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MAPPING SECTORAL TRADE BALANCES IN TIME: A LOOK AT THE NUMBERS

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Abstract

In this descriptive paper, we focus on the sectoral composition of trade balances and their evolution since the 1970s, through the aggregation of millions of data points for goods and services. We use a "tree" approach, from global to regional, and from regional to sectoral and finally country balances. Balances are examined through the lens of country-world pairs, not bilateral balances, and from various angles: as a share of global and regional GDP, and in value-added terms.

We find both elements of stability and change. At the aggregate and regional levels, the story is one of stability. From the mid-1980s onwards, despite some year-to-year variation, we observe an overall stability in the geography and size of aggregate surplus and deficit regions, particularly when scaled by global GDP. This means, for example, that the size of Asia's surpluses as a share of global GDP in 2024 was close to that of 1986. This is equally true of North America's deficits. That said, imbalances have grown during certain periods, mostly between 1976 and 1986, and in the run up to the global financial crisis, and have fallen at other times (1990s, 2010s). As of the mid-2020s they are on the rise, but levels are smaller than at the peak in 2005, pre financial crisis.

Changes are mostly at the sector and country level. Machinery/capital goods, and the electronics sector, have become the largest sources of manufacturing trade imbalances. Country-sector pairs show a reallocation of manufacturing surpluses and deficits across countries: while Japan, Germany and Italy accounted for the eight of the ten largest sector surpluses in the mid-1980s. In 2024, China had become the source of three out of the four largest surpluses, substituting Japan in sectors such as machinery and manufactured goods. North America's consistent trade deficits have increasingly reflected manufactured goods, most recently in machinery and electronics. In Europe, pharmaceuticals have replaced machinery as the largest surplus sector. In agri-food, several regions shifted from surplus to deficit positions and vice versa. South America records persistent agri-food surpluses, but with a vastly changed product composition over time.

Changes in these sectors should not obscure the fact that mineral fuels (oil and gas) have been, and remain, the single largest source of sectoral imbalances, with China the largest importer.

The evolution of services trade balances highlights growing surpluses of Europe and North America. Aside from the recent, and limited, exception of the Middle East, other regions have recorded deficits, in some cases rising ones. Information, communication, and technology services are the fastest-growing source of surpluses, while intellectual property-related services are the fastest-growing source of deficits. Transport and travel still account for large share of the level of imbalances.

Adopting a value-added perspective alters the assessment of global trade balances across regions for both goods and services. This approach makes Europe's goods trade deficit larger and its services surplus smaller. It results in North America's goods trade deficit decreasing and its service trade surplus increasing, a trend which has intensified over time. It also makes Asia's goods trade surplus larger (a visible trend since 1995), while little change is observed for the services trade deficit.

Keywords: Trade, Trade Imbalances, Empirical studies on trade

JEL classification: F10, F14, F,42, O57, R10

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1 INTRODUCTION AND SUMMARY FINDINGS

There is no consensus among economists on the optimal level of trade imbalances. As noted in a recent thought piece (Auboin, Bekkers, Ossa, and Smith, 2025), trade imbalances are not necessarily problematic from an economic perspective. Sectoral imbalances can arise from specialization: a country with a comparative advantage in services may run a surplus in services and a deficit in goods, and vice versa. Changes in a country's savings, borrowing and consumption behavior with the rest of the world would translate into external imbalances, including trade imbalances. From this perspective, trade imbalances are not always signs of dysfunction, but channels through which economies realize the gains from trade across sectors and over time.

Yet, trade imbalances have long been a concern for policymakers, prompting calls for corrective trade measures. Recent tariff actions—framed in part as an effort to reduce bilateral deficits—fit this established pattern. Notable precedents include the US–Japan trade tensions of the 1980s and the global imbalance debates following the 2008 financial crisis. The connection is not merely anecdotal: empirical research shows that variations in trade imbalances, particularly at the bilateral level, are strong predictors of trade action (Delpeuch, Frize, and Martin, 2024). Variations matter, levels too. Even though imbalances may be a feature of open economies, the persistence of long-term, uncorrected external imbalances can be perceived to be associated with underlying domestic and international disequilibria and as a result be a source of tension in the trade policy environment. Disequilibria are typically seen as originating from factors such as home-grown domestic macroeconomic imbalances, financial debt build-up, market access and industrial policy distortions and exchange rate policy.

This paper does not dwell on the drivers of trade imbalances but sets out a comprehensive map of sectoral trade imbalances since the 1970s. As documented in the literature review (section 2), trade economists have focused mostly on bilateral balances, much less so on sectors, not only because of the policy focus on bilateral balances but also because of the data treatment challenge of working at sectoral level. The contribution of this paper is to have mapped out the sectoral composition of global trade balances since the 1970s, building on the aggregation of more than two million data points, just for merchandise flows in value.[1] For goods and services, and for trade in value-added, we used 18 and 14 million data points respectively. We took a "tree" approach, from global to regional, and from regional to sectoral balances. We examined balances through the lens of country-world pairs, not bilateral balances, and from various angles: gross values, as a share of GDP, and in value-added terms. We cover all sectors, not only manufacturing, but also agriculture, oil and gas, and services.

We find both elements of stability and change. **At the aggregate and regional levels, the story is generally one of stability**. From the mid-1980s onwards, despite some year-to-year variation, we observe an overall stability in the geography and size of aggregate surplus and deficit regions, particularly when scaled by global GDP. This means that regions which were in deficit in 1986 remained in deficit throughout the period (for example, North America), and surplus regions remained in surplus (for example, Asia). For merchandise trade only, Asia's surplus as a share of global GDP in 2024 was the same as it was in 1986, and North America's deficit in 2024 was the same as in 1986. That said, a careful look at figures 1 and 4 shows that imbalances have grown in certain periods, most notably between 1976 and 1986, and in the run-up to the global financial crisis. They are currently on the rise, even though at lower levels than in 2005. It can be noted that the long-term geography of regional trade balances since the 1980s has remained stable regardless of the existence of the WTO, and the substantial trade liberalization achieved since then.

Bringing the analysis down to sector and country imbalances, the story is rather one of change, particularly in manufacturing. Manufacturing accounts for more than two-thirds of goods flows, and goods flows account for three-quarters of total trade flows. It is therefore not surprising that changes in imbalances are primarily driven by manufacturing. Machinery/capital goods, and the electronic and telecommunication equipment sector, have over time become the largest sources of manufacturing surpluses (for surplus regions) and deficit (for deficit regions). Pharmaceuticals have also become a growing source of sectoral surpluses and deficits, but to a lesser extent. The share of motor vehicles in sectoral surpluses and deficits is still important, but it has varied over time. In the mid-1980s, motor vehicles were the largest source of manufactured

1 bearing in mind that SITC levels of aggregation used in this paper is already high (3-digits) compared to the Harmonized System for example.

surpluses and deficits, but this has reduced since surplus countries started to produce locally in foreign markets, thereby reducing the size of existing trade deficits. Currently, their overseas' production exceeds multiple times their total exports. With rising demand for electric vehicles, sectoral imbalances have risen again.

Country-sector pairs show a reallocation of manufacturing surpluses and deficits across countries. In 1986, Japan, Germany and Italy were the source of the eight largest sector surpluses (machinery and motor vehicles for Japan and Germany, manufactured goods and electronics for Japan, chemicals for Germany, miscellaneous manufactured articles for Italy). By itself, Japan accounted for four of the top ten sectoral surpluses. In 2024, China had become the source of four of the five largest sectoral surpluses in manufacturing (machinery, miscellaneous manufactured articles, and manufactured goods) and five out of the ten (with motor vehicles rising as a source of surplus). One can observe a reallocation of surpluses within Asia: China, instead of Japan, has become the main source of surpluses in machinery and manufactured goods, and is close to it for motor vehicles. In "smaller" sectors, such as textiles, which do not feature in the top ten ranking, China has also seen a growing net surplus. The reallocation of surpluses goes beyond Asia as Germany, the source of three of the ten main sector surpluses in 1986, is now the source of only one inside the top ten (motor vehicles). Italy disappeared from the ranking. European countries, instead, reinforced their positions in sectors such as pharmaceuticals.

Changes in manufacturing should not obscure the fact that mineral fuels (oil and gas) have been the single largest source of imbalances in international trade over the past several decades. Even with substantial changes in the location and composition of manufacturing trade since the 1980s, in 2024, oil and gas accounted for around one quarter of the total goods trade surplus, almost the same share as in 1986 (figure 6 & 7). This has been a stable share since 1986. Country-sector pairs show that the largest net importer in 1986 was the United States (now a net exporter), and in 2024 it was China. As the location of commercially viable oil and gas deposits are geographically fixed, and generally different from the distribution of population and economic activity, the largest single sector share of global imbalances since the 1970s has been, to some extent, unavoidable.

While smaller in size, surpluses and deficits in the agri-food sector showed the largest variation across regions. Africa was a net exporter in 1976 but changed into a net importer since then. North America recorded surpluses in the 1970s and 1990s, but these turned into deficits since the 2000s. Europe recorded deficits until the 2000s, which turned into surpluses since then. South America has recorded growing surpluses since the mid-1990s, the largest of all regions, with a changing composition (from coffee, tea, and cocoa to oil seeds and meat).

Services trade balances showed increasing polarization, on the surplus side, North America recording rising surpluses, as a share of global GDP, mirroring deficits in the goods trade (albeit not of the same magnitude). Europe displayed the largest and fastest-growing services surpluses. Aside from the recent, and limited, exception of the Middle East, other regions have recorded deficits, in some cases rising one. Information, communication and technology services are the fastest growing source of surpluses, while intellectual property-related services are the fastest growing source of deficits. "Traditional" services such as transport and travel still account for large – at times growing - share of deficits and surpluses.

Using a value-added approach, we observe that the largest trade imbalances in both goods and services generally come down. A Trade in Value-Added (TiVA) approach makes Europe's merchandise trade deficit larger and services surplus smaller. It results in North America's merchandise trade deficit becoming smaller and its service trade surplus increasing, a trend which has increased over time. It also makes Asia's merchandise trade surplus larger (a trend to a growing extent since 1995), while little change is observed on the (deficit) services trade balance. The downward "correction" of North American merchandise trade deficits reflects the high domestic input content of exports compared with the domestic content embodied in imports from trading partners. In Europe, changes are driven by the intensive use of intermediates in several highly open economies and by the production of goods with high levels of intellectual property rights from other regions – which under this methodology are re-attributed to these regions.

What lessons can regions and countries draw from this paper, even though it does not hint into drivers? The sectoral focus helps articulate the complexity of how imbalances have evolved, adding value to a debate prone to generalization and dry of academic analysis. This analysis helps

re-anchoring the policy discussion with a detailed description of long-term trends, which shows that all is not about only one or two countries, with a single cause-and-effect storyline. Some countries with large manufacturing surpluses have turned into a deficit (Japan), in part by investing and producing abroad, such as in the automobile sector, thereby promoting competition in local markets, transferring technology, while becoming truly global brands. Other countries or regions moved up the value chain, for example Europe, from high-energy-consuming chemicals towards high-value pharmaceuticals and specialized life sciences. Declining surpluses in basic chemicals are mirrored in growing surpluses in pharma industries, albeit with transition costs. Within advanced industrial regions, some countries (the Netherlands) have maintained surpluses, even in "traditional" sectors such as chemicals and agri-food, by adapting to competition while remaining open to trade. The debate should also bring together manufacturing and services. Europe and North America's growing services surpluses are reflective of corporate strength in sectors where hardware production was delocalized, but technological advance filters through net exports of services and intellectual property. A value-added approach shows that deficits in manufacturing would be smaller, particularly in North America, and services surpluses higher. There are many unanswered questions, though, that would require further analysis of drivers at the disaggregated level: why has Germany seen its chemical surplus decreased, while Netherland and Ireland kept their shares, and China turned a deficit into a surplus in this sector? Why has China expanded its surplus in so many manufacturing sectors? Why has Latin America developed such strength in agriculture? Further sectoral analysis disentangling the drivers of sectoral imbalances would be helpful.

2 BACKGROUND AND LITERATURE

To date, trade economists have focused mostly on bilateral balances, **much less so on sectors**. While some recent analysis have moved towards sector imbalances, for example, for the US and China in de Soyres et al., (2026), the topic remails a small sub-set of the literature. This is not only because policy discussions tend to focus on the bilateral perspective but also because of the challenges of data availability at the sectoral level. While detailed statistics on trade in goods and services are be available from public sources, constructing a database of sector level trade flows across a long enough time-series, often spanning multiple reclassifications of sectors, to provide a meaningful illustration of trade flows at the global level is a considerable undertaking. Such a database should encompass what are presently the major trading economies, however some of these did not trade extensively in past decades and so the database must also navigate varying degrees of coverage over a long period.

The main contribution of this paper is therefore to have completed this groundwork, necessary for **mapping the sectoral composition of global, regional and country-level trade balances since the mid-1970s**. The analysis thus builds on the aggregation of more than two million data points, just for merchandise trade flows in value. For goods and services, and for trade in value-added, more data points were necessary (particularly for trade in value-added, which builds on input-output tables). We took a "tree" approach, from global to regional, and from regional to sectoral balances. We examined balances through the lens of country-world pairs, not bilateral balances, and from various angles: gross values, as a share of GDP, and in value-added. We have covered all sectors, not only manufacturing, but also agriculture, oil and gas, and services.

This paper does not look at the drivers of sectoral imbalances. In their work, other economists focusing on bilateral or bilateral trade balances, have taken a general equilibrium approach, for evaluating how each factor contributed to these balances. As explained by Shin (2025), models incorporate the widest possible range of factors consistent with the literature, such as demographic factors, forces determining production and investment decisions, savings and borrowing behaviour, government spending and households' consumption patterns, other institutional and policy factors influencing capital inflows.

Models also typically incorporate determinants explaining bilateral trade flows across economies and sectors, such as comparative advantage, trade costs, capital and labour endowment or supply (Caliendo and Parro, 2015). Productivity differences across sectors typically play an important explanatory role even though capital flows do not always follow productivity patterns, as explained by Gourinchas and Jeanne (2013).

In a recent paper using gravity modelling, Cuñat and Zimek (2022) attributed most of the over-sized bilateral trade imbalances (bilateral trade balances significantly larger than the geometric average of bilateral trade flows) to trade frictions, many of which are policy-based trade barriers.

The authors also acknowledged (page 6) the limited amount of attention received by the topic of bilateral trade imbalances in academic research, apart from a few studies such as that by Davis and Weinstein (2002) which provided inspiration for their own paper. A further complication in modelling balances, and thus in the imbalance's discussion, is that the topic cuts across the trade and macroeconomic literature and their distinct modelling approaches (Bekkers et al., forthcoming; Smith et al., 2023).

III. DATA AND DETAILED FINDINGS

III.1 Data

For the analysis of long-term global and regional balances of goods and services, the paper relies on balance of payments (BOP) statistics, compiled on a change of ownership basis, which allow goods and services to be analysed jointly within a single accounting framework.

The BOP provides a detailed classification of services. For services trade balances analysed in this paper, the source is WTO estimates on trade in commercial services contained in the WTO Stats portal. As BOP goods statistics do not retain product-level detail, balances for goods are instead derived from customs-based UN Comtrade–UNCTAD merchandise trade statistics, in accordance with product groups in the Standard International Trade Classification, Revision 3 (SITC Rev. 3).

It should be noted that merchandise trade statistics and BOP statistics follow different recording principles. International merchandise trade statistics record goods entering or leaving the economic territory. By contrast, in the BOP, goods transactions are recorded only when there is a change of economic ownership between a resident and a non-resident, regardless of whether the goods physically cross a border. For example, goods sent for processing in other economies without a change of ownership are treated differently in BOP statistics than in merchandise trade statistics. While customs would record the movement of these goods regardless of changes in ownership, the balance of payments would only record the *service* fee for processing them in the Services account.[2] Statistical authorities apply adjustments to customs-based merchandise trade data to derive BOP-consistent goods statistics.

Thus, **caution must be exercised when comparing, for goods, figures using BOP-based data with those using customs-based statistics**. The impact is significant for Europe.[3] In current US dollars, Europe recorded a small aggregate merchandise trade deficit in 2024, according to customs statistics, against a $300 billion goods trade surplus in BOP terms. When expressed as a share of GDP, which itself was close to $115 trillion in 2024, the difference looks smaller. Yet the methodological difference results in a change of sign of the merchandise trade balance. This is due to a rather small set of countries, active in commodity trading, bullion metal processing, and goods processing.

Ideally, in merchandise trade statistics, one country's export should match another's imports. However, in practice, a statistical discrepancy is present. Most typically, global imports are greater than exports. This is due to a range of factors including imports being recorded on a CIF (cost, insurance and freight) basis as opposed to FOB (free on board) for exports. Import values embody transport and insurance costs from the border of the importing economy while exports do not. As a result, as visible in certain charts below, the sum of (regional) merchandise surpluses do not equate to the sum of deficits exactly. Imports being somewhat larger than exports, deficits in deficit regions are larger than surpluses in surplus regions.

The discrepancy between merchandise imports and exports at the global level is roughly 3% of total flows, 1% of global GDP. By comparison, discrepancies for services are larger as a share of flows

[2] Differences between Balance of Payments (BOP) (BPM6) and International Merchandise Trade Statistics are explained in detail in the International Merchandise Trade Statistics: Compilers Manual, Revision 1 (IMTS 2010), Chapter XXIV Section B "Goods to be recorded differently in IMTS and BPM6/national accounts" (p. 288). (https://www.un-ilibrary.org/content/books/9789210559898).

[3] According to the aggregation of countries used in WTO publications such as "World Trade Statistics" and the "Global Trade Outlook and Statistics", by statistical convention "Europe" incorporates the United Kingdom, the European Union, EFTA countries, and other non-EU countries. A description of the regional coverage used in this paper and in WTO publication can be downloaded from the 'Regional Compositions' file of stats.wto.org (https://stats.wto.org/assets/UserGuide/Regional_Compositions.xlsx).

(10% between credits and debits), but as flows are smaller than that of goods, the discrepancy is smaller as a share of global GDP (0.7%). However, these discrepancies are not specific to international trade. Other large economic aggregates display discrepancies at the global level, for example capital flows. Discrepancies reflect data being misallocated, reported incorrectly, incompletely, or not reported at all.

III.1.1. Approach

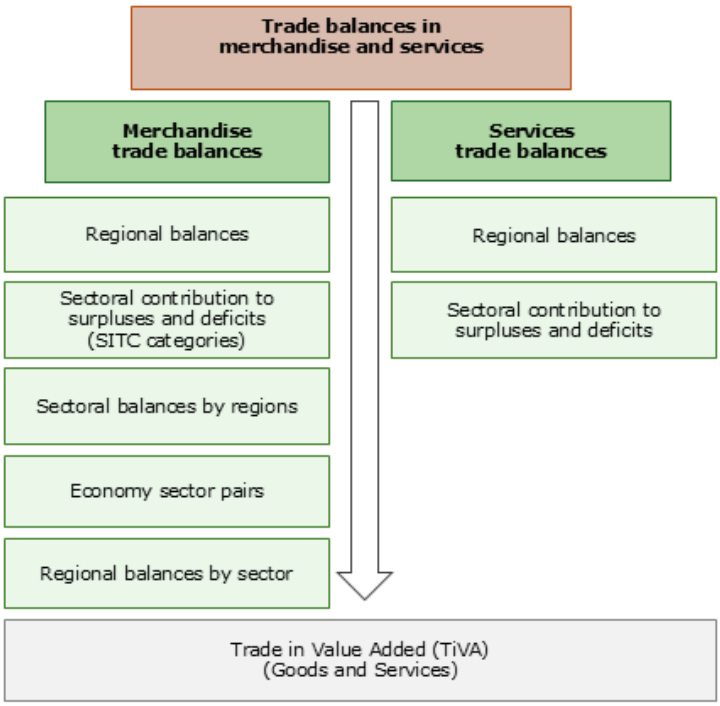
We first look at trade balances by region in goods and services (Diagram 1).[4]

This is **followed by** separate analyses of **merchandise trade balances** (regions, sectors, economy-sector pairs) **and** of **services trade balances** (regions, sectors). **It ends with an analysis of trade in value-added**, introducing the supply chain dimension. Balances are presented as a share of global and regional GDP.

Both perspectives are interesting, as the regional GDP may provide a measure of the "sustainability" of a deficit or vulnerability to it, while the global GDP allows for cross-regional comparisons. Furthermore, it helps scale balances in size, time, and relative to flows.

As the analysis is primarily concerned with global sectoral balances, country-level examination can obscure the picture because some sectors can have an outsized impact on a particular country, but do not necessarily contribute to large global imbalances.

Diagram 1. The sequences of analysis on trade balances, goods, services, regions, sectors, countries and value chains



[4] For statistical region compositions, see the "Technical Notes" of the WTO Stats portal (https://stats.wto.org/assets/UserGuide/TechnicalNotes_en.pdf).

III.2 Findings

III.2.1. Trade in goods and services – Balance of Payments statistics

Figure 1 shows the evolution of the balance of goods and services between 1976 and 2024 (the last available year), **scaled by global GDP**. The scaling by global GDP is particularly relevant for global comparisons, across periods.

The following points can be observed:

- In 1976, at the beginning of the period, aggregate trade imbalances are small in all regions. The largest surplus is that of the middle East (0.5% of global GDP), the largest deficit is that of Europe (0.4% of GDP), all other regions have smaller balances.

- **There is an increase in imbalances from 1976 and 1986**. Asia develops a surplus (0.4% of global GDP), North America a deficit close to 0.7% of GDP, and Europe turns it deficit into a surplus.

- **The general "shape"/geography of surplus and deficit positions for the main regions** (Europe, Asia, North America) **show some stability from 1986 onwards**, when scaled to global GDP. This means that regions which were in deficit in 1986 remained in deficit throughout the period (for example, North America), and surplus regions remained in surplus (for example, Asia and Europe).

- That said, **there have been year-to-year variations**. Imbalances have grown in certain periods and fallen in others. In this respect, the years used for comparison matter in the way imbalances are discussed. For example, as a share of global GDP, North America's deficit in goods and services in 2024 increased compared to 2015, but is smaller than in 2005, when it peaked. Yet, the levels recorded in 1986, 2015 and 2024 are relatively comparable, around 0.7-0.8% of global GDP – even though one can observe a small increase in North American deficits from 2015 to 2024.

- Europe's surplus in 2024 was comparable to 2015, at around 0.7%-0.8% of GDP, but higher than at previous periods in this figure. The scale shows that since the mid-1990s, Europe's surpluses have been comprised between 0.4% and 0.8% of GDP.

- Asia's surpluses in goods and services have been since 2005 around 0.5%-0.6% of GDP, higher than in the 1990s. In 1986, the surplus in goods and services was 0.4% of global GDP.

- Africa has experienced mostly deficits over the whole period, while the Middle East experienced mostly surpluses. South America recorded a succession of deficits and surpluses.

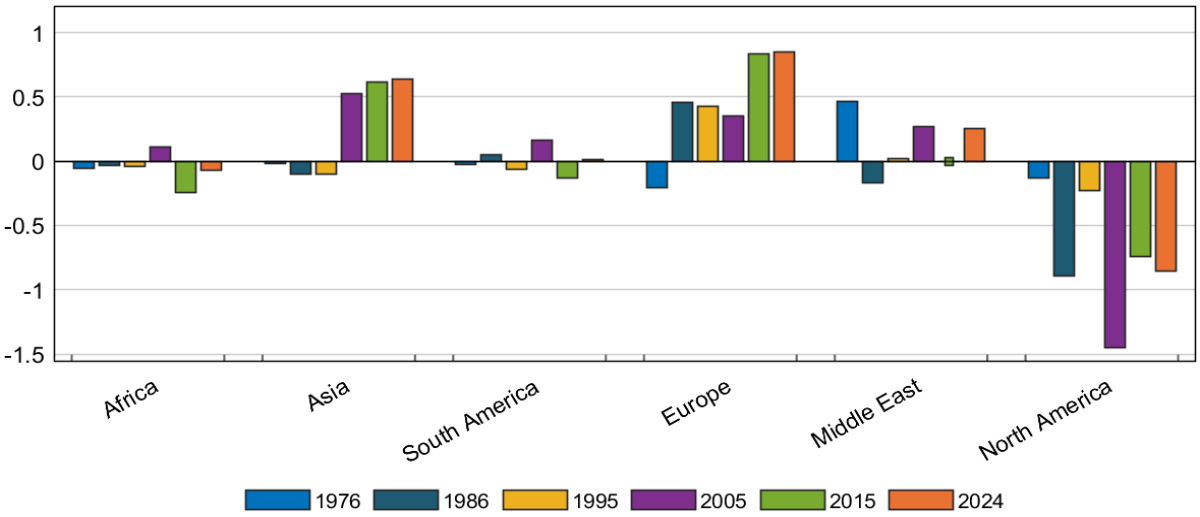
- The Middle East goods and services position largely evolved according to oil prices, but apart from a peak in 2005, surpluses have hardly exceeded 0.2% of global GDP since 1995. While Africa's external balances for goods and services may not seem "large" as a share of global GDP, like for the Middle East and South America, they account for a larger share of GDP when scaled to regional GDP.

- In most years, deficits in goods and services did not exceed 1% of global GDP, except North America's deficit in 2005.

- How sectors contributed to these aggregate developments is explained in the next figures, under the "tree" approach.

Figure 1. Trade balance of Goods and Services, 1976-2024

% of Global GDP



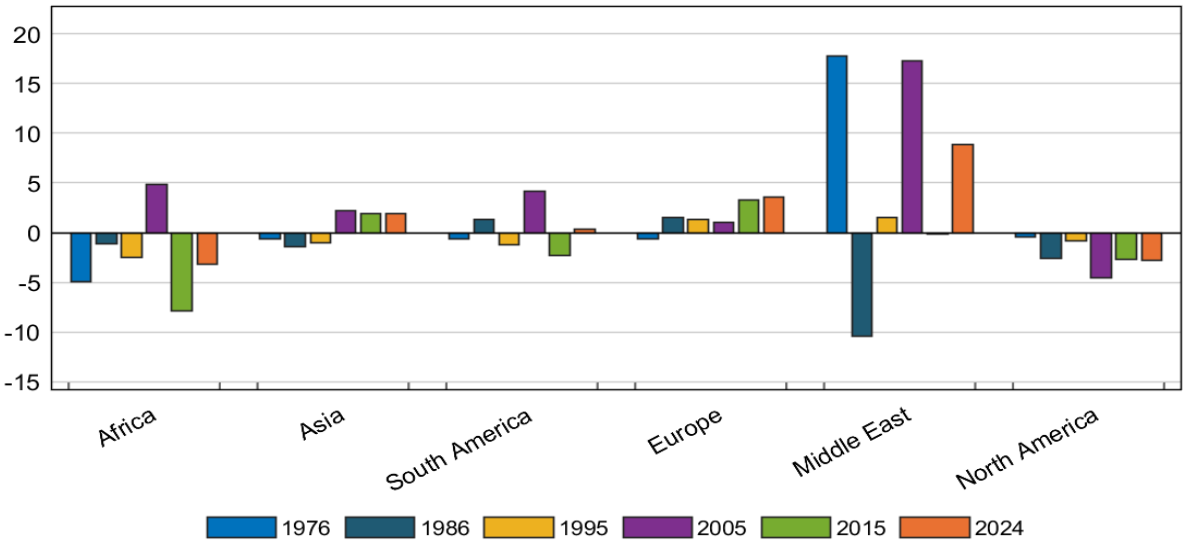
Source: International Financial Statistics and balance of payments, IMF
Note: Markers denote values close to zero

Figure 2 provides the same calculations of regional balances in goods and services but scaled by the regions own GDP. Given the relatively "small" size of their economies and external balances relative to global GDP, the deficit of Africa does not look "large" at the global level, but the picture changes when such deficits are scaled relative to the regional GDP.

Symmetrically, when compared to its regional GDP, Middle East surpluses look disproportionately large (in some cases above 15% of the regional GDP), while as a share of global GDP those surpluses are lower than a percentage point. What is true for Africa and Latin America also applies to some extent to other regions. This paper does not go deep into the definition of what would economically a "large" trade deficit or a "large" trade surplus. While there is no single universal definition, several countries and international institutions use GDP percentage-based thresholds and methodologies to monitor external imbalances.

Figure 2. Trade balance of Goods and Services, 1976-2024

% of Regional GDP



Source: International Financial Statistics and balance of payments, IMF
Note: Markers denote values close to zero.

Figure 3 provides a long-term view of the top eight main contributors to the goods and services balances as a share of global GDP since the mid-1970s, at the country level. The figure shows, left to right, that:

- **total imbalances were generally smaller in the 1970s** (about 0.5% of GDP both on the surplus and deficit sides), up to the 1980s, when Japan, on the surplus side, and the United States, on the deficit side, saw an increase in imbalances.

- **In the 1980s, the total of deficit countries grew to about 1% of global GDP**, but it would require extending the panel of eight countries to have the symmetric figure on the surplus side. In the mid-late 1970s and early 1980s, surpluses were driven in part by oil price shocks. Twin deficits and the resulting Plaza Accord period can be seen in the mid-1980s. The emergence of Russia as a major net exporter on world markets, following the dissolution of the Soviet Union, can be seen from the early 1990s.

- **In the 1990s,** the magnitude of **surpluses and deficit fell, but** increased again by the turn of the millennium. It **peaked at around 1.5% of global GDP just prior to the global financial crisis**. **After the financial crisis, total surpluses and deficits fell and stabilized around 1% of global GDP**. The United States accounted for the bulk of deficits. Japan, which used to run large surpluses in the 1980s saw its trade balance turn into a deficit in the early 2010s, and further again after the Covid-19 pandemic. On the surplus side, Germany and China emerged as the top surplus countries in the early 2000s.

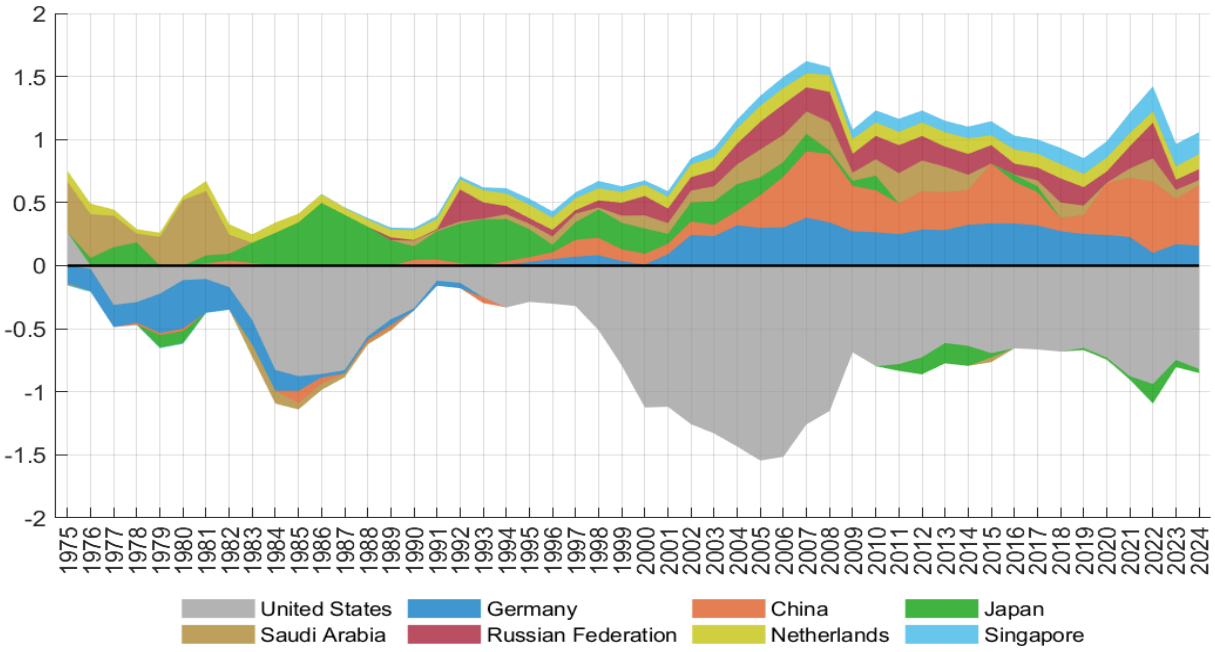
- Total surpluses in goods and services, for the surplus countries, were in 2024 roughly equal to 1% of global GDP, very close, by symmetry, to total deficits.

- In terms of countries, **Saudi Arabia display the largest surpluses until the early 1980s**, thus "replaced" by **Japan from the mid-1980s to the early 2000s**. Japan's surpluses are thus reduced, while Germany, China, and oil producers (Saudi Arabia, Russian Federation) contribute to rising surplus in and around the global financial crisis. **In the late 2010s, Germany's surpluses start to fall, while China's expand.** For deficits, Japan, Germany and the United States share deficits until 1980.

- **From then on, the United States contribute to the largest share of deficits, or all of it.** For short periods (Germany and China in the mid-1980s; Japan since the global financial crisis), other countries make a small contribution to deficits.

Figure 3. The top eight countries contributing to the global trade balance, goods and services (average absolute value 1975-2024)

% of Global GDP



Note: Countries are ranked by the absolute value of the sum of trade balances

III.2.2. Merchandise trade – Aggregate view

This section describes merchandise trade balances using customs data. We selected the same years. In some years (for example 1985 versus 1986), data quality constrains the choice of one year rather than another.

Figure 4 shows, inter alia, that:

- The profile of aggregate merchandise trade balances, as a share of global GDP, reflects the overall profile of goods and services balances shown in figure 1 (except for Europe), even though magnitudes are a bit larger. Services balances, which are typically of the opposite sign of merchandise trade balances, temper the size of aggregate balances in goods and services.[5]

- **Merchandise trade imbalances rose from 1976 to 1986**.

- What happened thereafter depends on the choice of years of comparison. Someone taking 1995 as the start date may only see an increase in imbalances between surplus and deficit countries. Someone looking at 1986 as the starting date sees stability, particularly when comparing level of deficits and surplus in 1986, 2015 and 2024. Someone looking at 1976 may see that imbalances have, overall, expanded.

- Beyond discussion about levels, one can argue that **from the mid-1980s, the figure shows a stability of the overall geography of deficit and surplus countries** – with year-by-year variations, according to economic and credit cycles, commodity prices and shocks.

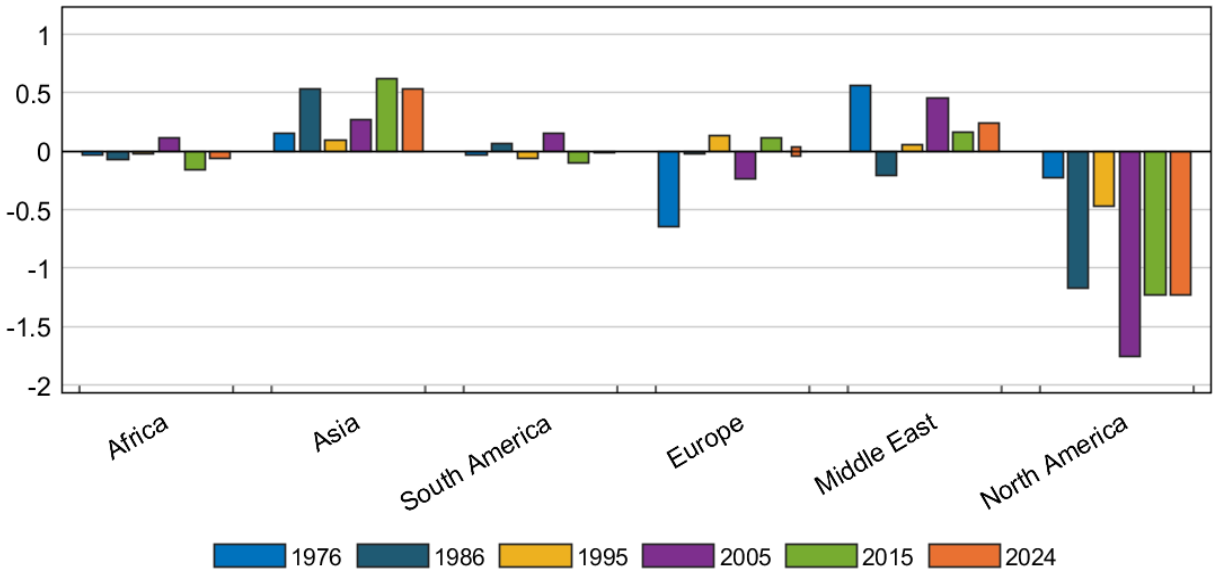
Two additional observations can be made. First, during this long period, trade flows (total imports or total exports) have grown as a share of GDP, from roughly 20 to 30%, meaning that deficits and surpluses of the main regions as a share of trade flows have fallen a bit. Second, 1986 is an

[5] Except for Europe, as the methodological adjustment from customs to BOP turns the goods balance from a small deficit to a surplus.

interesting year (like many), as Uruguay Round negotiations had been launched to create a stronger set of multilateral rules and reduce external protection in goods and services markets through multilateral trade negotiations. In that year, about 30% of world trade took place under quantitative restrictions (quota, voluntary export restraints), and global average tariffs were twice as high as the 2024 average.

Figure 4. Merchandise trade net exports by region 1986, 2005, and 2024

% of Global GDP

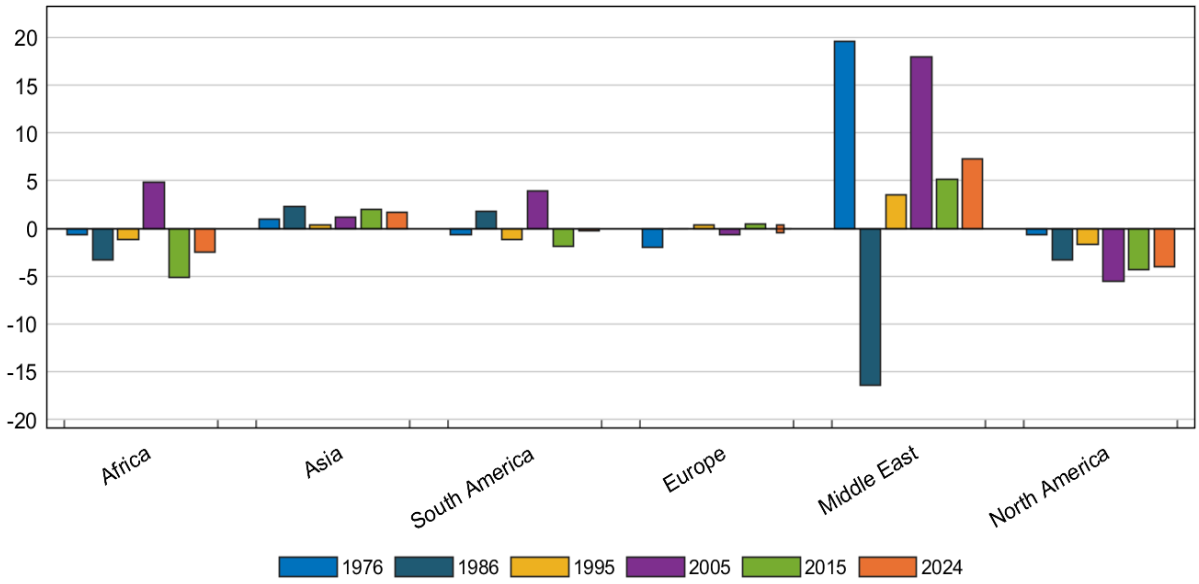


Note: Markers denote values close to zero

Figure 5 expresses merchandise **trade balances relative to regional GDP**, highlighting the very large merchandise trade deficits and surpluses in the Middle East, given the high share of oil in both GDP and trade, and the impact of price changes. The shift in the Middle East from a deficit to a surplus is partly linked to the year chosen. 1986 is the year of the oil "counter-shock", when global oil prices plummeted (from US$27 to US$10 a barrel). By 2005, oil prices had moved upwards (US$50 on average, US$60 at the end of the year), while quantities traded internationally had reached high levels (48 million barrels/day, out of an estimated global production 84 million barrels/day, at the time), benefiting net exports in Africa and the Middle East.

Figure 5. Merchandise trade net exports by region 1986, 2005, and 2024

% of Regional GDP



Note: Markers denote values close to zero

Again, the choice of years matters. The relatively larger variation of trade balances in 2005 can be explained by the commodity price boom of the early 2000s. This resulted not only in relatively large merchandise trade surpluses for South America, the Middle East and Africa, and, as observed in figure 5, a larger-than-usual merchandise trade deficit in North America, to which fuel has historically been an important component of imports.

The merchandise trade surplus of Asia in 2024 was close to 2% of the region's GDP (and 0.5% of global GDP), higher than in 2005 but a bit lower than in 1986. One might have imagined Asia's surplus to be higher, but China's, the Republic of Korea, and Singapore's large trade surpluses, among others, were partly offset in 2024 by deficits of countries such as India, Japan, Thailand, and the Philippines.

Sectors accounting for trade deficits and surpluses

Having looked at changes in aggregate trade balances and established, at least from the mid-1980s onwards, their broad geographical stability, the analysis now turns to the question of which sectors have driven these balances. This begins by identifying which sectors accounted for the largest share of global balances between regions. The decomposition then proceeds region by region, identifying the largest contributing sectors for positive and negative balances.

Reverting to global GDP scaling, figures 6 and 7 aggregate the deficit and surplus sectors separately.

The analysis separates surplus and deficit sectors, irrespective of region, and aggregates and ranks these balances. For example, mineral fuels have a positive balance in the Middle East, Africa and South America combined should account for a large share of the global positive balance.

The analysis is conducted over time to illustrate changes on the composition shares of sectors driving global balances.

Figure 6 highlights:

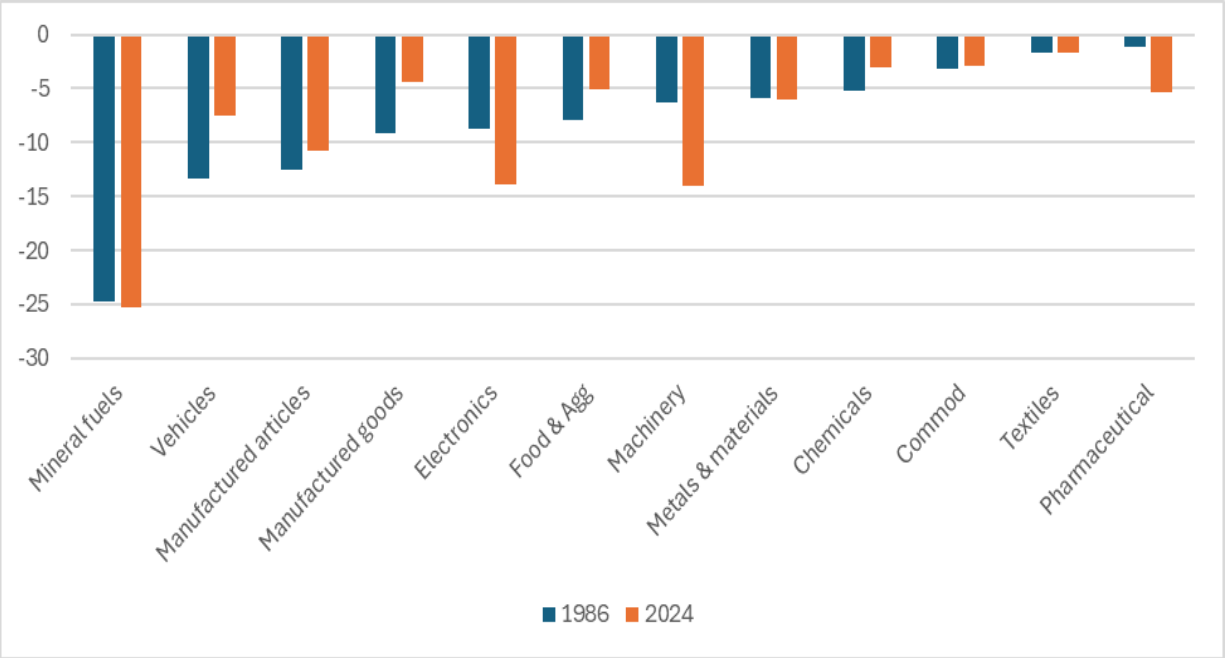
- the role of **mineral fuels,** which has **remained the single most important category of merchandise trade deficits** of the deficit between regions, accounting for a stable share of 25% of total deficits between regions, in both 1986 and 2024 – whether international prices were low or high.

- **The second largest category for deficits in 1986 was motor vehicles.** It was replaced by machinery in 2024 (14%), the importance of which has grown in trade flows, followed by electronics, a sector also in expansion in global trade, in terms of both flows and imbalances.

- The fourth largest source of deficit is miscellaneous manufactured articles. These **four sectors accounted, in 2024, for two-thirds of cumulated deficits** – the main change since the 1980s being, in sum, the emergence of machinery and electronics.

Figure 6. Sectors accounting for the trade deficit, 1986 & 2024

% of Total Deficit between Regions



Mirroring figure 6, **figure 7 highlights that**:

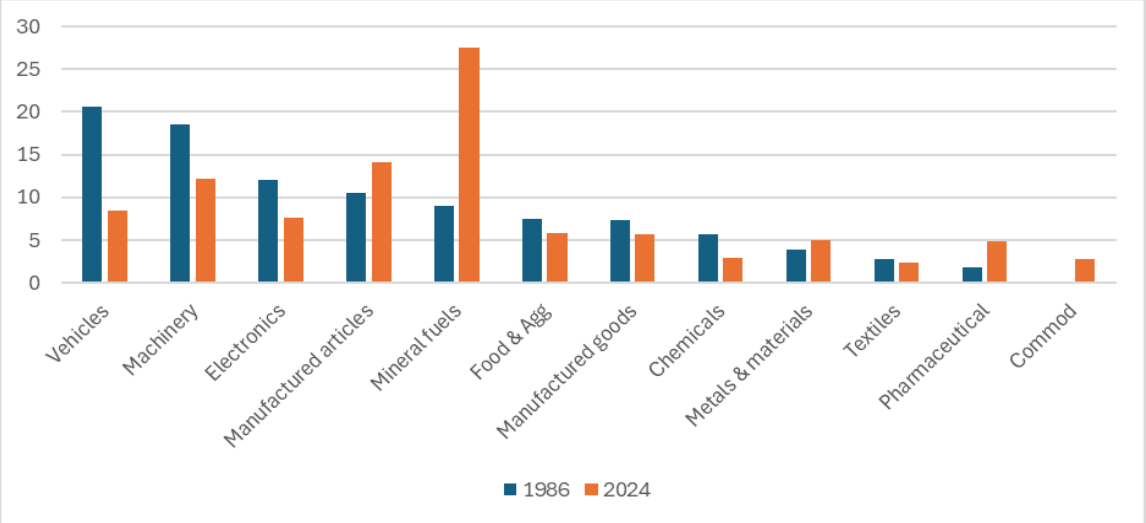
- **mineral fuels are the principal source of surplus** for surplus regions, followed by machinery.

- The growing size of deficits in machinery, for deficit regions, and surpluses, for surplus regions, reflect several factors, including the increasing tradability of capital/investment goods, the growing competition in this sector, and the growth of global value-chains trade, boosting the demand for machinery. The increased tradability of investment goods was confirmed by recent papers by Auboin and Borino (2017 and 2022), showing, by using input-output tables for about 40 countries accounting for 70% of world trade, that investment had become the most import-intensive component of domestic demand (comparing with consumption, exports and government expenditures), with an average import content of close to 40%. The growth in machinery and parts as a source of sectoral deficits and surpluses also reflects the growth of global value chain trade – which is intensive in machinery, as a share of total trade.

- **Motor vehicles were, on the other hand, a less important part in the composition of surpluses and deficits** (Figures 6 and 7). In 2024, the contribution of motor vehicles to surpluses and deficits had fallen to 7-8%, down from 15-20% in the mid-1980s.

Figure 7. Sectors accounting for the trade surplus, 1986 & 2024

% of Total Deficit between Regions



Sectors by region

Reverting to regional analysis, Figures 8 to 12 distinguish the sectors which have contributed the most to merchandise trade balances, over a relatively long period (since the mid-1970s), limiting the description to the six sectors accounting on average for 80% of the total trade balance.

Figure 8 focuses on North America. It highlights that:

- North America's merchandise trade deficit grew from a low of 0.2% of global GDP in the mid-1970s to about 1.2% in the mid-1980s, retreating to about 0.5% of global GDP in the mid-1990s, peaking at 1.8% of global GDP in 2005, and reaching 1.2% of global GDP in 2024, with a trend on the rise since the end of the Covid-19 pandemic.

- **Decomposing the deficit in North America reveals the dominance of manufactured goods.** Miscellaneous manufactured articles stand out as a major source of deficit over the whole period. This category of products covers a large span of non-electronic consumer goods and professional instruments (garments, travel goods, household appliances, furniture, optics products, medical equipment, etc), for which North America has been a net importer since the early 1980s.

- Since the global financial crisis, two other manufacturing sectors have accounted for a **growing share of North America's trade deficit: machinery (capital goods) and electronics.** In 2024, the sum of machinery, electronics, miscellaneous manufactured articles, and manufactured goods (including non-electronic intermediate products such as manufactures of wood, paper, glass, iron and steel, ferrous and non-ferrous metals) accounted for the bulk of the deficit.

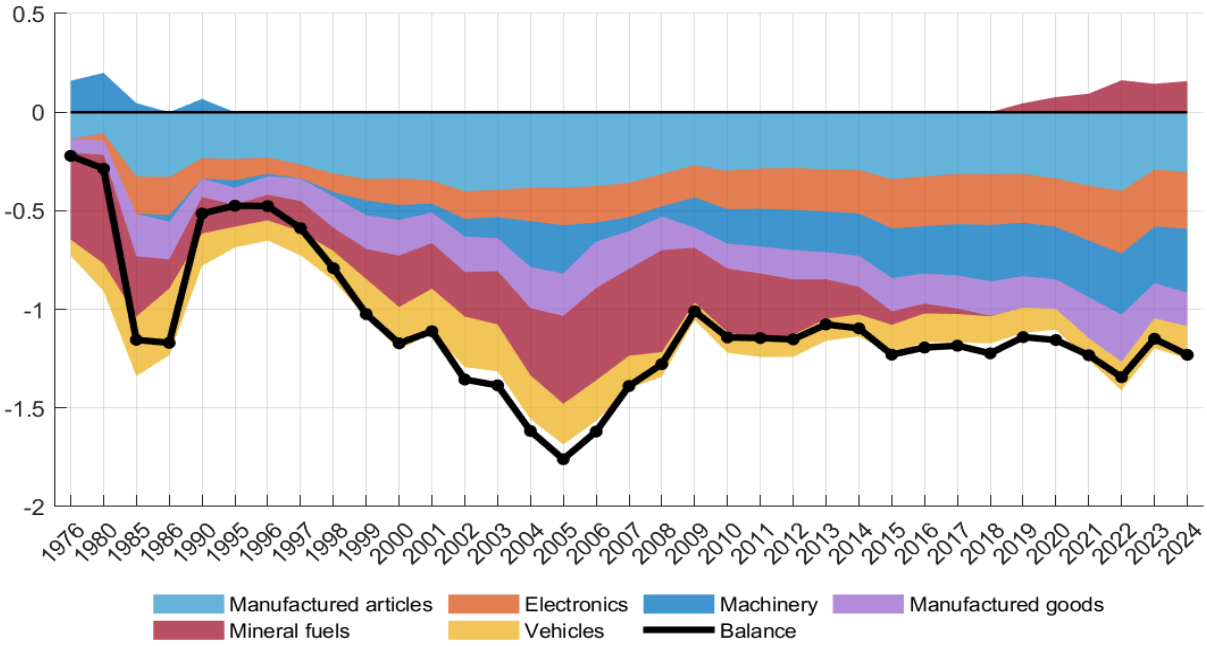
- Motor vehicles are the sixth-largest category: the deficit has accounted for about 0.1% of global GDP for most of the period, except in the mid-1980s where it was larger.

- Until the mid-2010s, the profile (not the amount) of deficit was also influenced by **mineral fuels**, of which North America was a net importer. Price movements, from the oil shock of the 1970s to the "counter-shock" of the mid-1980s, and the price increase at the turn of the

millennium, contributed to shape the deficit profile. Since 2018, North America has become a net exporter of oil and gas.

Figure 8. North America: Mineral fuels have moved from the largest source of deficit to surplus

% of Global GDP



Note: Sectors are ranked by the absolute value of the sum of trade balances

Figure 9 focuses on Europe, in its WTO statistical definition. It highlights that:

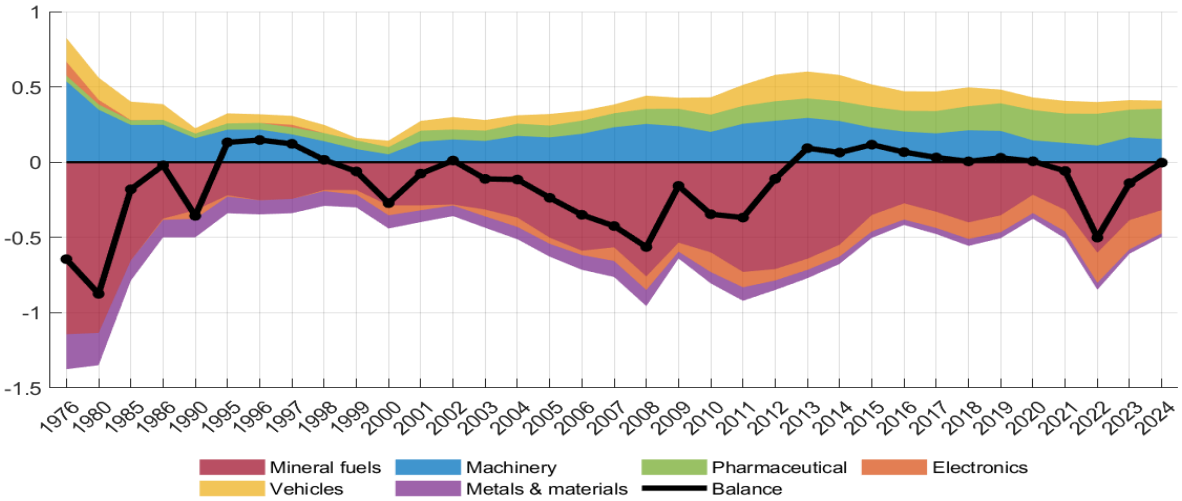
- **Europe experienced limited aggregate merchandise trade imbalances since the 1990s**, remaining close to balance except in the early 2000s and immediately after the Covid-19 pandemic.

- On the surplus side, as shown in the figure, **pharmaceuticals** have **replaced machinery as the largest surplus** sector. Europe's surplus in machinery has eroded lately. Europe's surplus in motor vehicles in 2024 also used to be larger in the past.

- As a **major importer of mineral fuels** (the main source of deficit), Europe's merchandise trade balance profile has been reflecting, to some extent, the fluctuations of global prices of oil and gas, with its aggregate trade deficit widening during the oil shocks of the 1970s and again at the turn of the millennium. A smaller source of deficit is electronics and metals.

Figure 9. Europe: Pharmaceuticals have replaced machinery as the largest surplus sector

% of Global GDP



Note: Sectors are ranked by the absolute value of the sum of trade balances

Figure 10 focuses on Asia. It highlights that:

- **The overall picture is one of surplus, since 1980**. This net surplus stems from the sum of surplus sectors above the 0-horizontal line (amounting in 2024 to about 1.5% of global GDP), and the sum of deficit sectors, below the 0-line, equivalent to about 1% of global GDP.

- **The growth of manufactured goods supported Asia's merchandise trade surpluses**.

- On the net export side (above the 0-horizontal line), the four most important sources of surplus in the whole period have been: miscellaneous manufactured articles (a combination of intermediates, consumer goods, and professional equipment), machinery, electronics, and motor vehicles, respectively. The surplus in miscellaneous manufactured articles has grown gradually since the late 1970s, to reach 0.4%-0.5% of global GDP in the 2020s.

- The surpluses in machinery (expanding since the global financial crisis) and electronics, are most recent. The surplus in motor vehicles peaked a first time in the mid-1980s, thus moderated as traditional exporters (Japan, Republic of Korea) expanded local production in foreign markets.

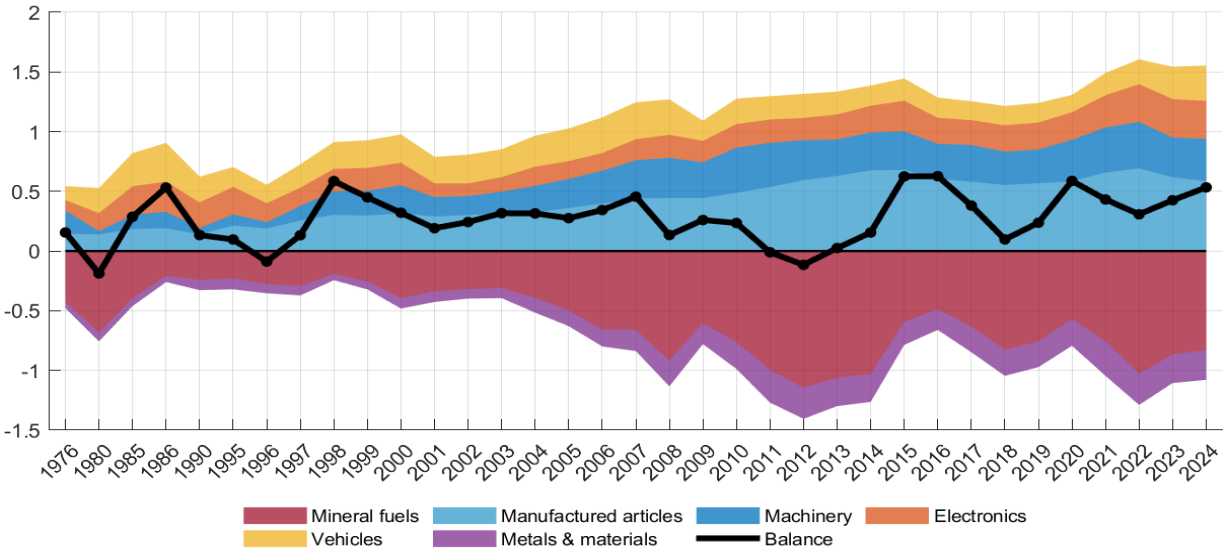
- The surplus is increasing slightly at the end of the period, with the expansion of Chinese exports of electric vehicles.

- On the net import side, **oil and gas accounted for the bulk of sectoral deficits** – in growing amounts since the mid-2010s, as the region's industrial capacity expanded. Other net importing inputs include metals and other raw materials.

- The dotted line represents the overall surplus trade balance (close to 0.5% of global GDP, the difference between surpluses sectors above the line, and the deficit sectors, below the line).

Figure 10. Asia: The manufacturing surplus and the deficit in fuels have both grown

% of Global GDP



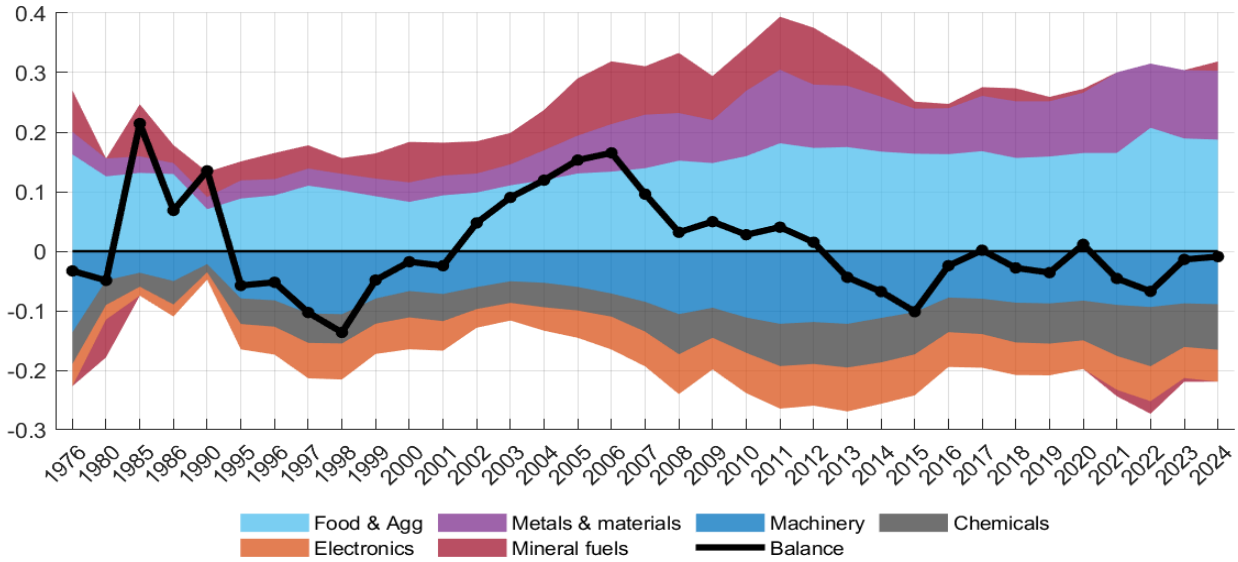
Note: Sectors are ranked by the absolute value of the sum of trade balances

Figure 11 focuses on South America. It highlights that:

- The reduction of its net surplus in fuels, which has gradually disappeared, has caused its merchandise trade balance to turn from a traditional surplus into a small deficit since the Covid-19 pandemic.
- This shift is in part due to rising domestic demand combined with stalling output.
- The other sources of net exports have not offset falling energy exports, even though **food and agriculture are expanding as a source of surpluses**, along with metals and materials (iron and steel, aluminium and other metals), to a lesser extent, since the mid-2010s.
- Commodity prices and terms of trade play an important role in the region's trade balance profile.
- The main sources of sectoral **deficits** are concentrated in three sectors: **machinery, chemicals, and electronics**.

Figure 11. South America: Food and agriculture are expanding as a source of surplus

% of Global GDP



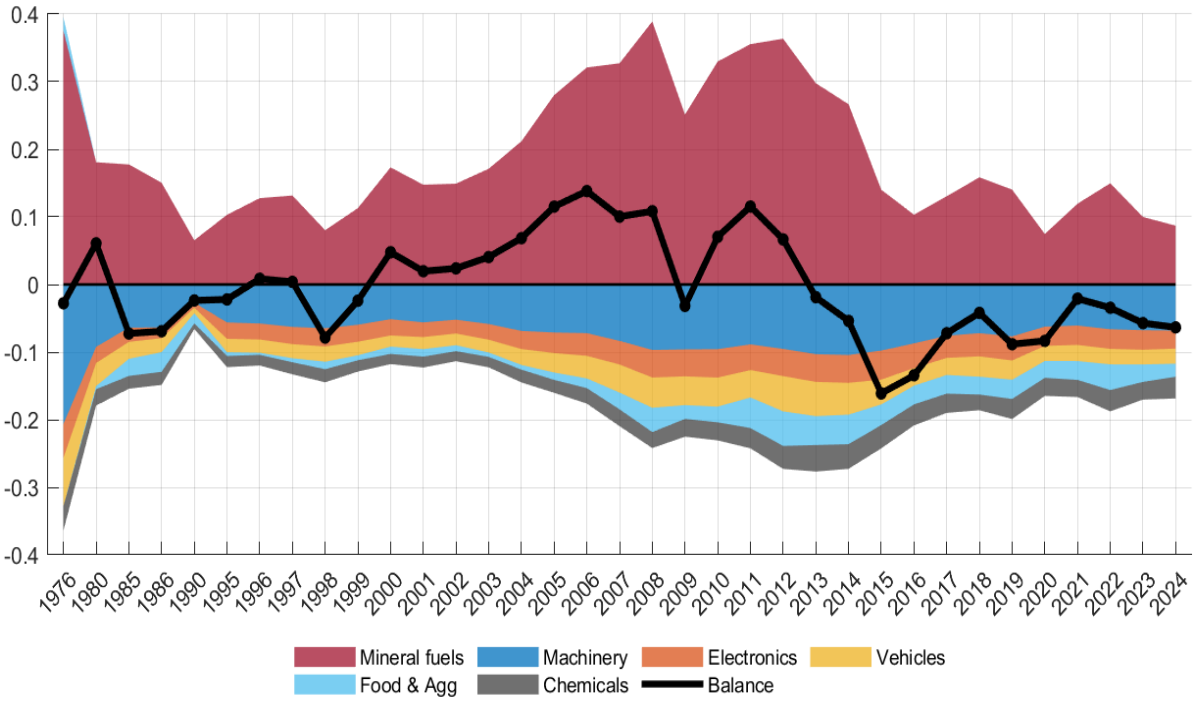
Note: Sectors are ranked by the absolute value of the sum of trade balances

Figure 12 focuses on Africa. It highlights that:

- **Africa's merchandise trade balance has varied very close to balance**, as a share to global GDP (dotted line).
- **Mineral fuels** drive the evolution of the trade balance.
- The overwhelming role of oil and gas as a source of surpluses exposes the continent to fluctuations in international prices and terms of trade changes, since the continent is a "price taker". When oriented downwards, commodity price fluctuations may quickly expose individual countries to balance of payments sustainability issues, given the fragility of some of the economies concerned and limited export diversification. An expansion of the figure beyond the main six sectors would show a surplus in raw material and soft commodities, but as a source of surplus the role of fuels is dominant.
- The main sources of net imports are manufactured products (primarily machinery, electronics, motor vehicles and chemicals).

Figure 12. Africa: Mineral fuels drive the evolution of the trade balance

% of Global GDP



Note: Sectors are ranked by the absolute value of the sum of trade balances

Economy-sector pairs

Having looked at the evolution of balances by region over time, and the sectoral composition of regional balances, the analysis now turns to the country level dimension of sectoral balances. Balances are looked at from the perspective of country-sector pairs. This seeks to identify which sector in which country accounted for the greatest share of global balances in the mid-1980s compared to the latest year available in the sample. This will illustrate shifts in the composition of the shares of countries and sectors in global balances.

Figures 13 and 14 rank the economy/sector pairs by largest deficits and largest surpluses**,** for the years under review (1986 and 2024), regardless of whether the region itself is a deficit or surplus region. Here too, the choice of years matters. It is useful to compare 1986 and 2024, which record comparable aggregate regional surpluses and deficits, to highlight long-term changes in the economy/sector pair composition.

Figures 13 and 14 highlight that:

- **the largest single deficit source at the economy/sector** level (as a share of global GDP) **in 1986 was** net imports of **motor vehicles by the United States. In 2024, it was China's deficit in mineral fuels**. The US deficit in motor vehicles remained an important source of global deficit in 2024, although it moved to the fifth place in the ranking.

- In 1986, the second largest source of global deficit was net imports of US miscellaneous manufactured articles (garments, travel goods, house appliances, furniture, optics, medical equipment, etc), replaced in 2024 by China's net imports of metals and materials. Yet, US deficits in both miscellaneous manufactured articles and in manufactured goods remained important sources of deficits in 2024 as well.

- The United States is present in both years of comparison in the top six economy/sector pairs: five out of the top six sectors in 1986, four out of the top six sectors in 2024. The order of sectors has changed. In 1986, US's main sources of sectoral deficits in 1986 were: motor vehicles, miscellaneous manufacturing articles, manufactured goods, and fuels, respectively. In 2024, the sources were machinery, miscellaneous manufacturing articles, motor vehicles, manufactured goods, and electronics, respectively.

- The emergence of China as a large net importer of raw materials reflects its growing importance in global production and exports of manufactured goods. As shown in Figure 14, China has also become a major source of sectoral surpluses.

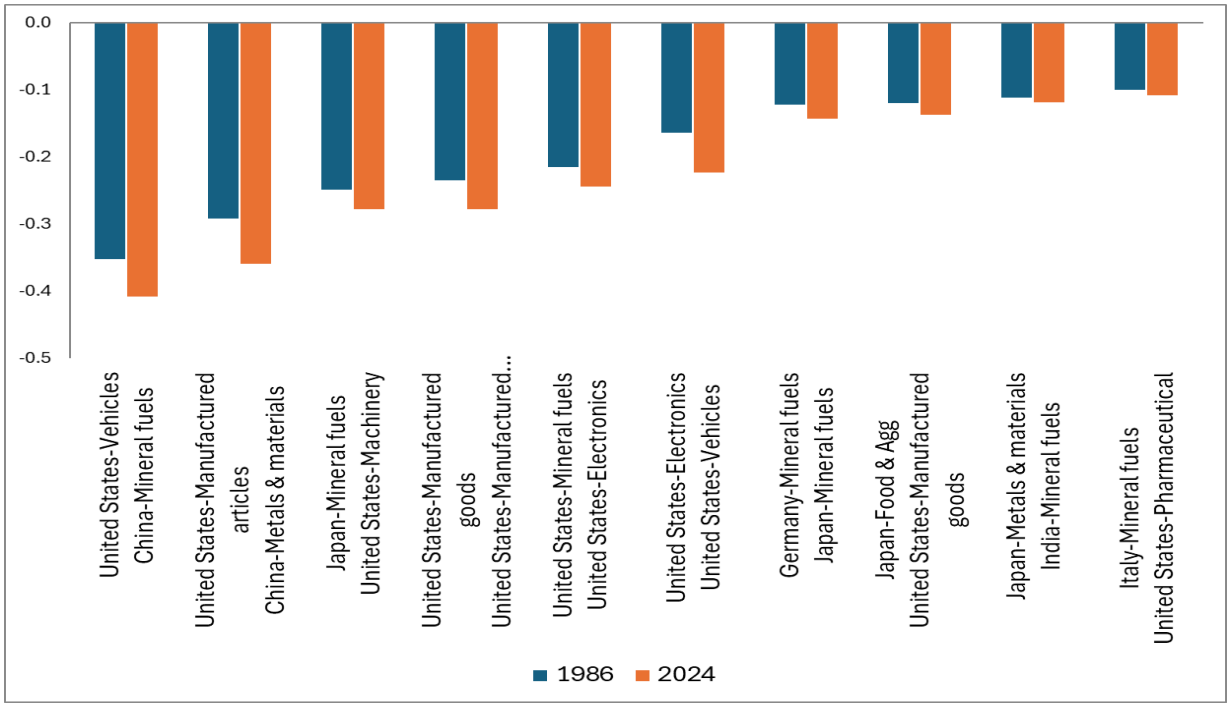
- **In 1986, Japan, Germany and Italy were the source of the eight largest sector surpluses** (machinery and motor vehicles for Japan and Germany, manufactured goods and electronics for Japan, chemicals for Germany, miscellaneous manufactured articles for Italy), and eight out of ten. By itself, Japan accounted for four out of these sectoral surpluses.

- **In 2024, China had become the source of three out of the four largest sectoral surpluses** (machinery, miscellaneous manufactured articles, and manufactured goods) **and four out of the ten largest** (with motor vehicles rising as a source of surplus). One can observe the reallocation of surpluses within Asia: China, instead of Japan, has become the main source of surpluses in machinery and manufactured goods, and is close to it for motor vehicles. The reallocation of surpluses goes beyond Asia as Germany, the source of three of the ten main sector surpluses in 1986, and is now the source of only one (motor vehicles). Italy disappeared from the ranking.

- From figures 13 and 14, balances have become more concentrated. Figures 13 and 14 are not only about China, Japan, the United States, Germany and Italy. Relative to 1986, new "players" appear, such as India, the UAE, Russia and Saudi Arabia, even though it must be acknowledged they appeared as buyers or suppliers of energy products or primary goods.

Figure 13. Top 10 Economy-sector pairs accounting for the trade deficit 1986 & 2024

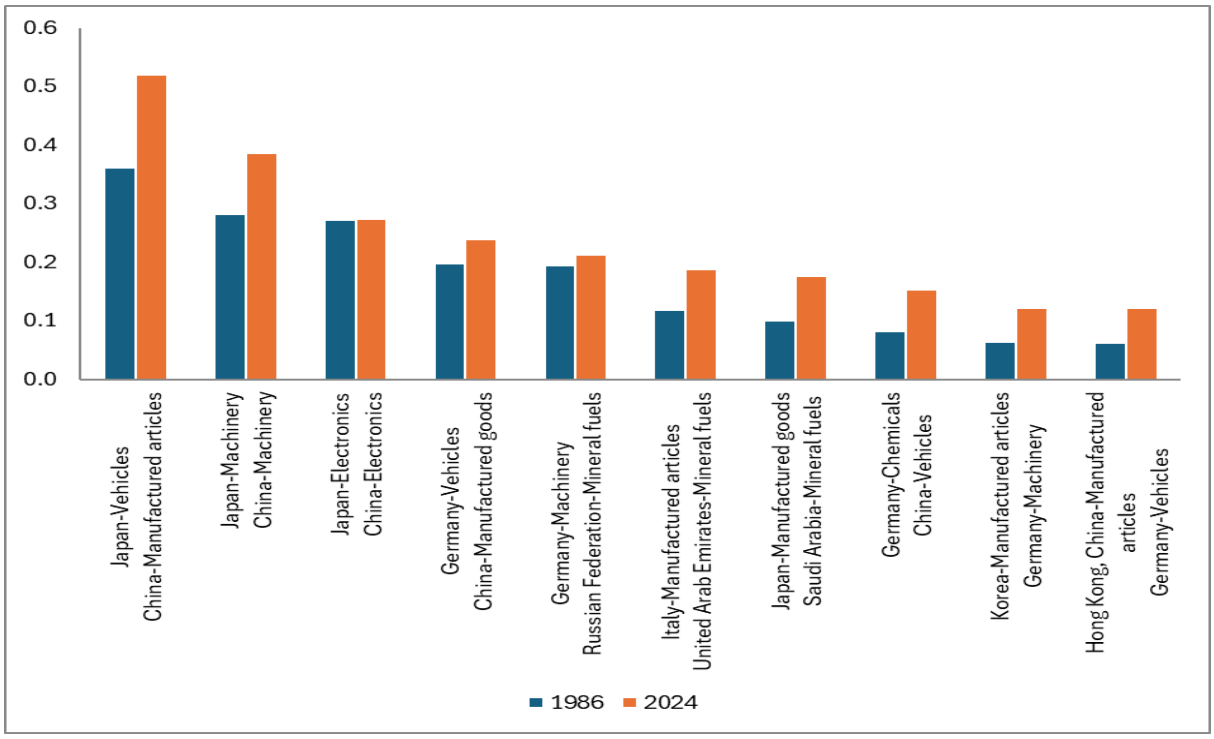
% of Global GDP



Note: The analysis is conducted with country-world pairs by sector not bilateral data

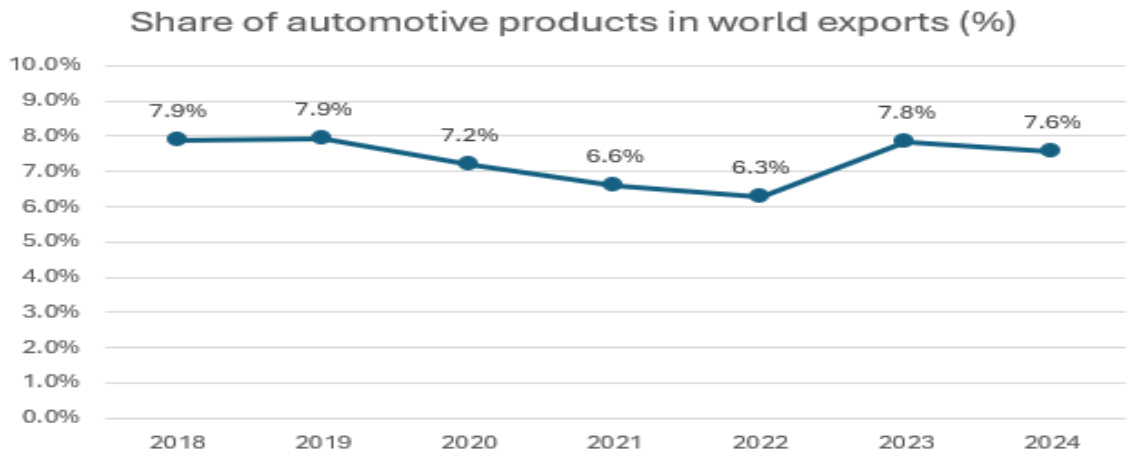
Figure 14. Top 10 Economy-sector pairs accounting for the trade surplus 1986 & 2024

% of Global GDP



Note: The analysis is conducted with country-world pairs by sector not bilateral data

A zoom at selected sectors would confirm cross-regional surplus and deficit positions. An interesting case is motor vehicles (comprising both parts and fully assembled vehicles), an important sector for international trade: In recent years, the share of automotive in global exports has been relatively stable – slightly under 8%.



Main sectors by region

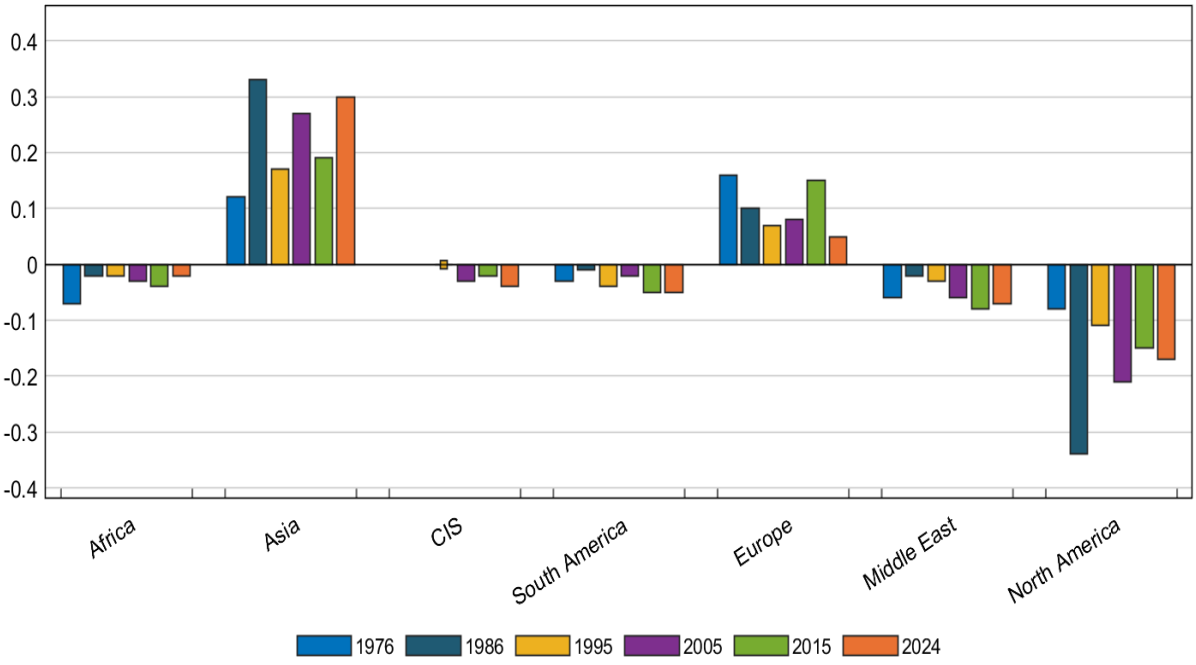
The analysis thus far has looked at aggregate balances by region over time and then, within those regions, at their sectoral composition. It is however also instructive to compare the evolution over time of balances between regions. This is presented for a selection of major sectors in global merchandise trade. This will illustrate, for example, if a region was dominant in the global share of trade in agriculture and food in the 1970s, has this remained the same or have other regions emerged?

Figure 15 shows the geography of **surpluses and deficits in motor vehicles** by region. It highlights:

- **Asia and Europe have historically been net exporters, while the Americas (North and South) and Africa, have been net importers**.
- Lately, Europe's surplus has fallen as a share of global GDP – to less than 0.1%. Asia's surplus, close to 0.3% of global GDP, is stable relative to the early 2000s, and a bit smaller than in the mid-1980s.
- Intra-regional changes, particularly in Asia, are significant: in 2023, China exported slightly more passenger vehicles than Japan (4.9 million against 4.4 million, according to China and Japan's Manufacturing Associations' numbers, respectively). Japan exported up to 6 million passenger vehicles in the 1980s (plus up to 2 million commercial vehicles and trucks), until it started to transition from an export-driven strategy to global integration and mass production overseas. While in 1986 Japan produced 1.2 million passenger vehicles overseas (about 20% of its exports), it produced 16.5 million passenger vehicles overseas in 2024, close to four times its exports (in number of vehicles).

Figure 15. Vehicles: Asia's surplus has remained broadly consistent but lower than the 1980s

% of Global GDP, 1976-2024



Note: Markers denote values close to zero

Figure 16 looks at the SITC's broad category of "miscellaneous **manufactured articles**", which contains a wide range of non-electronic consumer goods and professional equipment (furniture, footwear, office equipment, plastic consumer goods, toys, games and sporting equipment, household plumbing and heating fixtures and office equipment.

In this large category, **the geography of surpluses and deficits has been quite polarized**:

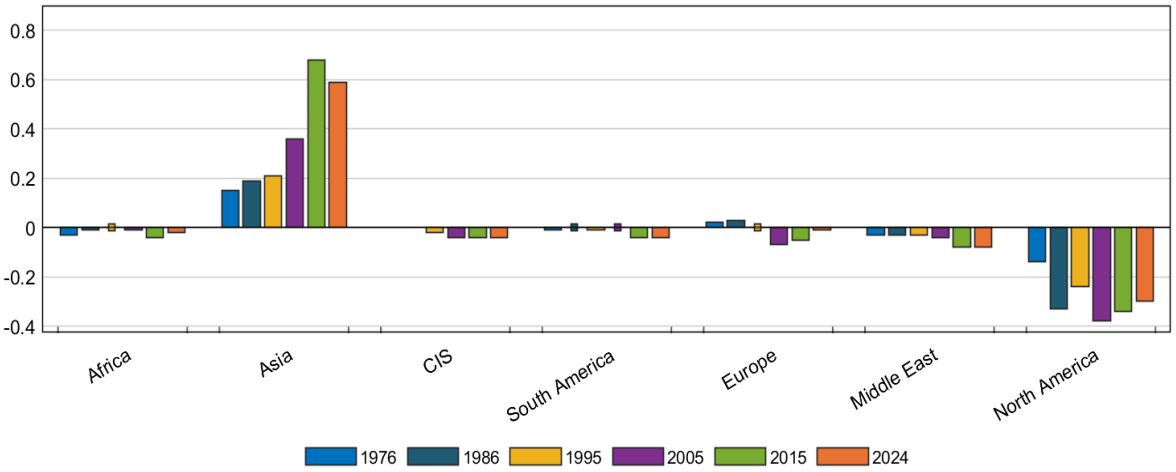
- **Asia is the sole net surplus region**, with growing surpluses with the rest of the world. The scale of these surpluses is important for a single category (currently about 0.6% of GDP).

- **North America**, which has been a **net importer of these goods since the 1970s**, shows the largest – yet stable – deficits, of around 0.3% of world GDP in 2024.

- Other regions, such as Europe, the Middle East, the CIS and Africa, record small but persistent deficits in this sector.

Figure 16. Manufactured Articles: Asia continues to be the main surplus region

% of Global GDP, 1976-2024



Note: Markers denote values close to zero

Figure 17 shows trade balances in **electronic products**. It indicates that:

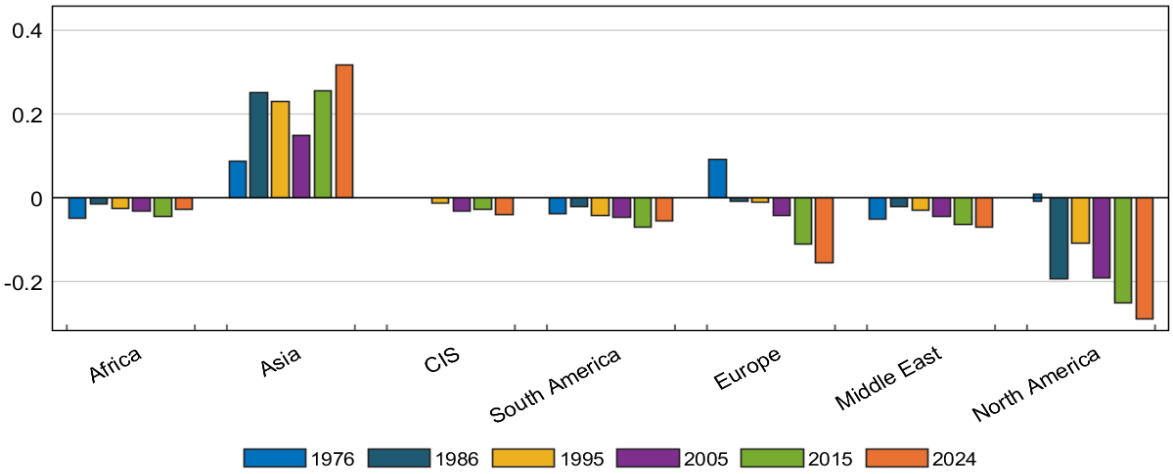
- **Electronics have consistently been a source of net surplus by Asia**, particularly in a value chain context. Since the 1980s, Asia's net exports in electronics averaged around 0.2% of global GDP, even though after a fall in the surplus in 2005, the surplus started to rise again in the 2010s and 2020s, to peak above 0.3% of global GDP in 2024.

- **North America's position has been one of deficit since the 1970s**, with a deficit increasing from 0.1% to 0.3% of global GDP since 1995.

- **Europe has recorded a shift from surplus to (a growing) deficit over time**. The value chain perspective is important in this sector. Europe used to be a location for production of computer and telecommunications hardware until the mid-1990s. Fundamental changes in technology cost and hardware computing performance led to shifts in production towards regions with a more favourable wage to productivity ratio, for firms.

Figure 17. Electronics: Asia is the main surplus region with all others in deficit

% of Global GDP, 1976-2024



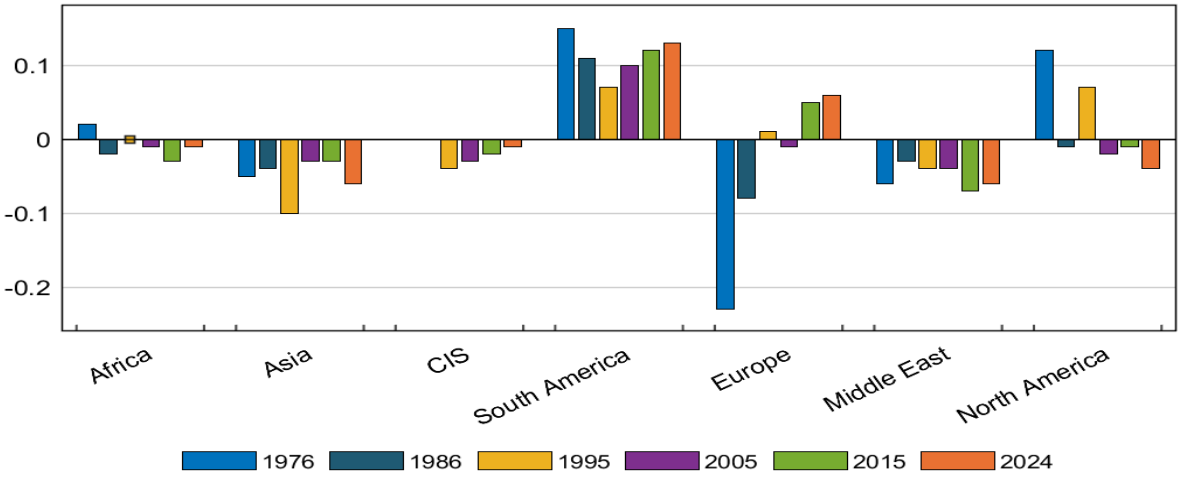
Note: Markers denote values close to zero

Figure 18 looks at **agriculture and food** products. It shows that:

- Both **Asia and the Middle East** have traditionally been net importers.
- **Africa** was a net exporter in 1976 but changed into a net importer since then.
- **North America** recorded surpluses in the 1970s to 1990s, **turning into deficits** since the 2000s.
- **Europe recorded deficits** until the 2000s, which **turned into surpluses** since then.
- **South America records growing and the last surpluses** since the mid-1990s.

Figure 18. Food and agriculture: South America has consistently had the largest surpluses

% of Global GDP, 1976-2024

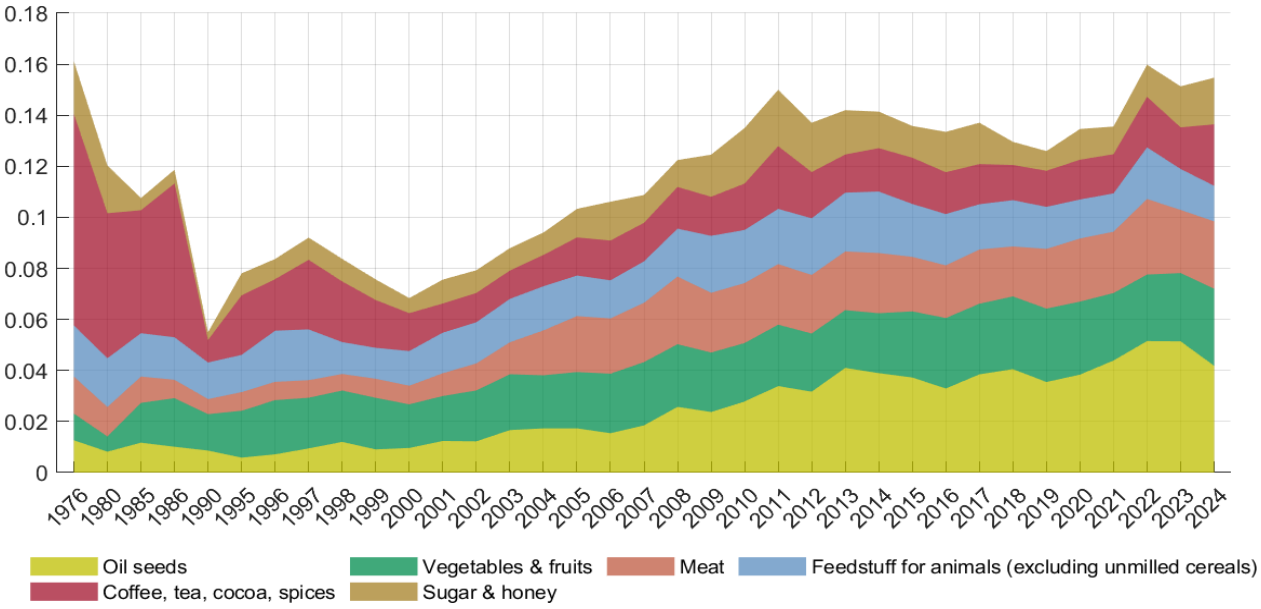


Note: Data for CIS is not available prior to 1990

Figure 19 shows that the composition of South America's surplus has changed over time. In 1976 just over half of South America's surplus was accounted for by coffee, tea, and cocoa. By 2024 this had shrunk to 13% with strong growth in oil seeds. This category now accounts for over a fifth of the surplus. It is important to note the scale of the surpluses and deficits, smaller than 0.15% of GDP for surpluses, not much higher than 0.05% of global GDP for the main regional deficits in 2024.

Figure 19. Seed oils have overtaken coffee in South America's Food & Agriculture balance

% of Global GDP



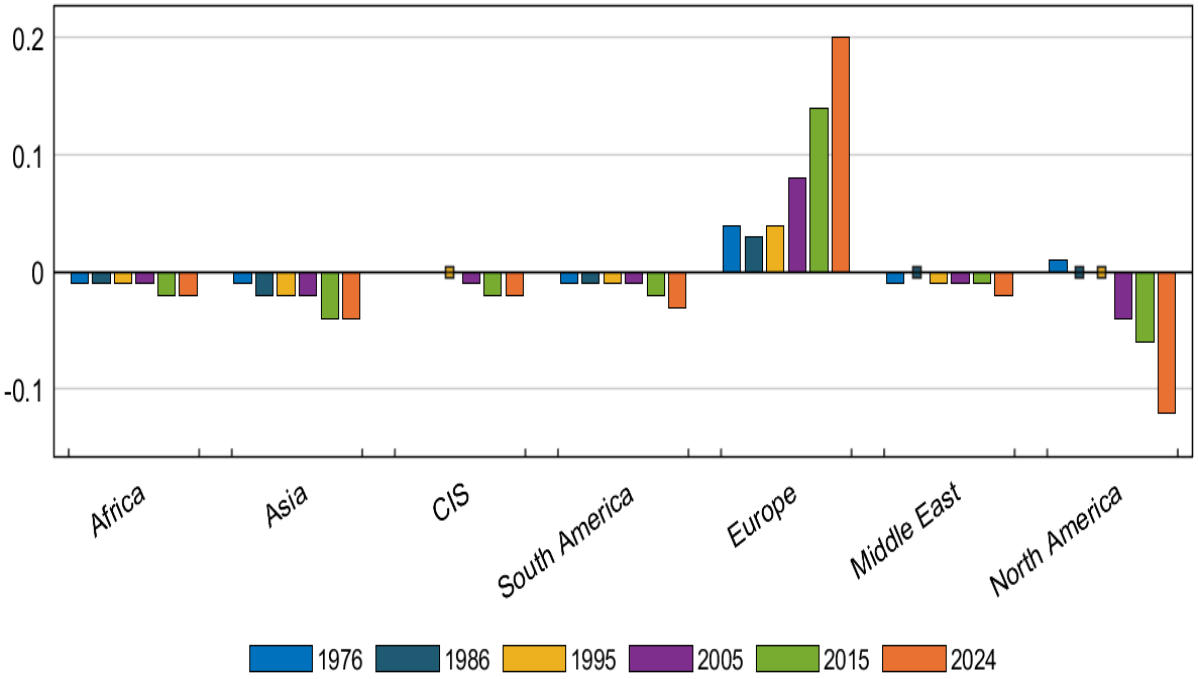
Note: Sectors are ranked by the absolute value of the sum of trade balances

Figure 20 looks at merchandise trade balance in **pharmaceuticals**. It shows that:

- **Europe has increased its surpluses in pharmaceutical products**. It is the only region currently running a surplus. North America turned from a surplus to a deficit at the turn of the millennium.
- **Growing deficits have been recorded by the Americas (North and South), Asia, and the Middle East**.
- A disaggregation by country would show that, within Asia, India has a significant trade surplus in this category of products.
- A full picture of trade in pharmaceuticals would need to combine goods, services and intellectual property. Like in certain other sectors covered by patents and trademarks, certain countries may record a deficit in goods but significant net receipts in services or in intellectual property rights income – the outcome of multinational firms producing offshore, for re-imports.
- Like for agriculture and food, it is instructive to note the scale of trade balances in this sector. For most regions, except for North America, the deficit is below 0.05% of global GDP.

Figure 20. Pharmaceuticals: Europe's surplus has continued to grow

% of Global GDP, 1976-2024



Note: Markers denote values close to zero

Which countries by region?

At the regional level, the analysis has thus far illustrated the evolution of aggregate balances over time and tracked which sectors have accounted for the greatest share of regional balances. Another dimension on the long-term evolution of trade balances is not just to decompose regional balances into sectors but also to track the country composition of regional trade balances. The regional and sectoral perspective alone may conceal important intra-regional shifts at country-level. This perspective will illustrate if some countries were dominant in regional trade balances in the 1970s and 1980s if this remains true today or if other countries have emerged as drivers of trade balances.

Figure 21 looks at the main **merchandise trade surpluses and deficits by country in Asia**.[6] It shows that:

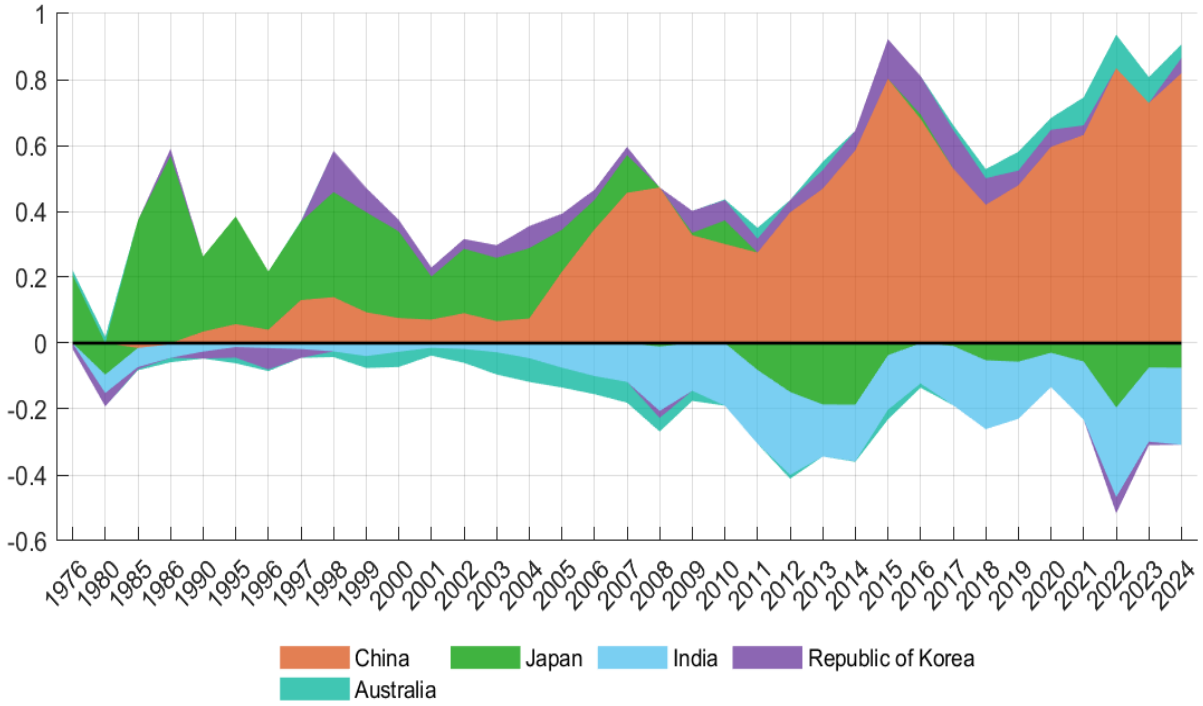
- **On the surplus side, from the turn of the millennium until the mid-2010s, China replaced almost one-for-one Japan's share.** Since, China's share of total surpluses has gradually expanded. Minor contributors came, at times, from the Republic of Korea and Australia.

- Regarding net imports, since the early 2010s Japan and India have been accounting for most of the deficit positions with India being the largest net importer in 2024.

[6] It must be noted that the contribution of countries is not expressed as a share of GDP, but as a share of the regional trade balances.

Figure 21. Asia: China has replaced Japan as the largest source of surplus

% of Global GDP



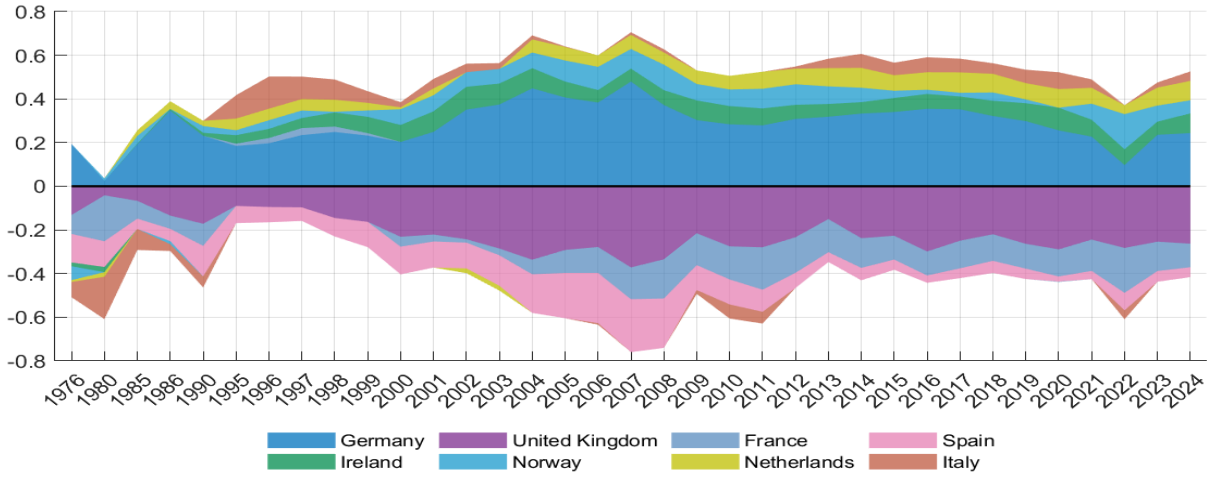
Note: Countries are ranked by the absolute value of the sum of trade balances

Figure 22 shows that, within **Europe**:

- **Germany traditionally held the largest share of net exports,** although its position has eroded lately, with Ireland, the Netherlands and Norway accounting for increasing sources of net exports.
- **On the net import side, the UK has held the largest deficit position** in goods (currently offset in part by a surplus in services), with France displaying a deficit since the turn of the millennium. Spain's net imports have increasingly narrowed since the early 2010s.

Figure 22. Europe: Germany is still the largest net exporter but with a reduced share

% of Global GDP



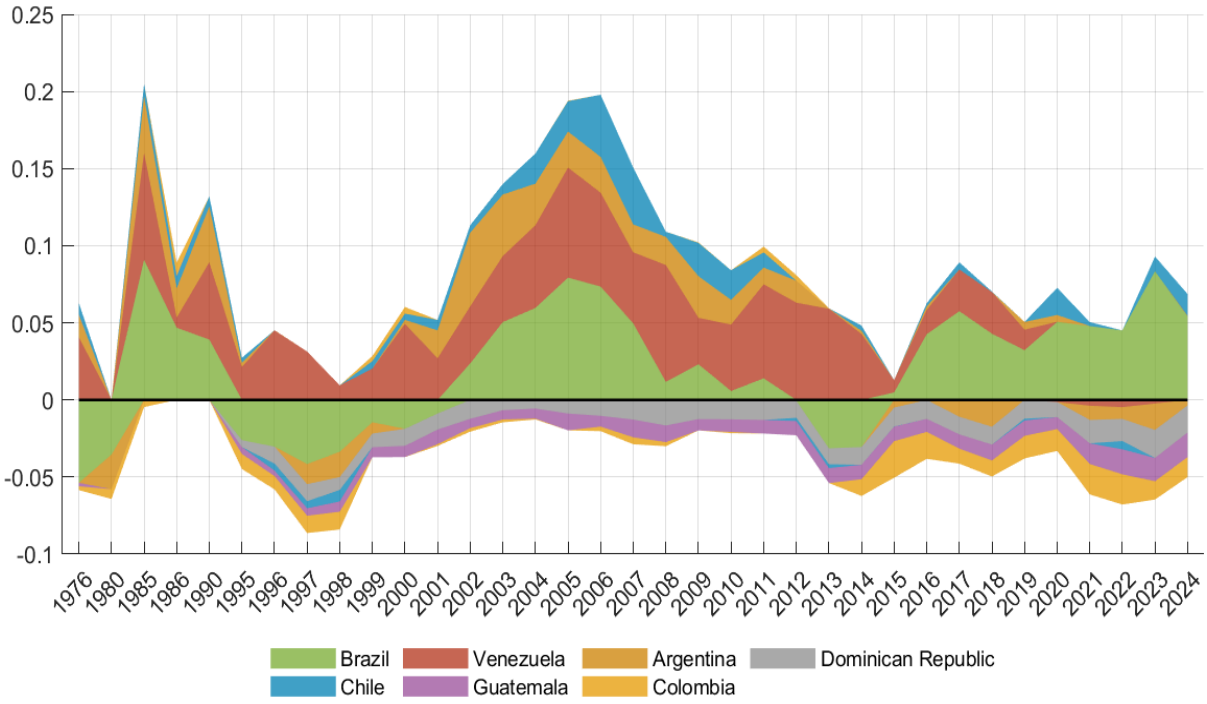
Note: Countries are ranked by the absolute value of the sum of trade balances, 1976-2024

Figure 23 shows that, in **South America**:

- By 2024, **Brazil had become the largest source of merchandise trade surpluses**, contrasting with the 2000s, during which Venezuela, Argentina, and Chile also recorded sizable net export positions.
- Since then, merchandise trade balances have reversed in some of these countries, for country-specific reasons (increased in imports for some; fall in oil exports for others).
- **On the net import side, Colombia, Guatemala, the Dominican Republic** appear most often in the 2010s. It must be noted that surplus and deficit positions are relatively "thin" and can be reversed from one year to another depending on the supply and price of specific commodities.

Figure 23. South America: Brazil is the largest surplus country as Venezuela has declined

% of Global GDP



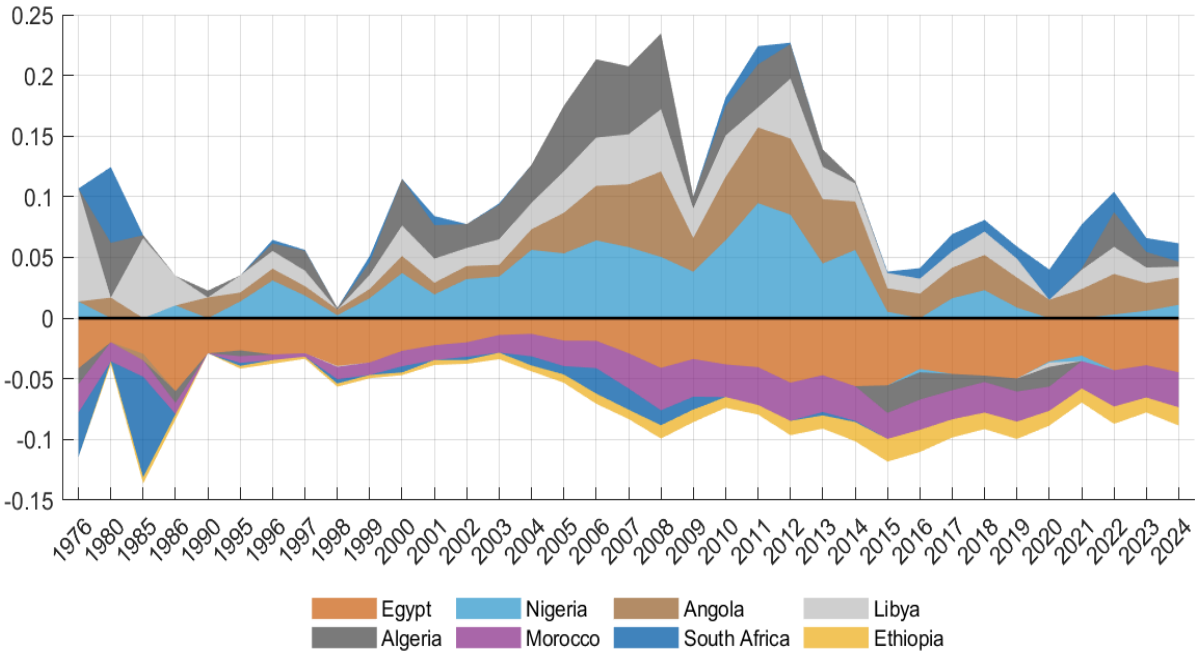
Note: Countries are ranked by the absolute value of the sum of trade balances

Figure 24 focused on **Africa**, and show that:

- **Oil and gas exporting countries are the dominant of source of Africa's net export position**, with Nigeria, Angola, Libya and Algeria benefiting, particularly during commodity "super-cycles" (early to mid-2000s).
- **Egypt holds the largest net importing position,** reflecting its large demand for food, energy, and industrial machinery. Since the 1990s, Morocco recorded the second largest trade deficit, reflecting economic diversification (raw materials, machinery, and consumer goods).

Figure 24. Africa: Major oil and gas exporters shape Africa's trade balance.

% of Global GDP



Note: Countries are ranked by the absolute value of the sum of trade balances

Which countries by sector?

In terms of the evolution of global balances by sector, the analysis to this point has examined which regions account for the greatest share in each sector and has also decomposed regional balances into sectors. The sector level analyses now proceed to the country perspective.

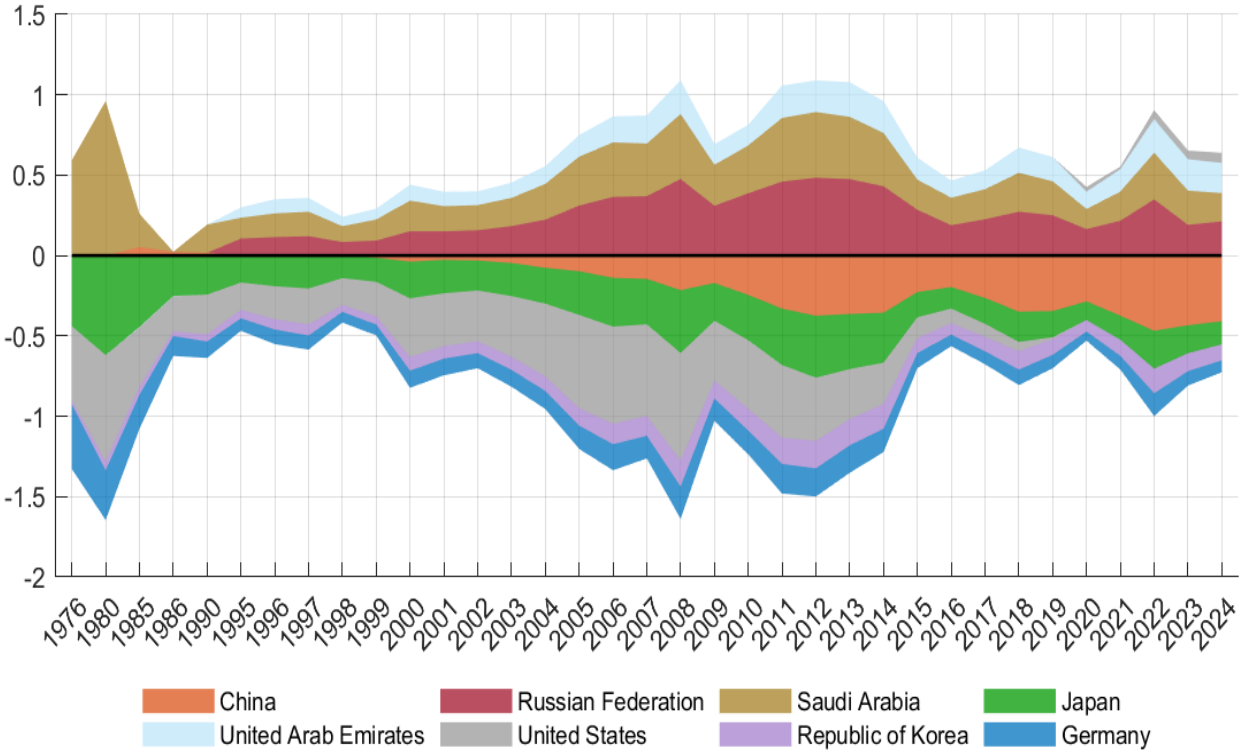
It will illustrate which countries accounted for the greatest share of global balances in the major merchandise trade sectors and how this has evolved since the 1970s. This will trace the emergence of new countries in sector driving global trade balances and also the switch of some countries between surplus and deficit over time.

Figure 25 looks at **mineral fuels**, which is the largest sector for surpluses and deficits. It shows that:

- **Historically, the United States** had been the major importer of mineral fuels (oil and gas), as a share of global GDP. This has **shifted to a net exporter position** reflecting, in part, technological innovations in hydraulic fracturing.
- **Saudi Arabia, Russia and the United Arab Emirates** are the other **main net exporters.**
- **China** moved from having a small surplus to having the largest deficit in fuels. The oil market disruptions of the late 1970s and early 1980s are clearly visible in trade balances.

Figure 25. The United States has moved from the largest deficit to a surplus in mineral fuels

% of Global GDP



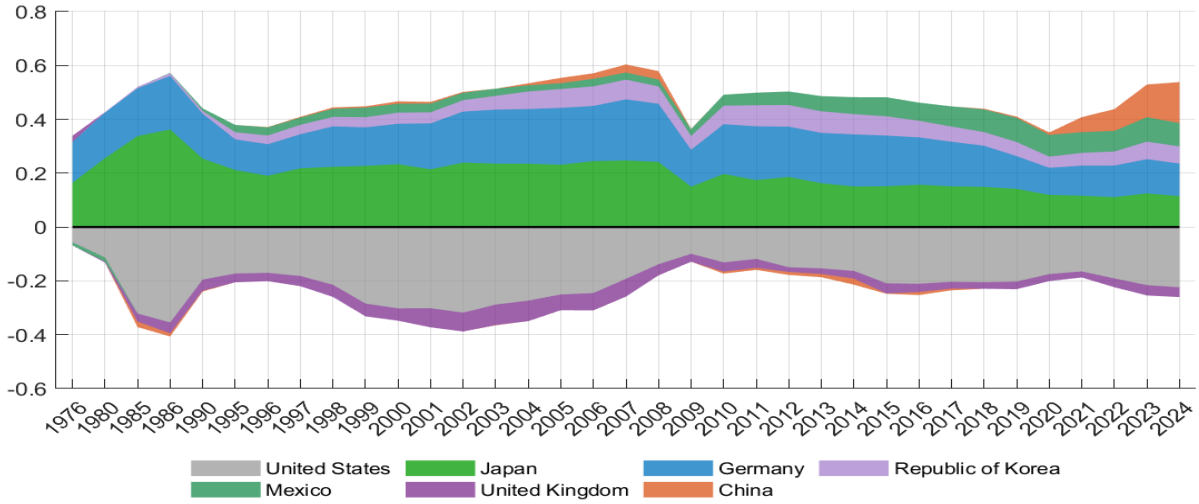
Note: Countries are ranked by the absolute value of the sum of trade balances

Figure 26 looks at **motor vehicles**. It shows that:

- While once the two dominant exporters in global motor vehicles trade, **Japan and Germany's** share of trade has **declined from the mid-1980s onwards**. This is in part due to its manufacturers' strategy of producing vehicles locally in some of its main consumer markets.
- **Mexico's share** of exports **increased since the late 2010s**. Mexico has assembled parts and vehicles for foreign-owned brands in the 1990s, with re-exports mainly to the United States, Canada and Chile. The Mexican automotive industry expanded lately in volume and sophistication.
- From accounting for a minor share of motor vehicles trade **China** now has, with the emergence of **electric vehicle technologies, the largest surplus in motor vehicles at the country level**. Historically, China exported limited amounts of motor vehicles and parts until the early 2000s, when some brands started to export globally. In the mid-2010s, China reverted to being a net importer.
- **The largest net importers** of motor vehicles have consistently been the United States, followed by the United Kingdom.

Figure 26. Japan and Germany share of motor vehicles trade continues to decline

% of Global GDP



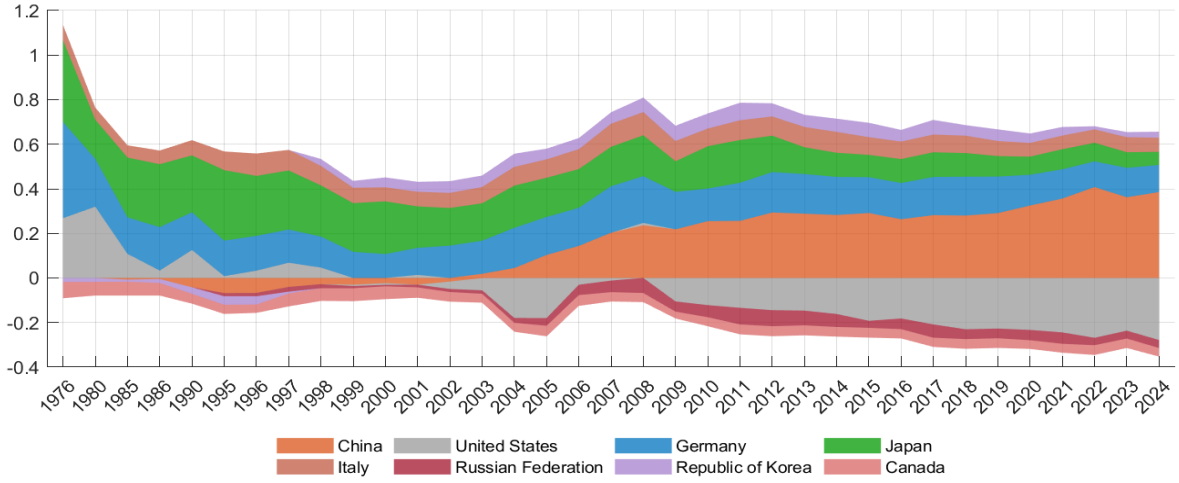
Note: Countries are ranked by the absolute value of the sum of trade balances

Figure 27 looks at **machinery**:

- The country composition on the net export side has **shifted in Asia**. China has expanded while Japan and Korea have reduced.
- **The shares of Germany and Italy** are somewhat smaller at the end of the period covered by the figure.
- **The United States is the main source of net imports**, a growing one since the early 2000s. Canada and Australia are also net importers of machinery.

Figure 27. China has emerged since the mid-2000 to become the largest exporter of machinery

% of Global GDP



Note: Countries are ranked by the absolute value of the sum of trade balances

Figure 28 displays the evolutions in the **manufactured articles** sector:

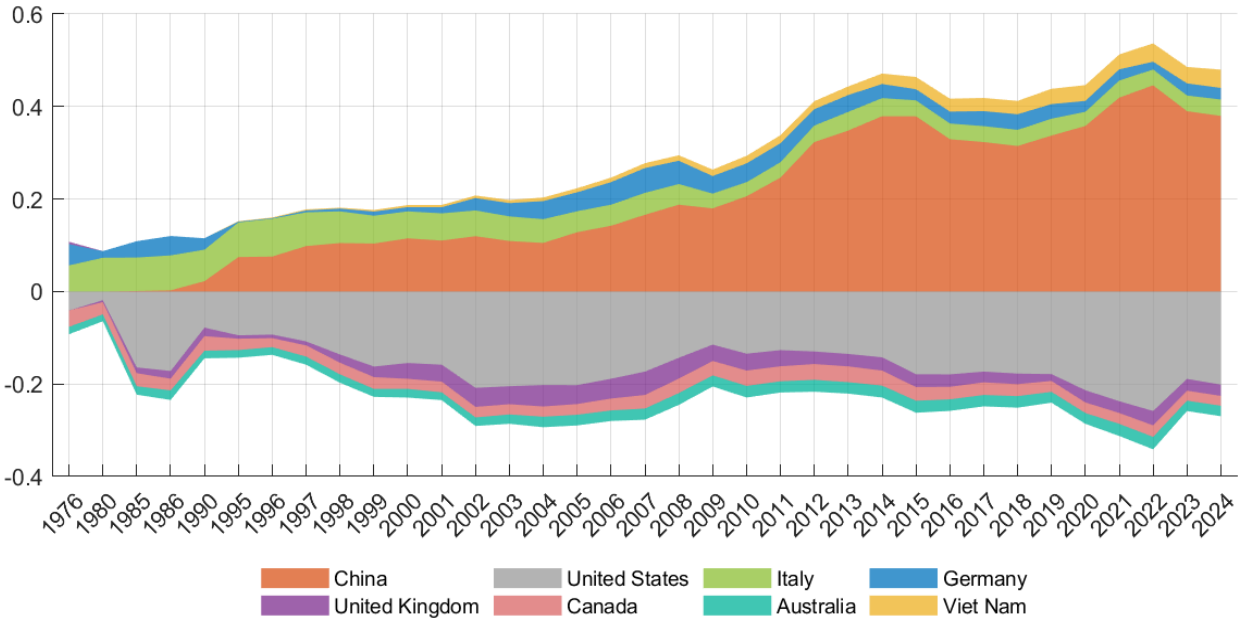
- In the mid-1990s, **China emerged as the main surplus country** in the general category of "Manufactured Articles". In terms of composition, for China in 2024, almost 40% of this sector encompassed plastic consumer goods as well as toys, games and sporting equipment. Other large categories for China are furniture (around a fifth) and plumbing, heating and lighting fixtures (just over 10%).

- From the 1970s to the early 1990s, Italy generally recorded the largest surpluses in this sector as a share of global GDP. This peaked in 1996 and in 1997 China surpassed Italy. Surpluses continued to expand, reaching over 4.5 times Italy's peak by 2024. On the net importer side, there is not much evolution.

- **The share of the United States as a net importer has been relatively constant**, as well as that from the United Kingdom and Canada.

Figure 28. China has emerged as the main global supplier of manufactured articles

% of Global GDP



Note: Countries are ranked by the absolute value of the sum of trade balances, 1974-2024

Figure 29 dives into the **electronics** sector:

- A relatively **similar picture of substitution between Asian exporters** emerges in the electronics sector, with the shares of Japan falling and that of China rising.

- China's surplus is now larger, as a share of global GDP, than Japan's was at any point at its peak levels in the 1980s.

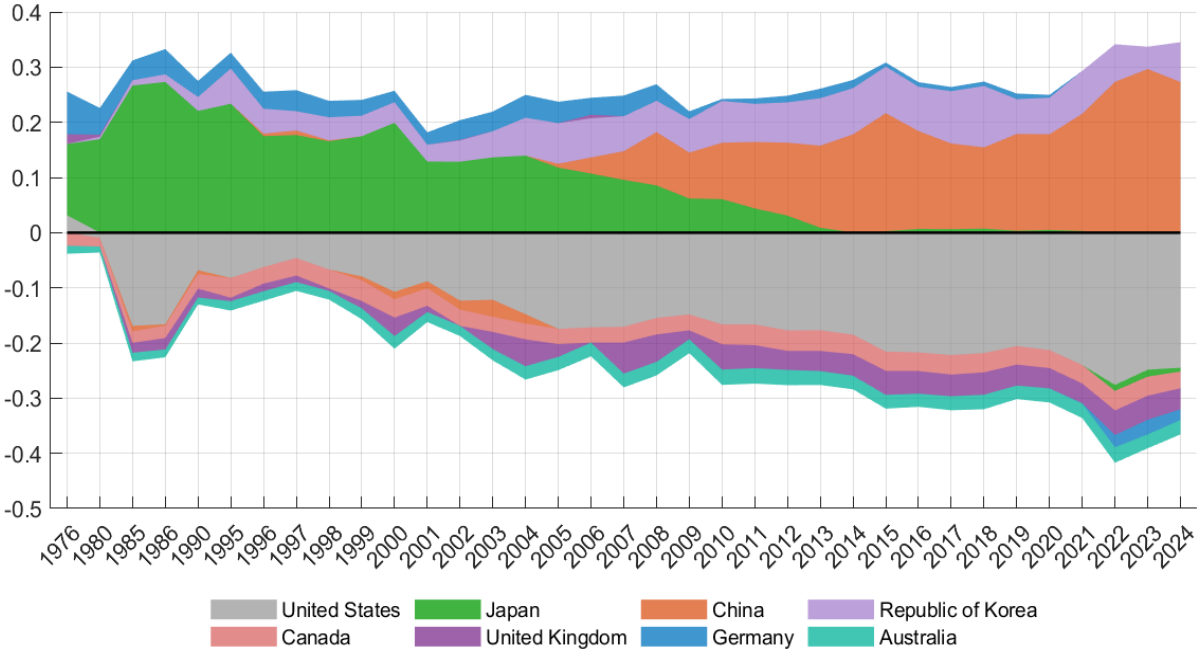
- Germany's surplus involving specialized industrial electronics (precision tools, automation) gradually eroded and turned to deficit in recent years. The Republic of Korea kept a surplus in this sector, over the whole period.

- It should be noted that in this sector, like several other sectors in which production involves international outsourcing, that countries may no longer appear, or appear less as net exporters, while their manufacturers may still export under their brands, from a foreign location where output has been outsourced.

- The largest net importer of electronics has been the United States, with an expanding share of net imports since the mid-1990s. Other smaller net importers are the United Kingdom, Canada, Australia, and in recent years the historical exporters of Germany and Japan.

Figure 29. China has surpassed Japan's surplus position in electronics

% of Global GDP



Note: Countries are ranked by the absolute value of the sum of trade balances

As shown in **Figure 30**, focusing on **chemicals**:

- Germany was historically the largest surplus country in the global chemicals trade. This has, however, shifted over time as new countries have emerged leading to a more diverse global export profile. In 1976 Germany's share of the trade balance in chemicals was bigger than the combined total of the next three largest countries, the United States, the Netherlands and Japan.

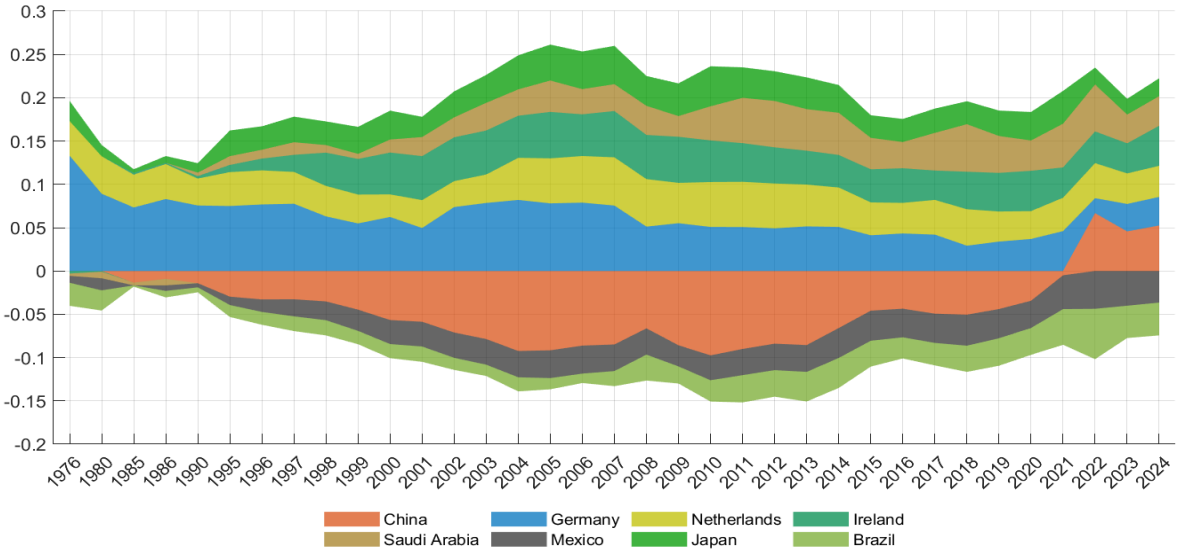
- **By 2024, within Europe, both Ireland and the Netherlands have overtaken Germany's share in the global trade**. Internationally, both China and Saudi Arabia also had larger shares in 2024.

- The scale of the change is illustrated by the fact that during the mid-2000s China's deficit in chemicals was approximately equal to Germany's surplus but in 2022 its surplus surpassed Germany's and has remained above. Netherlands has displayed strong stability. Its surplus as share of global GDP was, on average, 0.4% from 1976 to 1990 and remains at 0.4% in the 2020s.

- **China turned its historical deficit into a surplus**, the largest of all individual countries. However, European countries as a group still recorded the largest surplus in 2024.

Figure 30. Germany's share global chemicals trade has declined as new producers emerge

% of Global GDP

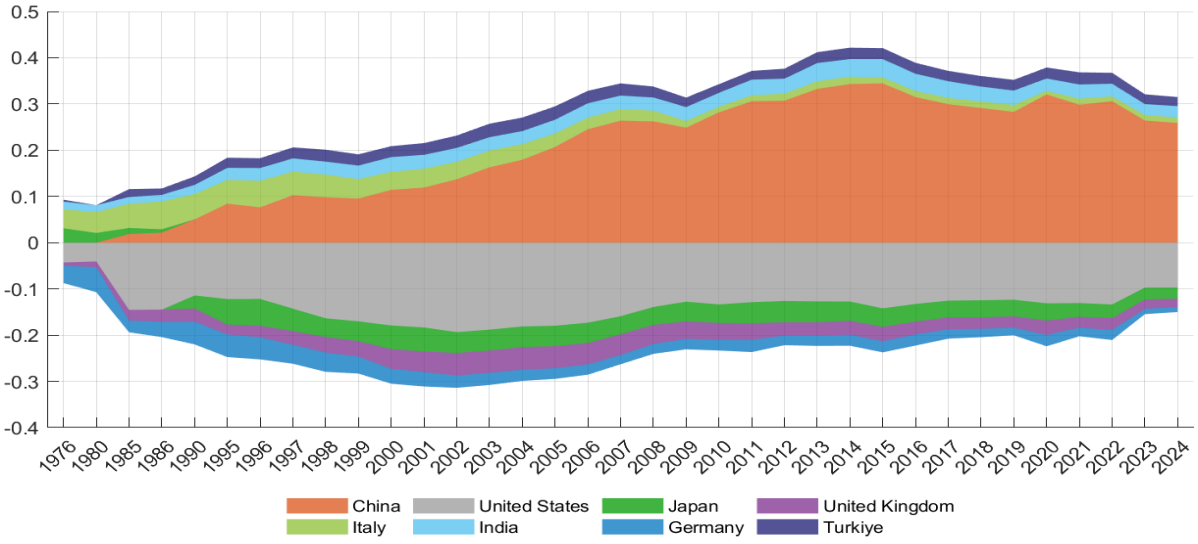


Note: Countries are ranked by the absolute value of the sum of trade balances

Figure 31. shows that China has emerged as the major surplus country in textiles and clothing. From not featuring as a large-scale trading nation in this sector in the 1970s and early 1980s China's trade surplus grew from the mid-1980s and peaked in the mid-2010s. Prior to the emergence of China, Italy and Japan where the main surplus countries. While Italy remains in surplus, Japan now records a deficit. China's surplus has peaked in the mid-2010s. The deficit of the United States has remained largely stable since the 1980s.

Figure 31. China has become an increasingly important exporter of textiles and clothing

% of Global GDP



Note: Countries are ranked by the absolute value of the sum of trade balances (1976-2024)

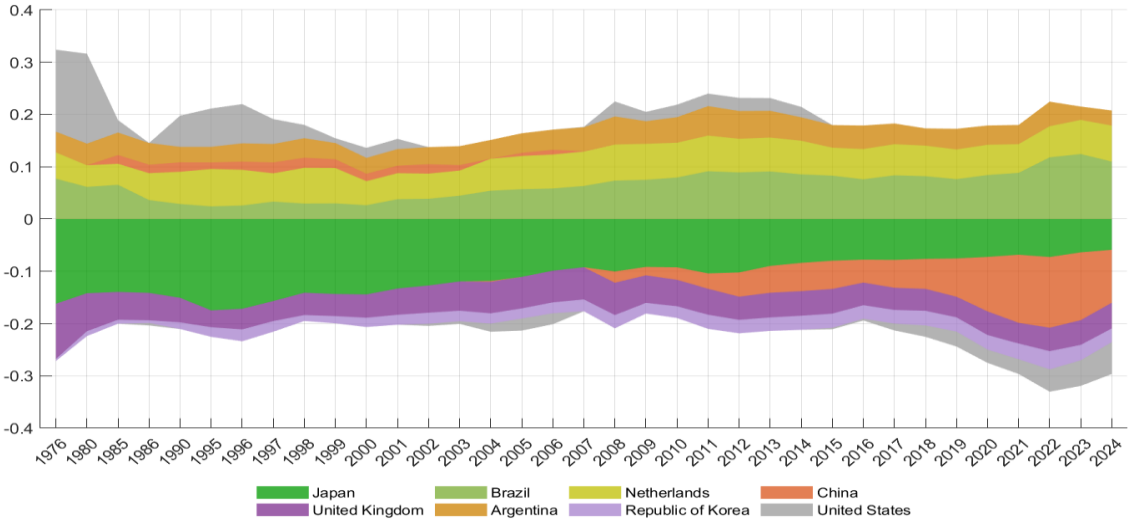
Figure 32 shows that Brazil and the Netherlands have become the main sources of surpluses in foods and agriculture products, with Argentina coming next.

On the net importing side, **China has switched from having small surpluses to becoming the largest net importer of food globally**. Over the long-term, Japan, the Republic of Korea and the

United Kingdom have been net importers. The United States recently shifted from having large surpluses in the 1990s to having a larger deficit than Japan.

Figure 32. Brazil's surplus in food and agriculture has grown to be the world's largest

% of Global GDP



Note: Countries are ranked by the absolute value of the sum of trade balances

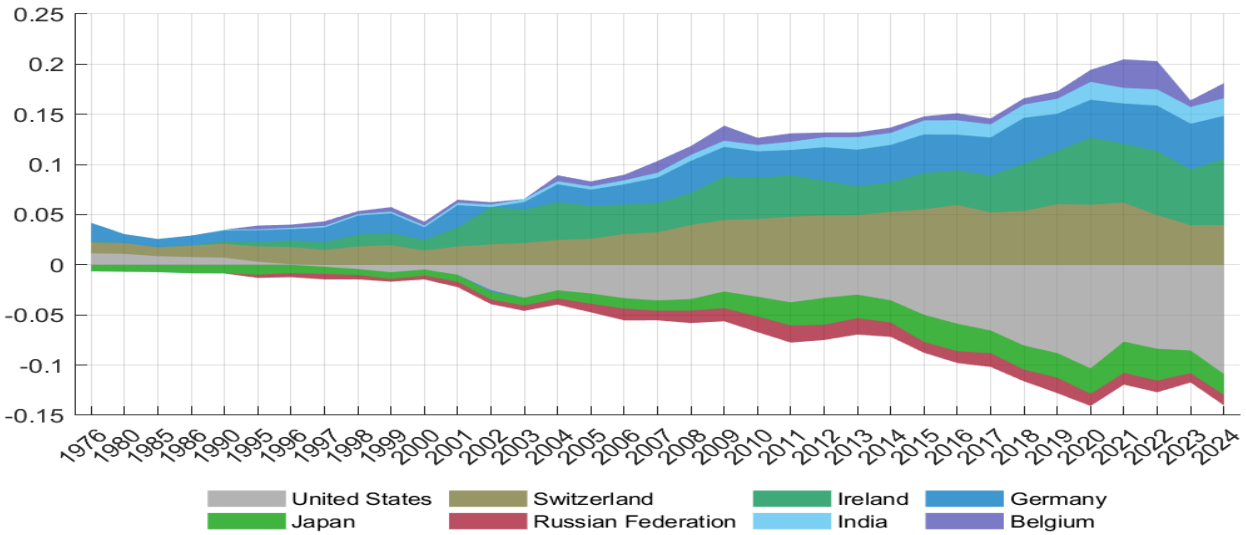
Figure 33 shows that, as international trade in **pharmaceutical products** expand, so do imbalances. This sector is characterised by:

- **growing surpluses of European countries**, primarily Ireland, Germany, Switzerland (although for the latter, there is a post-COVID-19 curb), and Belgium. In recent years, specifically from 2020, Ireland and Switzerland have seen the largest recorded surpluses. Indeed, Ireland's pharmaceutical surplus has fuelled its rise to being one of the main contributors to Europe's trade surplus, ahead of larger economies.

- **On the net import side, the United States' share has been growing since the early 2000s**, and to a much less extent, that of Japan too. The US deficit equalled over 70% of the combined surplus of Ireland, Switzerland and Germany in 2024.

Figure 33. Pharmaceuticals are increasingly traded with European countries the main suppliers

% of Global GDP



Note: Countries are ranked by the absolute value of the sum of trade balances over the last 20 years

III.2.3. Services Trade

Services trade balances showed increasing polarization, with, on the surplus side, Europe displaying the largest and fastest-growing surpluses, and North America also recording rising surpluses, as a share of global GDP, mirroring deficits in the goods trade (albeit not of the same magnitude). To the recent exception of the Middle East, other regions have recorded deficits, in some cases rising one. Information, communication and technology services are the fastest growing source of surpluses, while intellectual property-related services are the fastest growing source of deficits, even though "traditional" services such as transport and travel still account for large – at times growing - shares of deficits and surpluses.

A caveat is that there is an asymmetry in services data between global credit (exports) and global debits (imports), due to, in general, a better coverage of exports than of imports (United Nations et al., 2012). This discrepancy is more than about $700 billion, on flows of US$ 8.8 trillion for global exports and US$8.1 trillion for global imports. The implication is that there is not full symmetry between surplus regions and sectors and deficit regions and sectors. In short, the total surpluses are not finding their match in the total deficits. This is illustrated at the sector level where the largest import surplus category is transport, that most tightly related to goods imports and the easiest to record. On the other hand, the main sectors for exports, such as financial services do not see their "match" in imports.[7]

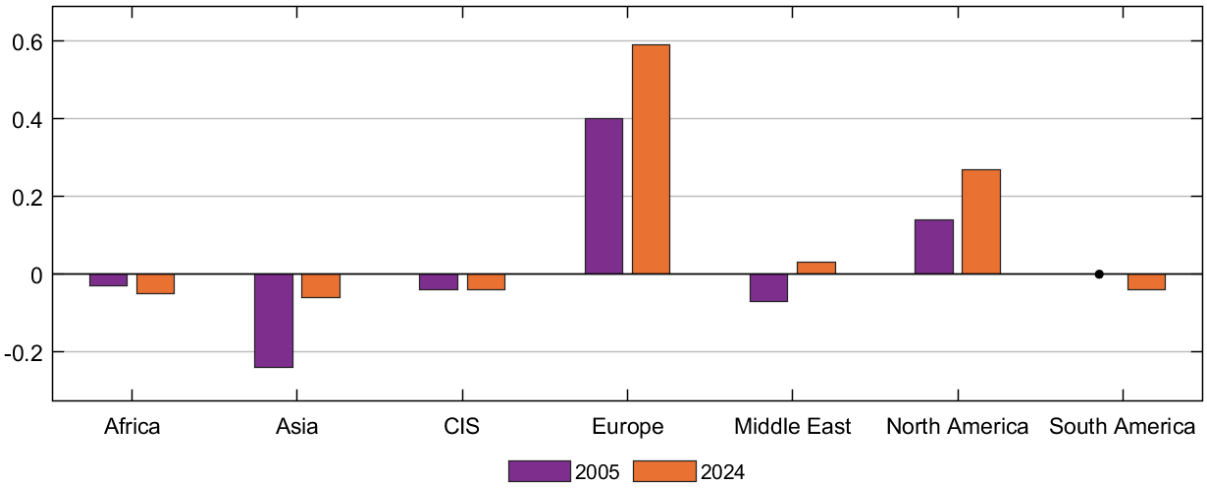
The discrepancy does not invalidate the results below, though. While accounting for 9% of exports, it accounts for less than 0.7% of global GDP, which is less than the discrepancy in merchandise flows (1% of global GDP).

In figure 34, the European and North American rising surpluses, as a share of global GDP, stand out. South America, which had a small surplus in the mid-1980s now records a deficit, while the Middle East turned, only in recent years, its traditional deficit into a small surplus.

[7] The WTO–OECD Balanced Trade in Services (BaTiS) reconciles asymmetries in global services trade flows.

Figure 34. Services trade: Surpluses have grown in Europe and North America

% of Global GDP



Note: Markers denote values close to zero

Figure 35 indicates that, as a share of regional GDP, Europe still stands out with the largest positive trade balance, above 2% of its GDP. Taking the balance as a share of regional rather than global GDP illustrates it at a scale more aligned to the region and aids the regional comparison over time as it eliminates distortions from global GDP changes from growth outside the region. From this perspective the scale of the negative balance is particularly magnified for Africa, CIS and South America.

The regional perspective also illustrates the scale of the change in the Middle East from having the largest negative balance, relative to regional GDP, to a positive balance, with a level of surplus close to that of North America in 2024.

Figure 35. Services: Europe surpluses stand out as a share of regional GDP

% of Regional GDP

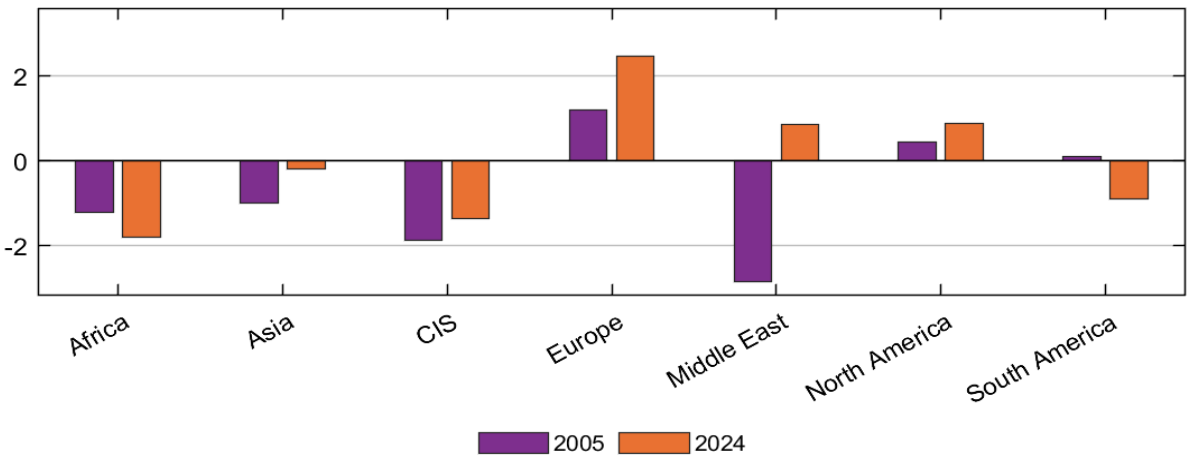
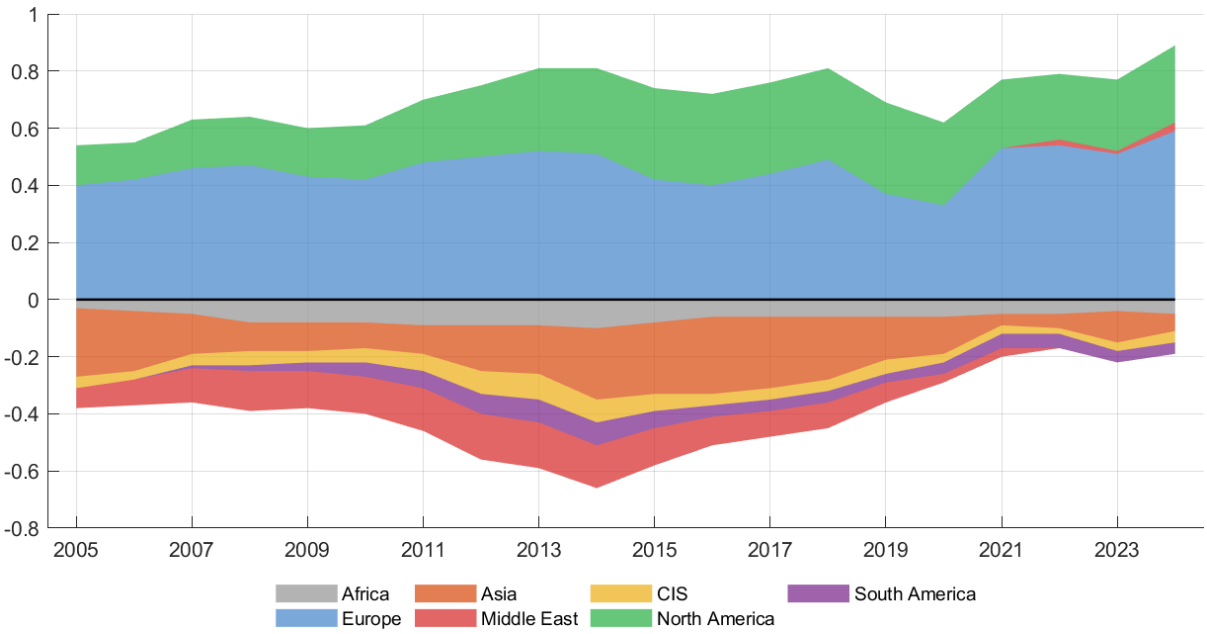


Figure 36 shows the long-term regional contribution to the global trade balance in services, highlighting the **consistent net exporting position of Europe and North America** throughout 2005-2024 (Figure 34). Other regions record a net deficit in services trade, aside from a recent positive balance for the Middle East. This has changed from accounting for a large negative balance, along with Asia from the start of the data sample.

Figure 36 – Europe and North America's net export position is consistent through 2005-2024

% of Global GDP



Which sectors drive the evolution of the global trade balance in services?

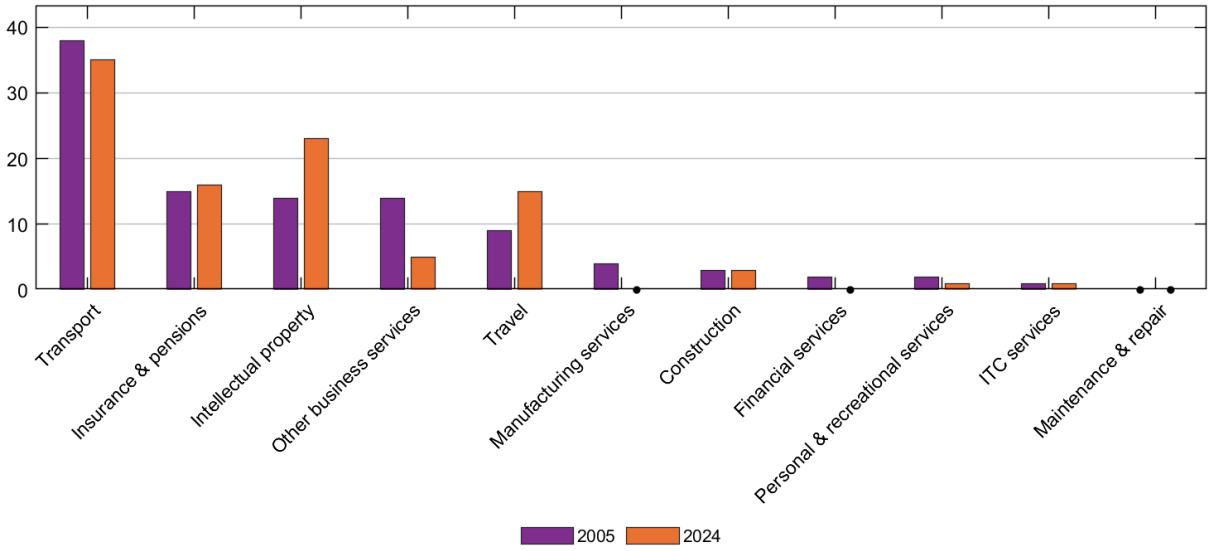
Using the same methodology for goods, figure 35 sums up the surpluses of surplus countries and thus breaks them down by sector, as a share of total surpluses. Figure 36 does the same for deficits. For consistency purposes (data based on the 6th manual of the balance of payments), it was not possible to use data prior to 2005.

Figure 37 shows that in 2021, like in 2005, **the sector contributing the highest to services trade deficits is transport**, which mainly covers freight transport. The share of transport as a source of deficit has been falling slightly from 2005 to 2024 (from 38% to 35%), while the shares of charges for the use of **intellectual property n.i.e. and travel increased** (from 14% to 22% for intellectual property fees, and from 9% to 15% for travel). Those three categories accounted in 2024 for almost three-quarters of total deficits.

Charges for the use of intellectual property n.i.e. cover payments for the use of proprietary rights such as patents, trademarks, copyrights, industrial processes and designs, trade secrets, and franchises arising from research and development or marketing. It also includes charges for licences to reproduce and/or distribute intellectual property in originals or prototypes, such as in audiovisuals, computer software, or satellite broadcasting. In practice, this category accounts for large payments for intellectual property rights in diverse sectors, ranging from information and communication to pharmaceuticals.

Figure 37. Transport contributing most to services trade deficits, with intellectual property and travel shares growing the fastest

% of total deficit



Note: Intellectual property refers to charges for the use of intellectual property n.i.e. Markers denote values close to zero

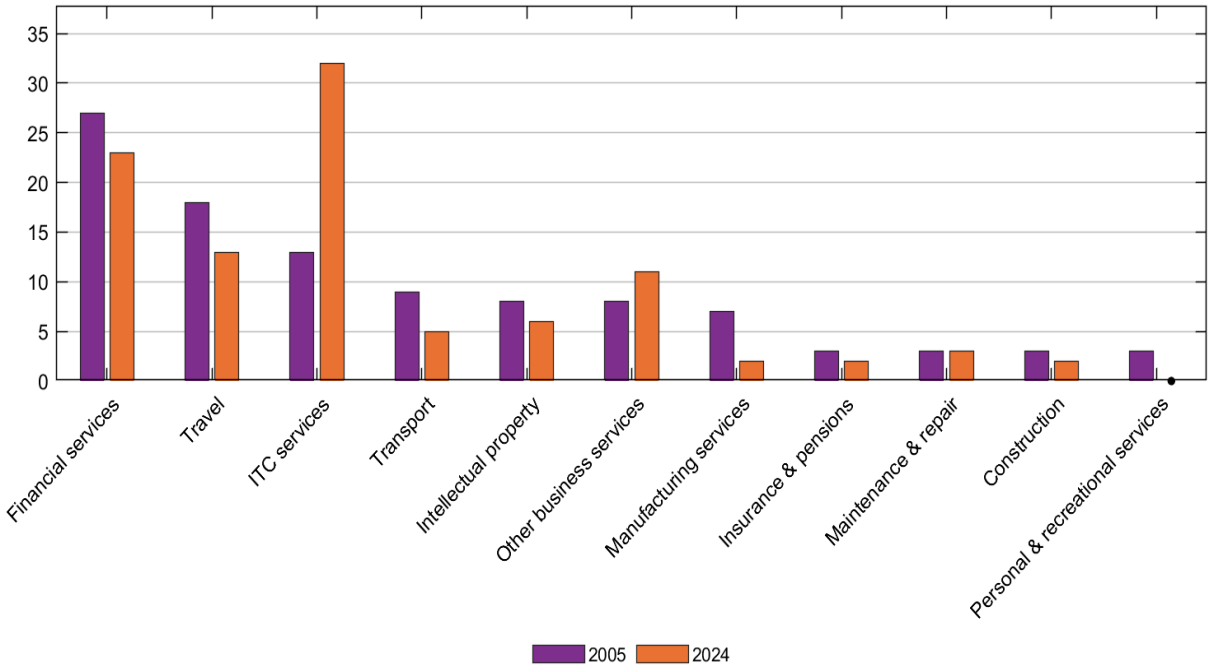
Figure 38 focuses on surpluses. The main evolution since 2005 is **the rise in information, telecommunications and computer services (ICT), contributing the highest to total services trade surpluses**.

The second largest share of surpluses is financial services, which remain a significant source of net surplus for both North America and Europe, as well as travel. These three sectors account for two thirds of the US$ 1 trillion in total surpluses. Business services, which was in 2024 the fourth largest source of surpluses, saw its share increase in 2024, compared to 2005.

Part of the symmetry between exports and imports of services is visible in the sum of surpluses and deficits. For example, the large surplus recorded by surplus regions does not find its mirror image in the deficits, some of this information being lost or misallocated under intellectual property and business services.

Figure 38 – Information, telecommunications and computer services contributing most to services trade surpluses

% of total surplus



Note: Intellectual property refers to charges for the use of intellectual property n.i.e. Markers denote values close to zero

For services, the analysis is not extended to country–sector pairs. This is due to discrepancies inherent in services data between exports and imports. These discrepancies would be amplified as the data become more disaggregated. The implication is that the interpretation of imbalances at too fine a level of disaggregation becomes disjointed between surpluses and deficits and would therefore involve extensive caveats. Confining the analysis to a higher level of aggregation, regional aggregates and the overall sectoral imbalance between these regions, minimises, as much as possible, these distortions while still illustrating clear regional and sectoral differences in services trade balances at the global level.

III.2.4 Trade in Value Added

Using a value-added approach, we observe that the largest trade imbalances in both goods and services generally come down. A Trade in Value-Added (TiVA) approach makes Europe's merchandise trade deficit larger and services surplus smaller. It results in North America's merchandise trade deficit becoming smaller and its service trade surplus increasing, a trend which is amplified over time. It also makes Asia's merchandise trade surplus larger (a trend also amplified since 1995), while little change is observed on the (deficit) services trade balance. The downward "correction" of North American merchandise trade deficits reflects the high domestic input content of exports compared with the domestic content embodied in imports from trading partners. In Europe, changes are driven by the intensive use of intermediates in several highly open economies and by the production of goods with high levels of intellectual property rights to other regions – which under this methodology are re-attributed to these regions.

III.2.4.1 Goods

Examining global trade balances through the lens of trade in value added provides a more nuanced understanding of regional (and country-level) imbalances. While gross exports and imports at the regional or national level can measure the long-run evolution of trade balances, they do not account for the substantial expansion of global value chains over recent decades. Gross trade flows can be decomposed into value added that is domestic versus foreign in origin. However, this number may give an inflated impression of the actual trade balance if these exports use a high share of imported intermediate inputs in production. Subtracting the value of imported components and focusing on the domestic value added embodied in exports typically yields a smaller, and perhaps economically more accurate, measure of the trade balance.

Figure 39 shows that, when measured in terms of domestic value added:

- the global trade balance in goods declines for North America but increases for Asia and Europe.
- In North America, the reduction of the trade balance reflects the relatively high domestic input content of exports compared with the domestic content embodied in imports from trading partners. Large imbalances are thus impacted by the presence of complex production networks with many intermediate products.
- In Europe, the change is partly driven by the intensive use of intermediates in several highly open economies. Ireland, for example, exhibits a large positive gross trade balance, which falls by more than one-fifth when measured in terms of trade in domestic value added.

Figure 39. Merchandise trade: Accounting for value chains reduces the deficit in North America

% of Global GDP

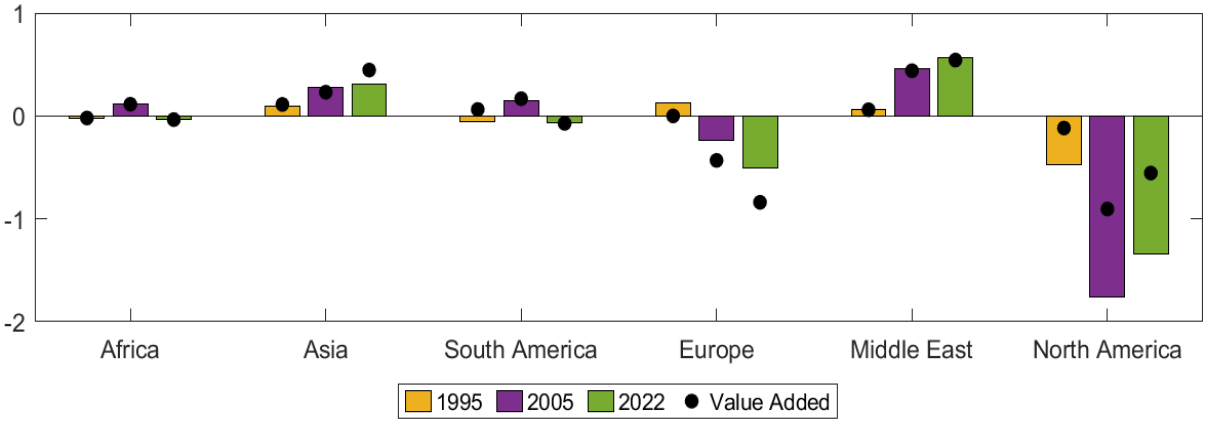
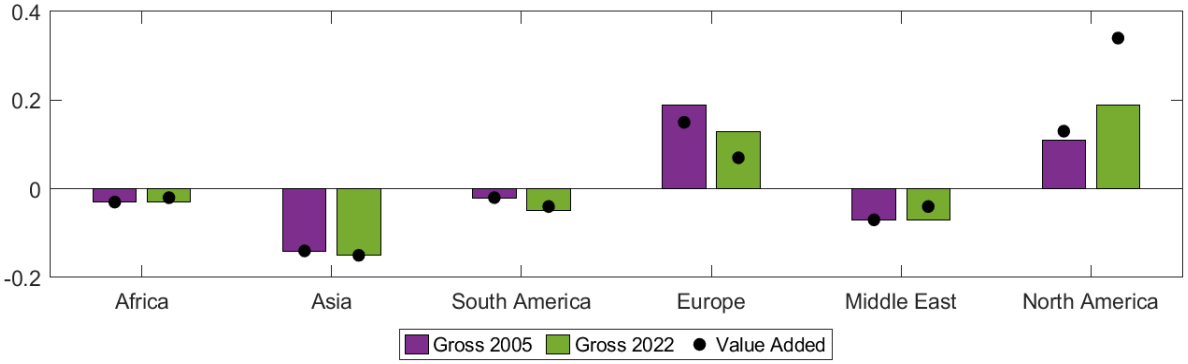


Figure 40 shows that the perspective also changes when calculating regional services trade balances in trade in value added:

- When "corrected" from the double counting of goods intermediates, services related to the movement of these goods and services embedded in these goods are also, logically, corrected.
- The TiVA approach also improves the identification of "hidden" intellectual property in goods, by allocating the intellectual property where it resides. In gross terms, the intellectual property value could be allocated to the final exporting country – the country of assembly.
- Under the TiVA framework, the intellectual property value is attributed to the country where research and development is taking place, and where software and other "produced assets" originates.

Figure 40. Services trade: The North American surplus further expands with value chains

% of Global GDP



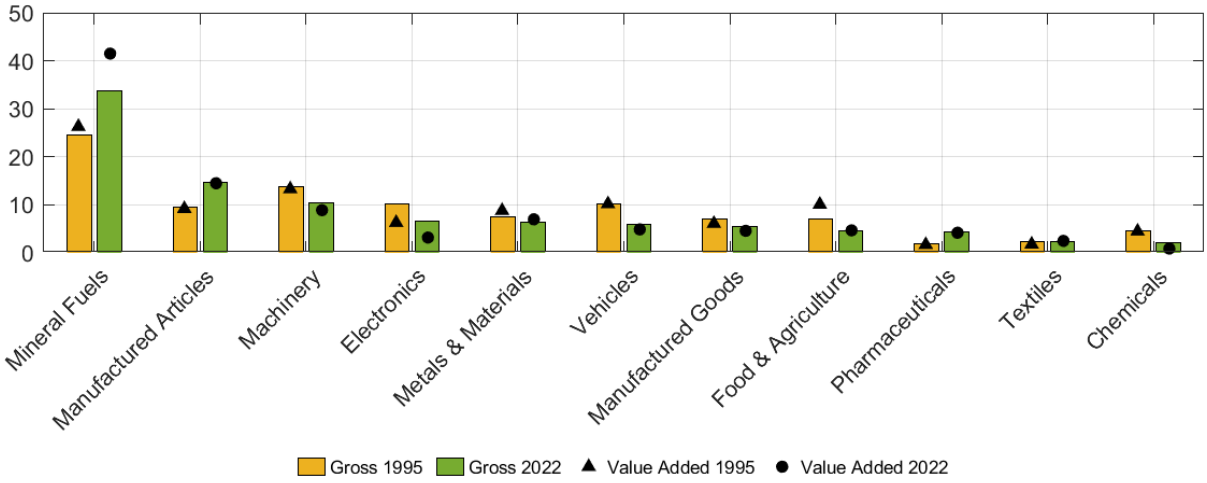
Under the TiVA methodology, Europe's surplus would be significantly reduced, while North America's would increase substantially, one being reallocated to the other (financial services, receipts from intellectual property, and computer and information services). Other regions' positions remain unchanged.

A TiVA approach makes Europe's merchandise trade deficit (customs-based) larger and services surplus smaller. It results in North America's merchandise trade deficit being smaller and its service trade surplus increasing. It also makes Asia's merchandise trade surplus larger, while little change is observed on the (deficit) services trade balance. The Middle East merchandise trade surplus would be unchanged but the deficit in the services trade balance would be reduced.

At the sector level the use of value chains data reduces the share of global impacts between regions in some sectors (figure 41). Taking electronics, this reveals that if a region has a large trade surplus in this sector, taking value chains into account reduces this balance. This indicates that the share of trade is inflated due to double counting the use of imported intermediate inputs.

Figure 41. Accounting for value added leads to reduced surpluses in electronics

% of Global GDP



V. SUMMARY AND CONCLUSION

A fact-based examination of regional and sectoral balances shows elements of both stability and changes.

- From an accounting point of view, trade flows are the largest component of current accounts. Unsurprisingly, the profile of balances in goods and services aligns with that of the current account. However, this does not say much about the drivers of these trade balances, which are not examined in this paper.

- Most regions (and countries) with merchandise trade surpluses tend to have services trade deficits and vice versa – a feature of international economic specialization. Regions with large surpluses or deficits in merchandise trade have relatively large, but not offsetting, surpluses or deficits in services trade – at least when scaled to GDP. Trade flows are three-quarters bigger than services flows, even though services flows are growing faster than goods flows. Hence, aggregate trade balances in goods and services by region and countries tend to reflect mainly the size and direction of merchandise trade balances.

- Regarding merchandise trade only, there are both elements of stability and of change. On the one hand, there is stability in the overall geography of surplus and deficit regions, with few regions flipping from surplus to deficit positions and vice versa. There is an element of subjectivity in comparing available years, but, taking a long view, levels of imbalances between surplus and deficit regions roughly stabilized when comparing the mid 1980s and the mid-2010s. Aggregate merchandise trade imbalances are on the rise since the Covid-19 pandemic, but their levels is smaller than at their peak in 2005. A significant increase of these imbalances had taken place between the mid-1970s and mid-1980s. The stability in the levels and geography of merchandise trade surpluses and deficits does not mean that they may not be a cause for concern by policymakers, who are sensitive both to the levels and variations of their trade balances according to the literature.

- From this point of view, the apparent stability conceals important changes, notably in the manufacturing sector, particularly in areas which were traditional areas of strength for developed countries, reflected in past surpluses. After seeing growing deficits in consumer and downstream industrial products after the turn of the millennium, more recent changes in surplus and deficit balances in machinery/capital goods, and the electronic and telecommunication equipment sectors are to be noted. The relative role of motor vehicles, as a source of both surplus and deficits, was somewhat less important in the 1990s and 2000s than in the mid-1980s, but imbalances have started to rise again lately.

- While, to make it digestible, the paper focuses on the sectors generating the largest surpluses and deficits, and on the main country-sector pair, an effort was made to expand into sectors which imbalances would have fallen below such "radar" screening. It looked at food and agriculture and textiles and clothing, which are sector of great interest to all categories of countries. Once in place, the database allows to go deeper in the disaggregation of sub-sectors – which is an area for potential further analytical development.

- The scope for deeper analysis in services may be more limited than for goods, because of data issues. Yet the available data clearly highlights the (growing) surpluses of advanced economies. Lower levels of country disaggregation would show that the reality in certain regions is more contrasted than broad regional balances. This is for example the case for Asia, which averages conceal a wide variety of situations of multiple countries at different levels of development. The same goes for "Europe", for example, where a few countries are accounting for the bulk of the surplus in services. From a sectoral point of view, the sector contributing the highest to services trade deficits is transport, followed by charges for the use of intellectual property and travel. On the surplus side, the main evolution has been the rise in telecommunications, computer and information services, followed by financial services.

- Adopting a value-added perspective alters the assessment of global trade balances across regions for both goods and services. A TiVA approach makes Europe's merchandise trade deficit (customs-based) larger and services surplus smaller. It results in North America's merchandise trade deficit being smaller and its service trade surplus to be larger. It also makes Asia's merchandise trade surplus larger, while little change is observed on the (deficit) services trade balance. The Middle East merchandise trade surplus would be unchanged but the deficit in the services trade balance would be reduced.

ANNEX

https://stats.wto.org/assets/UserGuide/TechnicalNotes_en.pdf

Box 1. Calculating Trade balances and aggregation

In theory, customs-based merchandise trade data should add up. However, in practice a statistical discrepancy is present. Typically, global imports will be greater than exports. This is due to a range of factors including exchange rate conversion and statistical issues. For example, imports are recorded on a CIF (cost, insurance and freight) basis as opposed to FOB (free on board) for exports. Import values thus embody transport and insurance costs from the border of the importing economy while exports do not.

Although small relative to the level of global trade, the discrepancy is visible in charts displaying the trade balance by region and country in that the sum of the surpluses and deficits will not be zero. This occurs as the discrepancy is not reduced when taking the difference between exports and imports, to calculate the trade balance. As it is the difference, the trade balance accounts for a much smaller share of global GDP than export and import levels and so is smaller relative to the discrepancy. This is amplified again with the more regions the trade balance is split into as this will again reduce the share of global GDP of each individual imbalance displayed, relative to a constant discrepancy.

To illustrate the evolution of sector trade balances the analysis is presented at different levels of spatial aggregation, from regions to countries. Each region's/country's trade balance is the sum of its trade balance with every other country/region. When amalgamating countries into regions the trade balance of the two countries would approximately equal and thus cancel. In amalgamating countries together to form regions, intra-regional trade then cancels out and so the trade balance of regions represents their extra-regional trade only. Summing across all countries/regions would equal zero, plus the statistical discrepancy.

The regional aggregation of countries in this paper follows the standard aggregation used by the WTO in its statistical and economic publications, such as the "World Trade Statistics" publication/dashboard https://www.wto.org/english/res_e/statis_e/world_trade_statistics_e.htm). The same country breakdown is used in the Global Trade and Statistics Outlook. A full list explanation of the regional-country compositions can be downloaded from the 'Regional Compositions' file of stats.wto.org (https://stats.wto.org/assets/UserGuide/Regional_Compositions.xlsx). More information on the rationale and methodology can be found in the "composition, definition and methodology" section of the WTO's annual "World Trade Statistical Review".

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