy transition is likely to further intensify the problematic development outlined above. China is in the process of conquering the European market for electric vehicles, albeit from a small base.
- In the chemical industry, it is questionable how the energy-intensive chemical firms will be able to defend their economically relevant export successes with such high energy costs, considering that China is also gaining ground here.
- And even the highly specialised machinery sector, which tends to profit from the energy transition, is in the process of losing its supremacy to Chinese competitors. In all these sectors, Germany's lead over China in the EU market is increasingly shrinking.
- Also in renewable energies, the perspectives look much dimmer than expected. Germany hoped to be an innovation leader in renewables production due to its role as a long-time front runner in climate change abatement. However, China has already outcompeted Germany in photovoltaic and electric batteries. It is on the verge of also conquering wind energy and possibly also electrolysers for hydrogen production.

Overall, the German industrial export model seems to be getting into trouble.

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