

Some explanatory factors of the recent behaviour of goods exports

Article 10
08/08/2023

<https://doi.org/10.53479/33475>

Rationale

The nature and severity of the shocks to the global economy over the last three years have profoundly affected trade. This article assesses the effects on Spain's goods exports and reflects on their possible persistence going forward.

Takeaways

- The increase in energy commodity prices against the backdrop of the war in Ukraine has eroded the competitiveness of the most energy-intensive manufacturing sectors, affecting producers from the euro area (including Spain) more than elsewhere.
- The adverse repercussions of the energy crisis have been partially mitigated thanks to Spain's comparative advantages in energy product re-exports to the EU countries that rely heavily on Russia.
- Global supply disruptions have had a particularly severe impact on car exports, which have also been affected by the technological and regulatory changes under way in the sector.

Keywords

Exports, price competitiveness, energy crisis, world trade.

JEL classification

F10, F14.

Authors:

Coral García Esteban
Economic Developments Department
Banco de España

Ana Gómez Loscos
Economic Developments Department
Banco de España

César Martín Machuca
Economic Developments Department
Banco de España

The determinants of goods exports in 2022 and 2023

Goods exports account for most of the Spanish economy's sales of goods and services to the rest of the world (in real terms, approximately 70% of the total in 2022). They grew by 2.7% in 2022 and proved sluggish in 2023 H1, falling particularly steeply quarter-on-quarter in Q2. This follows the sharp fluctuations observed against the backdrop of the pandemic, when they contracted by 6.8% in 2020 and then rebounded by 10.6% in 2021, in annual average terms.

The two main determinants of goods exports at a given point in time are developments in external markets and competitiveness. As regards the former, the significant moderation of the pace of growth of external markets in 2022 helps to explain the slowdown in real sales of Spanish goods to the rest of the world compared with 2021. However, Spain's export markets decelerated more moderately than global markets did (see Chart 1.a). Differences in the shares of the different geographical areas in these aggregates were partly behind Spain's better performance. First, Russia and Ukraine account for a very small proportion of Spanish exports. Second, in 2022 China, which also represents a relatively small share of Spain's goods exports (around 2%), saw its import demand adversely affected by the stringency of its zero-COVID measures. By contrast, the euro area accounts for a particularly significant share of Spanish exports (55% of total goods sold to the rest of the world) and is a market that outstripped global trade in 2022. Specifically, the adverse indirect impact of the war in Ukraine on the Spanish economy via the downturn in our main European trading partners' activity was smaller than initially expected, thanks to the greater than expected resilience of activity in those countries, as the most extreme risks of natural gas shortages linked to Russian supply cuts failed to materialise. However, Spain's external markets have slowed further in 2023 to date, affecting goods exports.

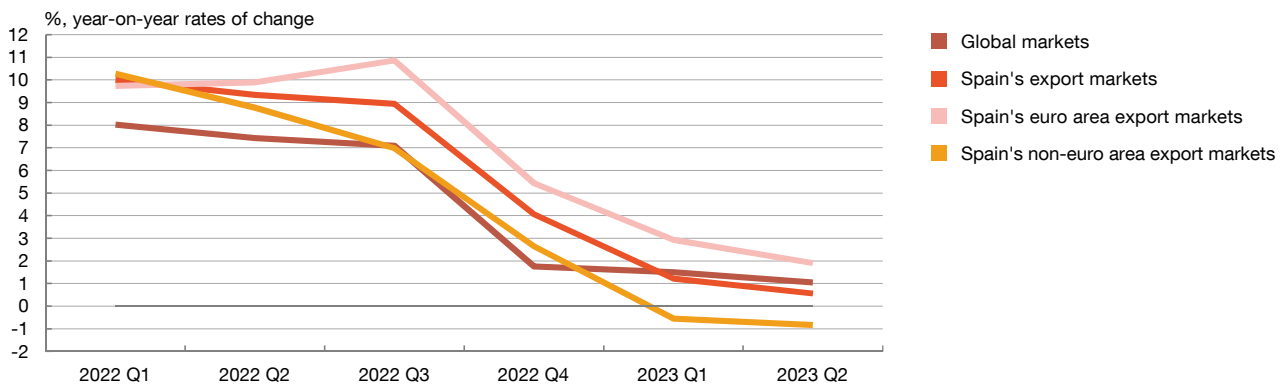
Turning to competitiveness, the poor performance of Spanish producer and export prices¹ relative to the rest of the world – barely mitigated by the depreciation of the nominal effective exchange rate – weighed on foreign sales of Spanish goods in 2022 (see Chart 1.b). However, the downturn in relative producer prices reversed slightly in early 2023. In addition, the deterioration in unit labour costs in Spain compared with the euro area during the first quarters of the health crisis reversed from 2021 Q2, eventually even improving on pre-pandemic levels. Lastly, the inflation differential – measured by the harmonised index of consumer prices (HICP) – improved from July 2022. This was thanks to the application of the Iberian mechanism to cap gas prices and to the swifter pass-through to retail electricity prices in Spain than in the euro area overall of softening wholesale gas prices since late summer 2022, enabled by the way in which household

¹ During the period analysed, relative export prices (constructed drawing on the unit value indices of exports) and relative producer prices have not performed identically, on account of the former including agricultural products, while the latter do not. Further, the indicator of relative export prices, prepared using Eurostat data, does not include the United Kingdom (as specified in Chart 1.b).

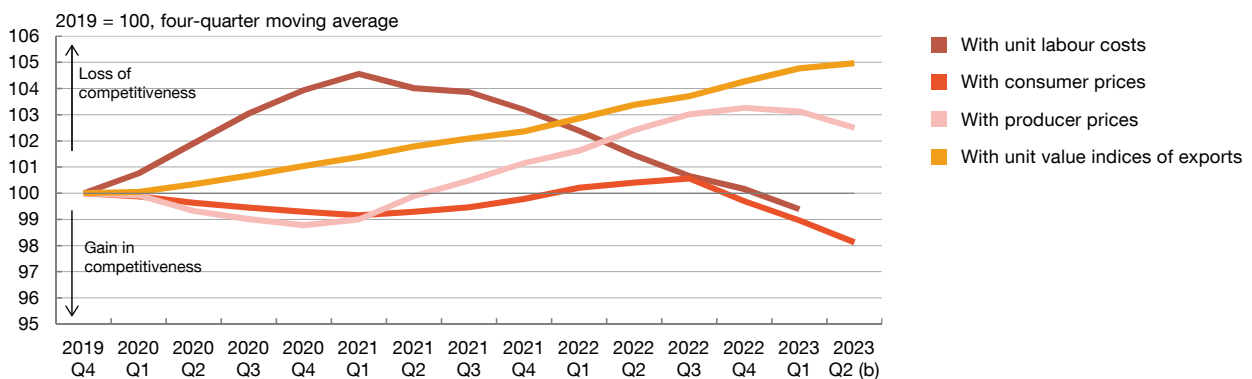
Chart 1

Spanish goods exports slowed in 2022, in line with the moderation of global export markets

1.a Spain's export markets

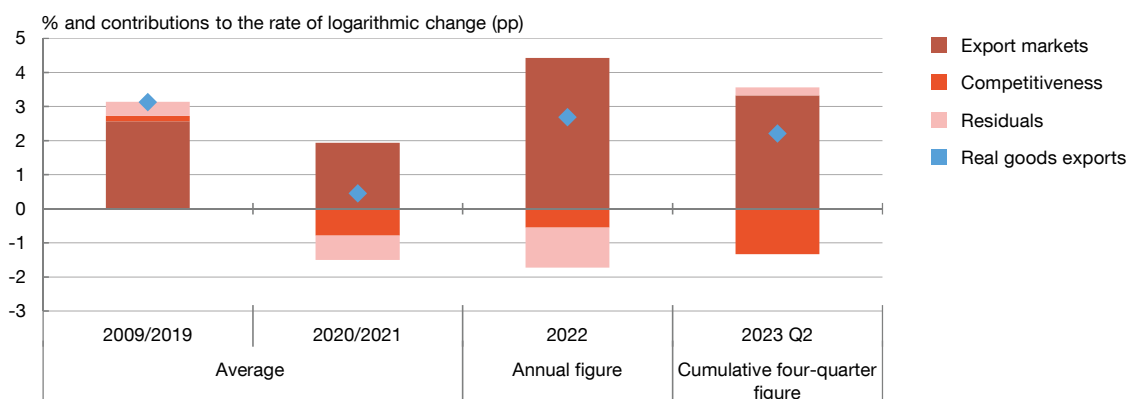


1.b Indicators of Spain's competitiveness versus developed countries (a)



1.c Real goods exports

Year-on-year rates of logarithmic change



SOURCES: ECB, Banco de España and INE.

a Developed countries: Australia, Austria, Belgium, Canada, Croatia, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, Slovakia, Slovenia, Sweden, Switzerland, United Kingdom and United States. In the case of the unit value indices of exports, the United Kingdom is not included in the developed countries aggregate as the unit value index for that country is not available in the Eurostat database.

b With data to May for indicators prepared with producer prices and to April for those calculated with unit value indices of exports.



end-user electricity prices are set in Spain. In any case, relative consumer price indicators are less relevant for measuring the competitiveness of goods exports than of services exports (in particular, travel services).²

The contributions of external demand and price competitiveness to export growth can be estimated using the Banco de España External Sector Satellite Model (García Esteban, Tello Casas, Gordo Mora and Martínez Martín, 2009).³ Thus, in 2022 as a whole, external demand contributed 4.3 percentage points (pp) to the growth of sales to the rest of the world (see the penultimate bar of Chart 1.c), while competitiveness had a moderate negative impact (–0.6 pp). Consequently, export growth (2.7%, as stated above) was around 1.1 pp below what can be explained by developments in external markets and price competitiveness. In other words, a negative residual is estimated,⁴ in an international setting marked by the energy crisis triggered by the outbreak of the war in Ukraine and the disruptions stemming from the global supply chain bottlenecks (whose effects are discussed in the following section). Both shocks gradually eased over the course of 2022, meaning that the cumulative goods export growth of 2.2% in the four quarters between 2022 Q3 and 2023 Q2 (the last bar of Chart 1.c) slightly exceeded that which would result from the sum of the contributions of external markets and price competitiveness (3.3 pp and –1.3 pp, respectively). In other words, the residual's sign has turned positive (0.2 pp). However, the deceleration in external demand has translated into weaker cumulative growth over the last four quarters (see Chart 1.c).

By product type, exports of non-food consumer goods and energy goods made the largest contributions to overall export growth in 2022 (specifically, 37% and 35% of the total) (see Chart 2.a). Conversely, food and cars made a negative contribution. This pattern changed in the first five months of 2023, when goods exports slowed considerably, despite the growth of exports of capital goods and cars, following their marked weakness in 2022. By contrast, sales of food and intermediate goods to the rest of the world have fallen in 2023 to date. The decline in the latter extends to both energy (after the surge in 2022) and non-energy (amid weak manufacturing activity globally) products. This sluggishness is the result of a set of factors, such as the sensitivity of demand for consumer durables and investment goods to the tightening of financing conditions and post-pandemic demand shifting back to services (IMF, 2023). In addition, the post-pandemic recovery in activity in China is proving slower than initially expected, especially in the case of the manufacturing sector. The direct impact of economic developments in China on goods exports would be weaker in Spain than in other euro area economies, such as Germany, on account of Spain's limited trade exposure to China (around 2%, versus 8% for Germany). However, the

2 The competitiveness of goods exports is more sensitive to changes in producer prices than that of services exports, as changes in the prices of domestic and imported intermediate and capital goods have a greater bearing on the cost structure of manufactured goods than that of services. Meanwhile, labour costs account for a higher share of the cost structure of services.

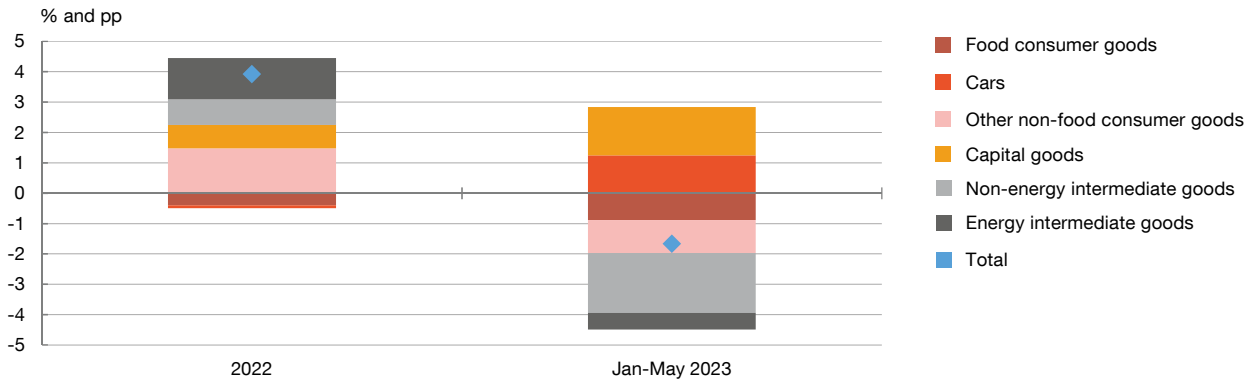
3 The determinants of goods exports in the External Sector Satellite Model are external demand and price competitiveness, the latter defined as the relative prices of Spain's goods exports compared to its competitors (weighted by the share of each competitor in Spain's export markets). To estimate the equation, an error correction mechanism (ECM) is applied in a single stage using non-linear least squares. This method is based on the simultaneous modelling of the equilibrium relationship between the dependent variable and its long-term determinants and a correction mechanism for the temporary deviations from that equilibrium.

4 Compared with the period 2014-2019, i.e. excluding the global financial crisis and the pandemic, in 2022 the estimated residual is sizeable, above the average for 2014-2019 (1.6 pp). However, in 2022 the estimated negative residual was smaller than in 2015 (when it stood at –2.7 pp).

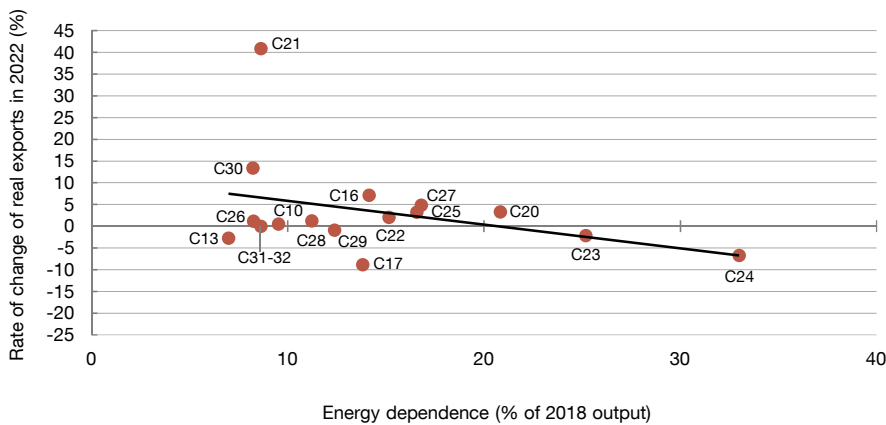
Chart 2

Sectoral energy intensity has had a bearing on recent export developments

2.a Real goods exports
Contributions to the real rate of change



2.b Rates of change of real non-energy exports relative to energy dependence (a)



SOURCES: INE, Departamento de Aduanas, Ministerio de Asuntos Económicos y Transformación Digital and Banco de España.

a The following non-energy manufacturing sectors are included: C10: Food products; C13: Textiles; C16: Wood and products of wood and cork; C17: Paper and paper products; C20: Chemicals and chemical products; C21: Basic pharmaceutical products; C22: Rubber and plastic products; C23: Other non-metallic mineral products; C24: Basic metals; C25: Fabricated metal products; C26: Computer, electronic and optical products; C27: Electrical equipment; C28: Machinery and equipment n.e.c.; C29: Motor vehicles; C30: Other transport equipment; C31-32: Furniture and other manufacturing.



competitiveness of Spanish industry, like that of the EU as a whole, has been affected by higher energy costs in the wake of the outbreak of the war in Ukraine, particularly in the most energy-intensive sectors.

Exports straying, in the recent period, from the pattern suggested by their traditional determinants (external markets and relative export prices) is possibly at least partly due to these variables failing to properly capture the consequences of the energy crisis and supply disruptions. It is also plausible that these determinants have impacted differently the various categories of goods, which would help explain the heterogeneous developments across categories. Specifically, Spain's advantages in fossil fuel re-exports to those European countries that are more reliant on Russian supplies would

explain the pick-up in energy exports in real terms (27.3% in 2022). In addition, the exports of some sectors whose demand surged as a result of the pandemic – above all medical products – remain highly buoyant. The following section focuses on assessing these recent developments via the most important sectoral differences, in order to evaluate the export outlook for the coming quarters.

Sectoral heterogeneity in goods exports

The recent performance of Spanish exports has been affected by several, in some cases inter-related, factors: (i) the uneven sectoral impact of the sharp increase in energy costs according to the energy intensity of production processes; (ii) the strength of energy exports as a result of stockpiling strategies and diversification of energy supply sources throughout the EU against the backdrop of the war in Ukraine and the sanctions on Russia; (iii) the effects on goods exports of the supply bottlenecks, which have been particularly severe in certain sectors that rely heavily on imports of electronic components (such as the car industry); and (iv) the considerable strength of exports of medical products since the pandemic.

First, the energy market tensions stemming from the war in Ukraine gave rise to a sharp increase in energy costs, which are a key component of production costs in manufacturing sectors. Higher energy prices affected the euro area more than other areas, meaning that it lost competitiveness vis-à-vis the rest of the world.⁵ Although Spain's energy dependence on Russia was lower than that of some of its EU neighbours, the escalation in energy prices still had an impact on Spanish firms' competitiveness vis-à-vis firms in other non-European countries (Quintana, 2022). Moreover, the effect of the increase in wholesale gas prices on retail electricity prices was particularly acute in Spain during the early months of the war, reflecting the way in which household end-user electricity prices are set in Spain (Pacce, Sánchez and Suárez-Varela, 2021). However, the fall in energy commodity prices since late summer 2022, which was again passed through to end-user prices faster in Spain, has led to recent signs suggesting that relative producer prices may be faring better in Spain than in other countries.

The evidence available for the euro area overall shows that the energy crisis had an adverse impact on the strength of goods exports, especially in sectors with highly energy-intensive production processes (Emter, Gunnella and Schuler, 2023). Developments in Spain's manufacturing exports by sector also seem to point in this direction. Indeed, the rate of growth of exports tends to be lower in the case of more energy-intensive products, especially basic metals and non-metallic mineral products, exports of which fell by 6.8% and 2.2%, respectively, in 2022 (see Chart 2.b).⁶ Moreover, parallel to these developments, in the most energy-intensive sectors domestic production was replaced by imports (García Esteban, Gómez Loscos and Martín Machuca, 2023).

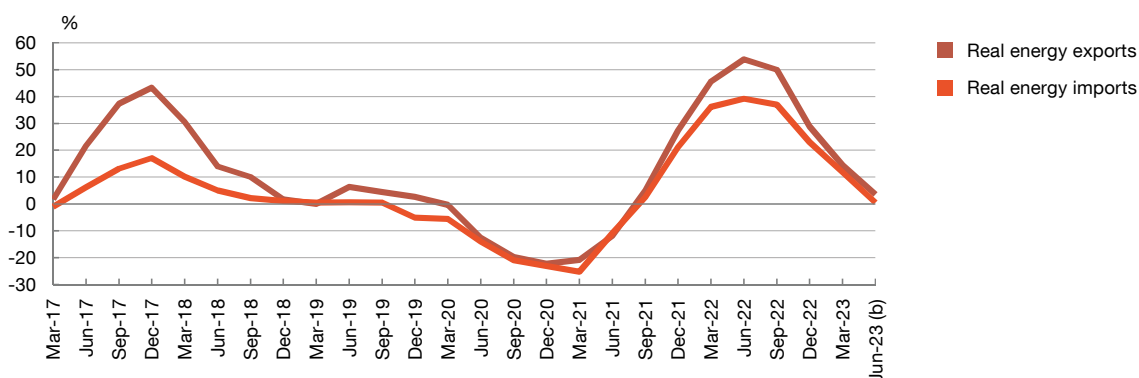
5 On average, wholesale gas prices in the euro area were 13 times higher in 2022 than in 2020; this gap is considerably wider than in the United States or Asia (where gas prices were respectively 3.5 and 9 times higher).

6 The impact of the energy crisis on the rate of growth of Spanish manufacturing exports by sector is somewhat limited because they include sales to Spain's euro area partners, which faced a similar energy shock, so its domestic production was also less competitive vis-à-vis extra-EU competitors (which were less affected by the energy market tensions stemming from the war in Ukraine).

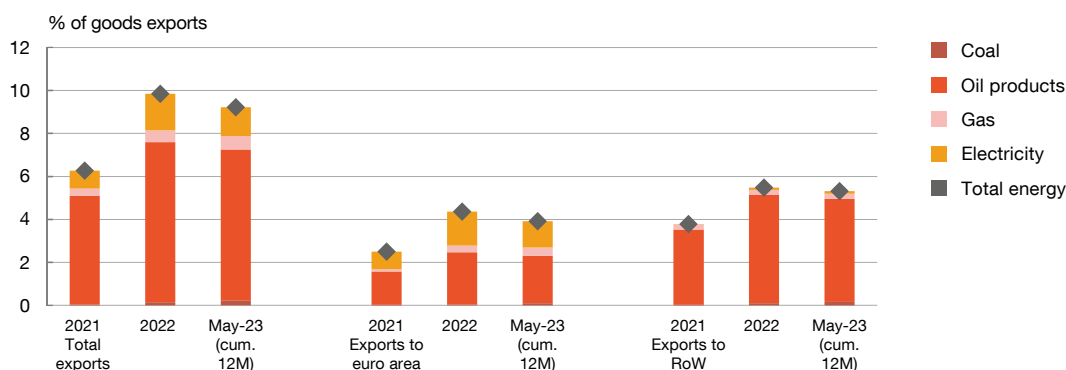
Chart 3

Installed capacity in the refining and regasification industries, together with the Iberian mechanism, boosted energy exports

3.a External trade in energy products, in real terms (a)
Year-on-year rates on cumulative four-quarter data



3.b Spain's nominal energy exports (c), as a % of total goods exports



SOURCES: Departamento de Aduanas, Ministerio de Asuntos Económicos y Transformación Digital and CORES.

a According to the external trade classification by usage groups of the Ministry of Economic Affairs and Digital Transformation.

b With data up to May 2023.

c According to the external trade classification by economic sector of the Ministry of Industry, Trade and Tourism.



Second, the energy crisis has had some positive indirect effects on Spanish energy goods exports, which appear to have cushioned the negative effects of a loss of international competitiveness in energy-intensive manufactured goods. The risk of cuts in energy – especially natural gas – supplies from Russia encouraged the EU countries to adopt stockpiling strategies and search for alternative supply sources (Alonso, López, Santabárbara and Suárez-Varela, 2022). In this setting, Spain has comparative advantages to become a supplier for the European countries that rely more heavily on Russian oil and gas. First, because its geographical location between the Atlantic and the Mediterranean allows for the supply of natural gas by sea from different international producer areas. Second, because Spain has large-scale refining infrastructure for crude oil supplied by sea and is the EU country with the largest infrastructure for transport, storage and processing of liquefied natural gas (LNG) (Enagás, 2022). In addition, the

implementation of the Iberian mechanism and the restrictions on French nuclear energy supplies helped boost Spanish electricity exports to other European countries.

In consequence, Spain's real exports of energy products rose substantially (28.9%) in 2022. The increase was especially pronounced in the central part of the year, when energy market tensions were at their highest (see Chart 3.a). Oil products⁷ account for around 80% of these exports.⁸ Considering only trade with the euro area, oil products account for 55% of energy exports, while natural gas and electricity account for around 10% and 20%, respectively. In 2022 re-exports of natural gas and electricity to France, Italy and the Netherlands rose sharply.

Third, goods exports were influenced throughout 2022 by production chain disruptions, stemming initially from the impact of the pandemic-related restrictions on mobility and subsequently, as the pandemic eased, from the supply and demand mismatch for products, against a backdrop of changing consumption patterns and rapid normalisation of activity. These disruptions increased outstanding business and extended delivery times considerably and this problem only began to ease gradually as from spring 2022 (see Chart 4.a). In Spain, they had most impact on the car industry, whose production rate slowed owing to the lack of imported electronic components.⁹ In consequence, car exports, which were already suffering from the restructuring affecting the industry owing to the technological and regulatory changes under way in the EU, performed very poorly, especially in 2022 H1, down more than 20% compared with 2019 (see Chart 4.b). Despite the subsequent gradual recovery, up to May 2023 car exports remained some 9.5% below their pre-pandemic levels in real terms. This has held back goods exports overall, given that car exports account for more than 11% of the total.

Lastly, the impact on goods exports to the rest of the world of lacklustre energy-intensive manufacturing exports has been smoothed by medical products, exports of which rose sharply – by 40.8% in real terms – in 2022 (see Chart 2.b), enabling this heading to maintain its strong post-pandemic momentum. In addition to boosting demand for medical products, the health crisis also fuelled strategies aimed at guaranteeing supplies, following the difficulties experienced in the early stages of the pandemic (García Esteban, Martín Machuca and Viani, 2020). In consequence, in real terms, medical products now account for a higher share of goods exports (around 10%, 4.6 pp more than in 2019). Also, between 2019 and 2022, Spanish exports of these products recorded higher growth than among Spain's main euro area partners (Germany, France and Italy), with their share of nominal GDP increasing by 1.1 pp in Spain (compared with 0.5 pp in the three main euro area economies overall).

From a more general standpoint, the composition of real exports by class of goods saw some changes (albeit with a relatively limited impact) between 2019 and 2022. The share of energy and

7 Of which, in 2022, diesel fuel and heating oil accounted for 36%, followed by petrol with 21%.

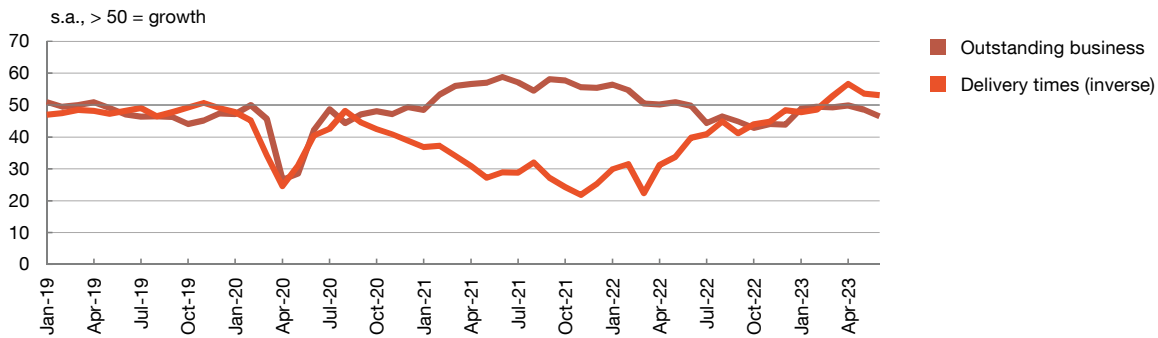
8 Spain has very little oil and gas production, so the contribution to energy exports is largely offset by the corresponding increase in fossil fuel imports.

9 Spanish exports of computer, electronic and optical products, which also rely on these imported inputs, rose in 2022 despite the bottlenecks, against a backdrop of sound demand for these goods and the strategies deployed by electronic component manufacturers to prioritise supply to these higher-margin sectors.

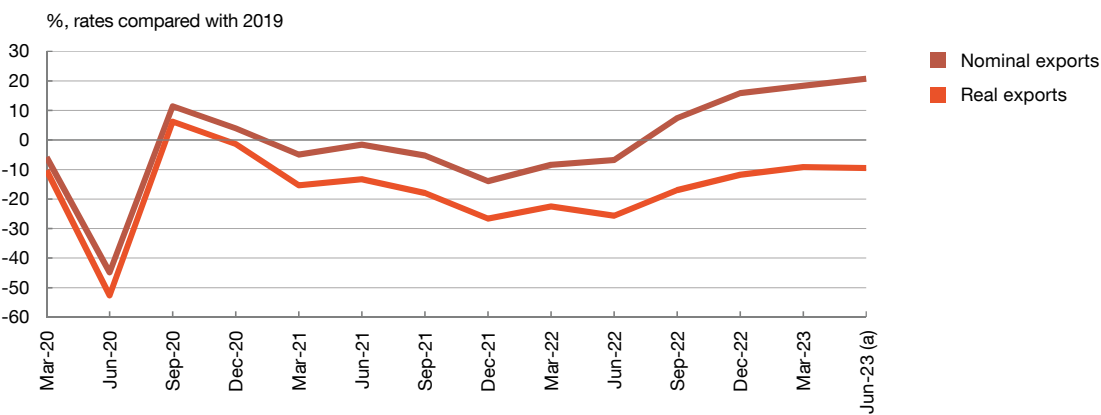
Chart 4

As the supply bottlenecks have eased, exports (especially car exports) have picked up again

4.a PMI indicators: outstanding business and delivery times in manufacturing



4.b Car exports (compared with the same dates in 2019)



SOURCES: Markit, Departamento de Aduanas and Ministerio de Asuntos Económicos y Transformación Digital.

a With data up to May 2023.



capital goods exports rose by 1 pp and 0.8 pp, to 5.7% and 10.8% of the total, respectively, while the share of exports of consumer durables and non-energy inputs fell by 2.6 pp and 1.9 pp, to 8.9% and 50.2% of the total, respectively.

Final considerations

Overall, Spanish goods exports in 2022 rose less than would be expected considering the developments in final demand and price competitiveness. According to the analysis presented here, this lower export strength was due, at least in part, to the loss of competitiveness of the most energy-intensive manufacturing sectors, owing to the sharp increase in energy commodity prices and the adverse effects of the global supply bottlenecks on production and exports in some manufacturing sectors (especially the car industry). These factors were mitigated by the notable increase in energy exports, partly on account of Spain's comparative advantages, in terms of infrastructure and geographic location, affording it the chance to become an alternative supplier

for the EU countries that rely more heavily on Russian (especially natural gas) supplies. The strength of exports of medical products was another key factor, driven by higher demand for these products since the pandemic and by the strategies deployed by manufacturers to deliver supply security. That said, in 2023 H1 goods exports weakened, held back by the slacker export markets.

The future outlook as to how persistent these factors will be is highly uncertain, being essentially linked to the geopolitical tensions and their effect on both energy and non-energy commodity markets. The easing of energy market tensions since late summer 2022 and the gradual disappearance of the supply bottlenecks should sustain the recent momentum. Yet the widespread global tightening of financing conditions can be expected to curb the strength of Spanish exports, at least through the exchange rate channel, which is one of the monetary policy transmission channels (Banco de España, 2023a).

In the longer term, especially amid the energy transition associated with the fight against climate change, energy market developments can be expected to have an impact on Spanish exports. As signalled by the medium-term gas futures, gas prices will probably remain higher in the euro area (Spain included) than in other areas such as the United States, since alternatives to Russian gas could entail structurally higher prices in the euro area, partly because it relies more heavily on LNG imports (Emter, Gunnella and Schuler, 2023). This could have an adverse impact on the competitiveness of the euro area's (including Spain's) most energy-intensive industries. Moreover, these industries' costs may rise, at least temporarily, owing to energy transition and anti-climate change policies. By contrast, however, Spain's comparative advantages in renewables – based on its geographical location, its climate and the development of a manufacturing industry for the components employed in wind and solar power – may boost energy exports (Banco de España, 2023b).

The future of car exports is also shrouded in uncertainty, as greater specialisation in electric vehicle manufacturing will be needed to consolidate export growth in the medium term. In this respect, the strategic projects for economic recovery and transformation (PERTEs, by their Spanish abbreviation) relating to transport and the energy transition must be correctly designed, to ensure that these investments boost the competitiveness of the Spanish car industry.

Lastly, developments in exports will be influenced by the future configuration of global value chains. Strategies based on the EU's strategic autonomy will likely give rise to a degree of regionalisation of value chains, with security being prioritised over efficiency (Ioannou et al., 2023).

REFERENCES

- Alonso, Irma, Lucía López, Daniel Santabárbara and Marta Suárez-Varela. (2022). "Box 2. The EU economies' natural gas inventories in 2022 and 2023 under two hypothetical scenarios". *Economic Bulletin - Banco de España*, 4/2022, pp. 46-48. <https://repositorio.bde.es/handle/123456789/24990>
- Banco de España. (2020). "Box 6. The effect of the change in the composition of Spanish exports on overall imports". *Economic Bulletin - Banco de España*, 1/2020, pp. 26-27. <https://repositorio.bde.es/handle/123456789/11788>

- Banco de España. (2023a). "Chapter 3. The current episode of price pressures in the euro area, the monetary policy response and its effects". In Banco de España, *Annual Report 2022*, pp. 140-180. <https://repositorio.bde.es/handle/123456789/29664>
- Banco de España. (2023b). "Chapter 4. Spain and the European Union in the face of the energy crisis: near-term adjustments and challenges pending". In Banco de España, *Annual Report 2022*, pp. 184-220. <https://repositorio.bde.es/handle/123456789/29665>
- Chiacchio, Francesco, Roberto A. De Santis, Vanessa Gunnella and Laura Lebastard. (2023). "How have higher energy prices affected industrial production and imports?". *Economic Bulletin - European Central Bank*, 1/2023. https://www.ecb.europa.eu/pub/economic-bulletin/focus/2023/html/ecb.ebbox202301_02-8d6f1214ae.en.html
- Emter, Lorenz, Vanessa Gunnella and Tobias Schuler. (2023). "Box 3. The energy shock, price competitiveness and euro area export performance". *Economic Bulletin - European Central Bank*, 3/2023, pp. 47-51. <https://www.ecb.europa.eu/pub/pdf/ecbu/eb202303.en.pdf>
- Enagás. (2022). *Annual Report 2021*. https://www.enagas.es/content/dam/enagas/en/files/enagas-communication-room/publications/informe-anual/ANNUAL%20REPORT%202021_ENAGAS.pdf
- García Esteban, Coral, Ana Gómez Loscos and César Martín Machuca. (2023). "Recent developments in goods imports in light of certain determinants". *Economic Bulletin - Banco de España*, 2023/Q2, 03. <https://doi.org/10.53479/30069>
- García Esteban, Coral, César Martín Machuca and Francesca Viani. (2020). "Box 4. International trade in medical products during the COVID-19 pandemic". *Economic Bulletin - Banco de España*, 4/2020, pp. 22-25. <https://repositorio.bde.es/handle/123456789/14464>
- García Esteban, Coral, Patrocinio Tello Casas, Esther Gordo Mora and Jaime Martínez Martín. (2009). "Una actualización de las funciones de exportación e importación de la economía española". Documentos Ocasionales, 0905, Banco de España. <https://repositorio.bde.es/handle/123456789/6340>
- IMF. (2023). *World Economic Outlook Update, July 2023*.
- Ioannou, Demosthenes, Javier J. Pérez, Hans Geeroms, Isabel Vansteenkiste, Pierre-François Weber, Ana M. Almeida, Irina Balteanu, Iván Kataryniuk, Daniel Alonso, Maria Grazia Attinasi, Lorenzo Bencivelli, Oscar Borgogno, Fructuoso Borrillo, Kristel Buysse, Rodolfo Campos, Daragh Clancy, Lucía Cuadro-Sáez, Enrica Di Stefano, Andreas Esser, ... Natalja Viilmann. (2023). "The EU's Open Strategic Autonomy from a central banking perspective. Challenges to the monetary policy landscape from a changing geopolitical environment". Occasional Papers, 311, European Central Bank. <https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op311~5065ff588c.en.pdf>
- Pacce, Matías, Isabel Sánchez and Marta Suárez-Varela. (2021). "Recent developments in Spanish retail electricity prices: the role played by the cost of CO₂ emission allowances and higher gas prices". Documentos Ocasionales, 2120, Banco de España. <https://repositorio.bde.es/handle/123456789/17371>
- Quintana, Javier. (2022). "Economic consequences of a hypothetical suspension of Russia-EU trade". *Economic Bulletin - Banco de España*, 2/2022, Analytical Articles. <https://repositorio.bde.es/handle/123456789/21162>

How to cite this document

García Esteban, Coral, Ana Gómez Loscos and César Martín Machuca. (2023). "Some explanatory factors of the recent behaviour of goods exports". *Economic Bulletin - Banco de España*, 2023/Q3, 10. <https://doi.org/10.53479/33475>

Reproduction for educational and non-commercial purposes is permitted provided that the source is acknowledged.

© Banco de España, Madrid, 2023

ISSN 1695-9086 (online edition)