

CEPII Country Profiles: indicators, databases and classifications

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[The CEPII Country Profiles](#) put forward an original tool to analyse the insertion of eighty countries in international trade using databases developed by the CEPII. Thus, [CHELEM](#) which provides a complete and coherent representation of international trade flows, balance of payments and world revenues since the 1960s; [EconMap](#) which allows to project by 2050 or 2100 GDP with its components in a global context and taking into account climate scenarios; [EQCHANGE](#) which includes nominal, real and equilibrium effective exchange rates since the 1970s; [MAcMap-HS6](#) which estimates the average country's protection; [BACI](#) which offers harmonised statistics on values and quantities at a very detailed level of products since the late 1980s; and [WTFC](#) which defines type and price range of trade flows since 2000, are used to present a consistent set of indicators. Tables and figures are grouped under seven thematic sections: broad patterns; projections; balance & forex; tariff protection; comparative advantages; types & ranges; products & partners. This document specifies the indicators, databases and classifications used in the CEPII Country Profiles.

Summary

▪ CEPII's indicators

Broad patterns / Projections / Balance & Forex / Tariff protection / Comparative advantages / Types & Ranges / Products & Partners

▪ Database

BACI / CHELEM / EconMap / EQCHANGE / MAcMap / WTFC

▪ Classifications

Country notes / Composition of the regions / Sectoral classifications



■ CEPII's indicators

BROAD PATTERNS

This section presents country's integration in the world economy over the long run. Data sets start in 1960 for GDP and population, and in 1967 for trade flows. However, for successor states of the former USSR, the former Czechoslovakia, the former Yugoslavia and for a few numbers of other countries, trade data start in 1996 for reasons of availability and quality.

Table 1

Population, gross domestic product (GDP) and trade in goods and services (latest available year [t] and average annual growth rate from [t-10] to [t])

Sources: CEPII, CHELEM – GDP - International Trade - Balance of Payments databases.

Notes:

Data are displayed for the country, the region it belongs and the world (see the **Classifications section** for the composition of the regions).

Population: thousands of inhabitants at mid-year.

GDP at current prices: Gross Domestic Product in millions of US current dollars.

PPP GDP (constant \$ & prices): Gross Domestic Product at 2017 prices and purchasing power parity, in millions of international dollars.

GDP per capita (current US \$): Gross Domestic Product per inhabitant at current prices, in US current dollars.

PPP GDP per capita (constant \$ & prices): Gross Domestic Product per inhabitant at 2017 prices and purchasing power parity, in international dollars.

Exports and imports of goods: FOB flows (Free On Board, transportation and insurance costs excluded), in millions of US current dollars.

Exports and imports of services: flows in millions of US current dollars. Processing is not included in sections **Broad patterns** and **Comparative advantages**.

*Average annual growth rate**: in %.

*In Table 1.B, thanks to the harmonisation of countries' declarations in the CHELEM - International Trade database, the average annual growth rate of world exports is equal to that of world imports in goods. Trade data in services (CHELEM - Balance of Payments database) are not harmonised. The average annual growth rate for world exports in services, as well as for world imports, is here calculated on the average of world exports and imports (see **Databases section**).

Figure 1

Population, GDP and GDP per capita (1960- latest available year [t])

Source: CEPII, CHELEM – GDP database.

Notes:

Population: share of the country in the region's population and in the world's population (inhabitants at mid-year), in %.

GDP in purchasing power parity: share of the country in the region's and in the world's GDP in purchasing power parity (at 2017 prices and purchase power parity rates), in %.

GDP per capita in purchasing power parity: country's GDP per inhabitant in purchasing power parity relative to the region's and the world's ones (at 2017 prices and purchase power parity), in %.

Figure 2
Openness, share in world trade and trade balance relative to GDP
(goods and services, 1967- latest available year [t])

Sources: CEPII, CHELEM – International Trade - Balance of Payments – GDP databases.

Notes:

Processing is not included in services in sections **Broad patterns** and **Comparative advantages**.

Openness degree
$$o_i^k = 100 \frac{(X_i^k + M_i^k)/2}{GDP_i}$$

with

X_i^k exports of country i in sector k to all partners at current dollars

M_i^k imports of country i in sector k from all partners at current dollars

k sectors of the CHELEM database (see the **Classifications section**)

GDP_i GDP of country i at current dollars

Share in world trade
$$x_i = 100 \frac{X_i}{X_{..}} \quad \text{and} \quad m_i = 100 \frac{M_i}{M_{..}}$$

with

X_i exports of country i in all products to all partners at current dollars

$X_{..}$ world exports in all products at current dollars

M_i imports of country i in all products from all partners at current dollars

$M_{..}$ world imports in all products at current dollars

Trade balance in % of GDP
$$b_i = 100 \frac{X_i - M_i}{GDP_i}$$

with

X_i exports of country i in all products to all partners at current dollars

M_i imports of country i in all products from all partners at current dollars

GDP_i GDP of country i at current dollars

Figure 3
Geographic breakdown of the country's exports and imports
(goods, latest available year [t], [t-10], [t-20], [t-30], [t-40], [t-50])

Source: CEPII, CHELEM – International Trade database.

Note:

Only the regions that made up more than 5% in the country's exports (or imports) in the latest year or that allowed for more than 10% in the preceding selected years are individualised. The remained regions are grouped in "Rest of the world" (see the **Classifications section** for the composition of the regions).

Figure 4
Breakdown of the country's exports and imports by industry group
(goods and services, latest available year [t], [t-10], [t-20], [t-30], [t-40], [t-50])

Sources: CEPII, CHELEM – International Trade - Balance of Payments databases.

Notes:

Only the industry groups that made up more than 5% in the country's exports (or imports) in the latest year or that allowed for more than 10% in the preceding selected years are individualised. "Rest of goods and services" aggregate includes remaining groups.

Industry groups are defined according to the sectoral classification of the CHELEM database (see the **Classifications section**).

Processing is not included in services in sections **Broad patterns** and **Comparative advantages**.

PROJECTIONS

This section presents a projection exercise to fuel the reflections on the world economy by 2050 in terms of GDP and its main determinants. It also contains a particularly useful component on climate change issues with alternative scenarios of economic growth by 2100.

Table 1
Population and Gross Domestic Product (2010, 2025, 2050)

Source: CEPII, EconMap database.

Notes:

Projections start in 2013.

GDP at constant prices: Gross Domestic Product in millions of constant 2005 dollars

GDP per capita in PPP: Gross Domestic Product per capita at purchasing power parity prices of 2005

Population: in thousands of inhabitants

Figure 1
Breakdown of the GDP growth
(average growth 1995-2010, 2010-2025, 2025-2050)

Source: CEPII, EconMap database.

Notes:

Projections start in 2013.

The contribution to growth of the different components of GDP is computed according to following [MaGE](#) (Macroeconometrics of the Global Economy) model's production function, which is used to produce the statistical projections in the [EconMap](#) database (Fouré *et alii*, 2012 & 2013):

$$Y_{i,t} = \left[1 - \left(\frac{B_{i,t}}{p_{E,t}} \right)^{\sigma-1} \right]^{\frac{\sigma}{1-\sigma}} A_{i,t} K_{i,t}^{\alpha} L_{i,t}^{1-\alpha}$$

with

$Y_{i,t}$ GDP of country i at time t , in constant dollars

$K_{i,t}$ capital stock

$L_{i,t}$ active population

$A_{i,t}$ productivity of capital and labor

$p_{E,t}$ world average price of energy, approximated by oil price

$B_{i,t}$ productivity of energy

α share of capital in value added

σ elasticity of substitution between energy and the capital-labor aggregate.

Contribution of capital $c^K = \alpha \left(\frac{K_{i,t}}{K_{i,t-1}} - 1 \right)$

with

$K_{i,t}$ capital stock

α share of capital in value added

Contribution of labour $c^L = (1 - \alpha) \left(\frac{L_{i,t}}{L_{i,t-1}} - 1 \right)$

with

$L_{i,t}$ active population

α share of capital in value added

Contribution of labour-capital productivity $c^A = \left(\frac{A_{i,t}}{A_{i,t-1}} - 1 \right)$

with

$A_{i,t}$ productivity of capital and labor

Contribution of energy efficiency $c^E = \left(\frac{\left[1 - \left(\frac{B_{i,t}}{p_{E,t}} \right)^{\sigma-1} \right]^{\frac{\sigma}{1-\sigma}}}{\left[1 - \left(\frac{B_{i,t-1}}{p_{E,t-1}} \right)^{\sigma-1} \right]^{\frac{\sigma}{1-\sigma}}} - 1 \right)$

with

$B_{i,t}$ productivity of energy

$p_{E,t}$ world average price of energy, approximated by oil price

σ elasticity of substitution between energy and the capital-labor aggregate.

Table 2 Active population, education and saving rate (2010, 2025, 2050)

Source: CEPII, EconMap database.

Notes:

Active population: percentage of active population over total population, in percentage points

Savings rate: share of gross domestic product that is saved

Secondary- or tertiary-educated population: share in working age population

Tertiary-educated population: share in working age population

Figure 2
Age pyramid
(total population and active population by age range, two years to be chosen)

Source: CEPII, EconMap database.

Note:

Total and active population: in thousands of inhabitants by age group and gender, according to employment status

Figure 3
GDP in the five IPCC scenarios (Intergovernmental Panel on Climate Change)
(average growth rate by decade, GDP in % of the region, GDP in % of world, 1980-2100)

Source: CEPII, EconMap database.

Notes:

GDP projections to 2100 by the CEPII start as of 2013 and are designed after the narratives described in O'Neill *et alii* (2017), which will notably be used as a basis for the next Intergovernmental Panel on Climate Change (IPCC) report expected by 2022.

O'Neill *et alii* offer five different narratives for the world economy by the end of the 21st century according to climatic changes, known as the “Shared Socioeconomic Pathways” (SSPs), that encompass both population, productivity or inequalities. Presented on a double axis of socio-economic challenges to be tackled –to mitigate the deterioration of the climatic conditions, on the one hand, and to adapt to them, on the other hand– these five scenarios are the following:

Five shared socioeconomic pathways (SSPs)
representing different combinations of challenges to mitigation and to adaptation



Source: O'Neill *et alii* (2017).

Quotations from O'Neill *et alii* (2017)

- **SSP1 Sustainability—Taking the green road (low challenges):** This is a world making relatively good progress towards sustainability, with sustained efforts to achieve development goals, while reducing resource intensity and fossil fuel dependency. (...) The combination of directed development of environmentally friendly technologies, a favourable outlook for renewable energy, institutions that can facilitate international cooperation, and relatively low energy demand results in relatively low challenges to mitigation. At the same time, the improvements in human well-being, along with strong and flexible global, regional, and national institutions imply low challenges to adaptation.
- **SSP2 Middle of the road (intermediate challenges):** The world follows a path in which social, economic, and technological trends do not shift markedly from historical patterns. Development and income growth proceeds unevenly, with some

countries making relatively good progress while others fall short of expectations. (...) These moderate development trends leave the world, on average, facing moderate challenges to mitigation and adaptation, but with significant heterogeneities across and within countries.

- **SSP3 Regional rivalry—A rocky road (high challenges):** A resurgent nationalism, concerns about competitiveness and security, and regional conflicts push countries to increasingly focus on domestic or, at most, regional issues. (...) Growing resource intensity and fossil fuel dependency along with difficulty in achieving international cooperation and slow technological change imply high challenges to mitigation. The limited progress on human development, slow income growth, and lack of effective institutions, especially those that can act across regions, implies high challenges to adaptation for many groups in all regions.
- **SSP4 Inequality—A road divided (adaptation challenges dominate):** Highly unequal investments in human capital, combined with increasing disparities in economic opportunity and political power, lead to increasing inequalities and stratification both across and within countries. (...) Environmental policies focus on local issues around middle and high income areas. The combination of some development of low carbon supply options and expertise, and a well-integrated international political and business class capable of acting quickly and decisively, implies low challenges to mitigation. Challenges to adaptation are high for the substantial proportions of populations at low levels of development and with limited access to effective institutions for coping with economic or environmental stresses.
- **SSP5 Fossil-fueled development—Taking the highway (mitigation challenges dominate):** Driven by the economic success of industrialised and emerging economies, this world places increasing faith in competitive markets, innovation and participatory societies to produce rapid technological progress and development of human capital as the path to sustainable development. (...) The strong reliance on fossil fuels and the lack of global environmental concern result in potentially high challenges to mitigation. The attainment of human development goals, robust economic growth, and highly engineered infrastructure results in relatively low challenges to adaptation to any potential climate change for all but a few.

The [EconMap](#) database proposes a quantification of these five very contrasted scenarios (Fontagné & Fouré, 2016). Three indicators are presented here:

SSP1 Green road
 SSP2 Middle of the road
 SSP3 Rocky road
 SSP4 Divided road
 SSP5 Highway

Average growth rate by decade

Ten-year average of Gross Domestic Product growth at constant prices, measured in percentage points. Data for every decade is displayed at the median year (for instance, the average growth rate for 2050-2060 is displayed at year 2055).

In % of the region GDP

Share of gross domestic product at constant price in regional total, expressed in percentage points. For every decade, the share is computed for the median year.

In % of the world GDP

Share of gross domestic product at constant price in world total, expressed in percentage points. For every decade, the share is computed for the median year.

BALANCE & FOREX

This section presents indicators related to **current transactions** (trade in goods and services, movements of income based on compensation of inputs to the production process or on one-way transfers) from the CHELEM - Balance

of payments database; to **effective exchange rates** from the EQCHANGE database; and to **terms of trade** from the WTFC database.

CURRENT ACCOUNT

The current account of the balance of payments is broken down as follows:

- **Trade in goods** displayed for the total of goods;
- **Trade in services** shown in three headings (transportation, travel and other services), the last one, delineated in 10 items, being basically business services;
- **The primary income account** concerning, in national accounts, the return of economic units in exchange for their supply of labour (compensation of employees), of capital (investment income and interest) or natural resources (rents). The primary income balance, added to GDP, makes up the gross national income of the country;
- **The secondary income account** includes transfers without quid pro quo — not related to the production process, contrary to the primary income account — with international cooperation one of the main items.

Table 1

Major flows of the country's current account (credits, debits and balance in millions of dollars, latest available year [t])

Source: CEPII, CHELEM - Balance of Payments database.

Note:

The four accounts (goods, services, primary and secondary income) sum up to the current account. For goods and services, credits tally with exports, and debits with imports.

Figure 1

Major flows of the country's current account (credits, debits and balance in % of GDP, 1967- latest available year [t])

Source: CEPII, CHELEM - Balance of Payments database.

Note:

The four accounts (goods, services, primary and secondary income) sum to the current account. For goods and services, credits tally with exports, and debits with imports.

Figure 2

Trade in services of the country shown in three broad categories (credits, debits and balance in % of GDP, 1967- latest available year [t])

Source: CEPII, CHELEM - Balance of Payments database.

Note:

This breakdown highlights usual services — transportation (delivery of goods and passengers) and travel (tourism) — and the other services that are mainly business services and traded through the new technologies. "Other services" is an aggregate that results from the difference between services and the sum of "transport" and "travel". It can happen that the sum of all sub-items of "other services" (processing...cultural services) doesn't tally with the "other services" aggregate. This occurs when services are not fully distributed across the "other services" components for confidentiality reasons. An example is Ireland in 1996.

Figure 3
Breakdown of trade in "other services"
(credits, debits and balance in % of GDP, 2005- latest available year [t])

Source: CEPII, CHELEM - Balance of Payments database.

Note:

Other services" are delineated in 10 items: manufacturing services on physical inputs owned by others (Processing, for the shortcut), maintenance and repair services n.i.e. (Maintenance), construction services (Construction), insurance and pension services (Insurance), financial services, charges for the use of intellectual property n.i.e. (Licensing), telecommunications, computer, and information services (Telecom. Computer), other business services (Other business services), personal, cultural, and recreational services (Culture), government goods and services n.i.e. (Government).

Figure 4
Country's primary income with a focus on investment
(credits, debits and balance in % of GDP, 2005- latest available year [t])

Source: CEPII, CHELEM - Balance of Payments database.

Note:

Primary income is broken down into investment income, compensation of employees and other primary income. Moreover, investment income is further classified by direct investment income, portfolio income, and other investment income (mainly interests on loans), and by reserve assets as well.

EFFECTIVE EXCHANGE RATES

This section proposes a multiple and original reading of the currencies' effective exchange rates evolutions since 1973: nominal *versus* real rates; equilibrium real effective exchange rate; and the deviation of the later to its equilibrium level.

There is no data for Belarus and Taiwan.

Figure 5
Effective exchange rates
(1973- latest available year [t])

Source: CEPII, EQCHANGE database.

Notes:

Nominal and real effective exchange rates (2010=100)

An **effective exchange rate** measures the rate at which a country's currency exchanges against a basket of other currencies, in either nominal or real terms.

The **nominal effective exchange rate** of country i in period t ($NEER_{i,t}$) measures the value of the currency of country i against a weighted average of foreign currencies:

$$NEER_{i,t} = \prod_{j=1}^N NER_{ij,t}^{w_{ij,t}}$$

where $NER_{ij,t}$ is the index of the nominal bilateral exchange rate between the currency of country i and the currency of its trade partner j in period t , N denotes the number of trading partners and $w_{ij,t}$ is the trade-based

weight associated to the partner j . These weights are normalised so that their sum is equal to one, i.e. $\sum_{j=1}^N w_{ij,t} = 1$ (see [Couharde & alii, 2018](#)).

The **real effective exchange** rate of country i in period t ($REER_{i,t}$) is calculated as the weighted average of real bilateral exchange rates against each of its N trading partners j :

$$REER_{i,t} = \prod_{j=1}^N RER_{ij,t}^{w_{ij,t}}$$

where $RER_{ij,t} = \frac{NER_{ij,t} \times P_{i,t}}{P_{j,t}}$ is an index of the real exchange rate of the currency of the country i vis-à-vis the currency of the trading partner j in period t . $P_{i,t}$ and $P_{j,t}$ stand respectively for the price index of country i and of country j .

With these definitions, a real (nominal) appreciation of the domestic currency is recorded as an increase in the real (nominal) effective exchange rate index.

Equilibrium effective real exchange rate (and its 95% confidence interval)

The series correspond to the average of the estimated equilibrium effective real exchange rates over different models and samples. The equilibrium exchange rates have been derived relying on the Behavioral Equilibrium Exchange Rate approach (BEER approach; see [Clark & MacDonald, 1998](#)). Hence, the obtained series correspond to the equilibrium levels of the exchange rates suggested by the fundamentals of the economies ([Couharde et alii, 2018](#)). The lines below and above the series respectively indicate the lower and upper bounds of the 95% confidence interval.

Real exchange rate misalignment (and its 95% confidence interval)

The series correspond to the average of the estimated currency misalignments (in percentage) over different samples and models. Each currency misalignment series has been calculated as the log-difference between the actual real effective exchange rate ($reer_{i,t}$) and its estimated equilibrium level ($erer_{i,t}$) at date t .

$$Mis_{i,t} = reer_{i,t} - erer_{i,t}$$

The misalignments' values then give the magnitude of the real exchange rate adjustment that would restore equilibrium. Given the definition of the real effective exchange rate, a negative sign of the misalignment ($reer_{i,t} < erer_{i,t}$) indicates an undervaluation (the real exchange rate must appreciate to converge towards its long-run equilibrium value), whereas a positive sign ($reer_{i,t} > erer_{i,t}$) indicates an overvaluation of the real effective exchange rate (the real exchange rate must depreciate to converge towards its long-run equilibrium value).

TERMS OF TRADE

This section presents the evolution of countries' unit values in exports and imports, as well as their terms of trade, in all and manufactured goods since 2000.

Individual data are not available for Belgium and Luxembourg for the whole period.

Hence, the figure for Belgium or Luxembourg refers to the sum of Belgium and Luxembourg.

Figure 6

Terms of trade evolution in all products and their breakdown (export and import unit values, terms of trade, 2000- latest available year [t], 2000=100)

Source: CEPII, WTFC database.

Notes:

Unit values are defined at the 6-digit level of the Harmonised System (HS) classification in WTFC database and are then aggregated.

Terms of trade are defined as the ratio of export to import price. The terms of trade index is here equal to the ratio of the Laspeyres unit value indices of exports and imports of a given country:

$$TE_i = \frac{L_i^x}{L_i^m}$$

with L_i^x and L_i^m Laspeyres indices for respectively exports and imports of country i . The Laspeyres index is the arithmetical average of the ratio of unit values at time t and at the time of reference 0 , weighted by the share of the country j and product k in country i 's trade at time 0 .

$$L_i^x = \sum_{jk} w_{ijk0} \frac{uv_{ijkt}}{uv_{ijk0}}$$

with uv_{ijkt} unit value of exports of country i to country j for the product k in year t , uv_{ijk0} unit value of exports of country i to country j for the product k in year of reference 0 and with $w_{ijk0} = \frac{v_{ijk0}}{\sum_{jk} v_{ijk0}}$ share of the product k and the destination j in country i 's exports in year 0 (equal to 2000).

Figure 7

**Terms of trade evolution in manufacturing products and its breakdown
(export and import unit values, terms of trade, 2000- latest available year [t], 2000=100)**

Source: CEPII, WTFC database.

Notes:

Unit values are defined at the 6-digit level of the Harmonised System (HS) classification in WTFC database and then aggregated.

Terms of trade are defined as the ratio of export and import price. The terms of trade index is here equal to the ratio of the Laspeyres unit value indices of exports and imports of a given country:

$$TE_i = \frac{L_i^x}{L_i^m}$$

with L_i^x and L_i^m Laspeyres indices for respectively exports and imports of country i . The Laspeyres index is the arithmetical average of the ratio of unit values at time t and at the time of reference 0 , weighted by the share of the country j and product k in country i 's trade at time 0 .

$$L_i^x = \sum_{jk} w_{ijk0} \frac{uv_{ijkt}}{uv_{ijk0}}$$

with uv_{ijkt} unit value of exports of country i to country j for the product k in year t , uv_{ijk0} unit value of exports of country i to country j for the product k in year of reference 0 and with $w_{ijk0} = \frac{v_{ijk0}}{\sum_{jk} v_{ijk0}}$ share of the product k and the destination j in country i 's exports in year 0 (equal to 2000).

TARIFF PROTECTION

Table 1

**Tariffs by sector: preferential applied and MFN rates
(in %, latest available year [t])**

Source: CEPII-ITC, MAcMap-HS6 2016 v 1.0 database.

Notes:

Applied preferential tariff: the lowest rate applicable to a single partner, taking into account the preferential agreements.

MFN tariff: applied tariff under the Most Favoured Nation clause. For a member country of the World Trade Organization (WTO), this is the standard non-discriminatory tariff on imported products from its WTO partners (excluding preferential tariffs under free trade agreements and other arrangements or tariffs applied within the limits of a quota).

The average tariff rate, for both MFN and Applied preferential, corresponds to weighted averages computed with the MAcMap-HS6 methodology, called the “reference groups” (Guimbard *et alii*, 2012b, p. 102).

Columns 1 & 2: average tariffs (MFN and preferential) applied by the country to all its partners.

Columns 3 & 4: region’s average tariffs (MFN and preferential).

Columns 5 & 6: world’s average tariff (MFN and preferential).

The sectors come from the CEPII’s CHELEM classification of products (see the **Classifications section**).

MAcMap-HS6 2016 v1.0: as data is not available in our dataset, for products subject to tariff rate quotas, the 2007 rate is used. Therefore, the protection actually applied on these products is potentially different, but this is a useful first approximation.

Table 2

**Tariff protection: preferential applied and faced tariffs by the country,
disaggregated by industries and production stages
(in %, latest available year [t])**

Source: CEPII-ITC, MAcMap-HS6 2016 v 1.0 database.

Notes:

Applied preferential tariff: the lowest rate applicable to a single partner, taking into account the preferential agreements.

MFN tariff: applied tariff under the Most Favoured Nation clause. For a member country of the World Trade Organization (WTO), this is the standard non-discriminatory tariff on imported products from its WTO partners (excluding preferential tariffs under free trade agreements and other arrangements or tariffs applied within the limits of a quota).

The average tariff rate, for both MFN and Applied preferential, corresponds to weighted averages computed with the MAcMap-HS6 methodology, called the “reference groups” (Guimbard *et alii*, 2012b, p. 102).

Industries and stages are defined according to the sectoral classification of the CHELEM database (see the **Classifications section**).

MAcMap-HS6 2016 v1.0: As information is not yet fully available, for products subject to tariff rate quotas, the outside rate is used.

COMPARATIVE ADVANTAGES: TRADE SPECIALISATION

International specialisation is measured by the contribution to the trade balance. For every country, this indicator calculates the revealed comparative advantages (RCA), ie the country's advantages/disadvantages revealed by international trade. Considering the country's exports and imports, it shows the key points and the weak points of the country, regardless of the impact of the macroeconomic situation of the country on its trade balance.

$$RCA_i^k = \frac{1000}{X_i^{total} + M_i^{total}} \times \left[(X_i^k - M_i^k) - (X_i^{total} - M_i^{total}) \times \left(\frac{X_i^k + M_i^k}{X_i^{total} + M_i^{total}} \right) \right]$$

with

i country

k product (good or service)

X exports in value

M imports in value

Trade balance of a product *k* is compared to a “theoretical balance” resulting from the distribution of the global balance observed between the various products in total trade of country *i*. This theoretical balance is, by construction, neutral towards any advantage or disadvantage of the country on the various products. So the distance between effective balance and theoretical balance on each of the products reveals the key or weak points of the country. The indicator is additive and the sum on all the products is equal to zero. To facilitate the comparisons between countries, the indicator is expressed in thousandths of the country's total trade.

Figure 1

Trade specialisation of the country in primary goods, manufactured goods and services (contribution to the balance, in thousandths of the total of the country's total trade, 1967- latest available year [t])

Sources: CEPII, CHELEM – International Trade - Balance of Payments databases.

Notes:

Trade data before 1996 are not available or of sufficient quality for successor states of the former Soviet Union, the former Czechoslovakia, the former Yugoslavia and for a few numbers of other countries.

Three large sectors correspond to the groupings of products in the CHELEM database (see the **Classifications section**).

Primary goods: ores, energy and agriculture (sections H, I and J).

Manufactured goods: other goods (sections B, C, D, E, F, G, K and NDA).

Services: all services (processing excluded).

Table 1

Trade specialisation by category: Top 10 comparative advantages and disadvantages (contribution to the balance, in thousandths of the country's total trade, latest available year [t], change [t-10]-[t] and [t-10], change [t-20]-[t-10])

Sources: CEPII, CHELEM – International Trade - Balance of Payments databases.

Notes:

Key points (comparative advantages) and weak points (comparative disadvantages) are computed for the 72 categories of goods and for the 12 categories of services of CHELEM (see the **Classifications section**). Sometimes, there are less than ten key points or ten weak points.

The changes over the period (final year – initial year) are points of thousandths of trade.

TYPES & RANGES

This section offers original measures on the nature of the countries' manufactured trade, listing them first by type and then by range of trade.

The **types** of trade are analysed through two approaches:

- first by considering **intra-industry trade** (simultaneous trade of bilateral flows within a single industry) since 1967, as measured by the Grubel and Lloyd index, using data from the CHELEM database, at a relatively aggregated level of 240 industries;
- then by classifying trade flows in **one-way trade** of different products and **two-way trade** of similar products, by using very detailed data (almost 5,000 products) from the WTFC database since 2000.

The **unit value ranges** make it possible to identify the countries' international trade through a 'quality/price' criterion (low, medium and high unit value ranges) from the data of this latter database.

INTRA-INDUSTRY TRADE

Figure 1
Intra-industry trade (Grubel-Lloyd index)
(1967- latest available year [t])

Source: CEPII, CHELEM –International Trade database.

Notes:

Trade data before 1996 are not available or of sufficient quality for successor states of the former Soviet Union, the former Czechoslovakia, the former Yugoslavia and for a few numbers of other countries.

Grubel-Lloyd index (**Grubel & Lloyd, 1975**) is used to measure intra-industry trade (IIT) between two countries:

$$GL_{ij}^k = \frac{(X_{ij}^k + M_{ij}^k) - |X_{ij}^k - M_{ij}^k|}{X_{ij}^k + M_{ij}^k} = 1 - \frac{|X_{ij}^k - M_{ij}^k|}{X_{ij}^k + M_{ij}^k}$$

with

X_{ij}^k exports value in industry k from country i to partner j

M_{ij}^k imports value in industry k by country i from partner j

GL varies between 0 (exclusive trade between the industries) and 1 (exclusive IIT).

The indicator calculated at the level of bilateral flows with partner countries in 240 manufacturing industries (excluding minerals, energy and agricultural industries, jewellery, non-monetary gold and not elsewhere specified products) is presented here in three aggregated forms:

G&L by partner regions

$$GL_{ij} = \sum_{jk} GL_{ij}^k * \frac{(X_{ij}^k + M_{ij}^k)}{(X_{ij} + M_{ij})}$$

with i , the considered country; j , the partner country in region J ; and k , the industry.

Only the regions that made up more than 5% in the country's exports (or imports) in the latest year or that allows for more than 10% in the preceding selected years are displayed (see the **Classifications section** for the composition of the regions).

G&L by broad production stages

$$GL_i^K = \sum_{jk} GL_i^k * \frac{(X_{ij}^k + M_{ij}^k)}{(X_i^K + M_i^K)}$$

with i , the considered country; j , the partner country; and k , the industry classified in the broad production stage K (see the **Classifications section**).

G&L by Industry groups

$$GL_i^K = \sum_{jk} GL_i^k * \frac{(X_{ij}^k + M_{ij}^k)}{(X_i^K + M_i^K)}$$

with i , the considered country; j , the partner country; and k , the industry classified in industry group K (see the **Classifications section**).

Only the industry groups that made up more than 5% in the country's exports (or imports) in the latest year or that allows for more than 10% in the preceding selected years are displayed.

ONE-WAY & TWO-WAY TRADE IN PRODUCT LEVEL

Types of trade are distinguished according to Fontagné & Freudenberg (1997) methodology.

Two-way versus one-way trade

Two partners may export and import the same product. For example, French producers may export cotton men's shirts to Spain, while Spanish producers may export the same category of products to France. There is thus a trade *overlap*. If the overlap is above a given threshold, then the flow is defined as two-way trade.

Trade at a country-partner-product-year level is considered to be two-way when the value of the minority flow (the smallest value between the export and import flows) represents at least 10% of the majority flow:

$$\frac{\text{Min}(X_{ij}^k, M_{ij}^k)}{\text{Max}(X_{ij}^k, M_{ij}^k)} > 10\%$$

with

X_{ij} exports in value from country i to country j

M_{ij} imports in value of country i from country j

K product

If the ratio is below this 10% threshold, the flow is considered one-way.

Product similarity

Products of a pair of flows (imports and exports for a country-partner-product-year) are considered to be similar (or *horizontally differentiated*) if their relative unit values differ by less than 15%, i.e. if they fulfil the following condition:

$$\frac{1}{1.15} \leq \frac{UV_{ijk}^X}{UV_{ijk}^M} \leq 1.15$$

with

UV unit value (ratio value/quantity)

UV_{ij}^X export unit value from country i to country j

UV_{ij}^M import unit value of country i from country j

k product

When this is not the case, products are considered to be *vertically differentiated*.

According to the conditions summarised in the following table, each pair of flows (exports and imports) is associated with one of the four types of trade:

- one-way,
- two-way trade in variety or in horizontally differentiated (similar) products,
- two-way trade in vertically differentiated products,
- unallocated two-way trade (without information on unit values).

Trade overlap: does the minority flow represent at least 10% of the majority flow?	Product similarity: do export and import unit values differ from less than 15%?		
	Yes Horizontal differentiation	No Vertical differentiation	Missing unit value
Yes Two-Way Trade	Trade horizontally differentiated	Trade vertically differentiated	Unallocated Two-Way Trade
No One-Way Trade	One-Way Trade		

Figure 2
Breakdown of the country's manufactured trade by type
(in % of total of exports and imports of manufactured goods,
2000- latest available year [t])

Source: CEPII, WTFC database.

Notes:

Individual data are not available for Belgium and Luxembourg for the whole period. Illustrations for Belgium or Luxembourg refer to the sum of Belgium and Luxembourg.

One-Way Trade: trade of products with different characteristics.

Two-Way Trade in variety: two-way trade of *horizontally differentiated* products (similar characteristics and unit values).

Two-Way Trade in quality: two-way trade of *vertically differentiated* products (similar characteristics but different unit values).

Unallocated Two-Way Trade: two-way trade without information on unit values.

Products are defined at the 6-digit level of the Harmonised System (HS) classification in BACI database and aggregated at the manufacturing sector level according to the CHELEM database classification (BA to GI and KA to KI, see the **Classifications section**).

Table 1

**Breakdown of the country's manufactured trade by type and industry group
(in % of total of manufactured exports and imports of the industry group,
3 years average at the beginning and the end of the last decade)**

Source: CEPII, WTFC database.

Notes:

Individual data are not available for Belgium and Luxembourg for the whole period. Illustrations for Belgium or Luxembourg refer to the sum of Belgium and Luxembourg.

One-Way Trade: trade of products with different characteristics.

Two-Way Trade in variety: two-way trade of *horizontally differentiated* products (similar characteristics and unit values).

Two-Way Trade in quality: two-way trade of *vertically differentiated* products (similar characteristics but different unit values).

Unallocated Two-Way Trade: two-way trade without information on unit values.

Products are defined at the 6-digit level of the Harmonised System (HS) classification in BACI database. Manufactured products (BA to GI and KA to KI) are aggregated by industry according to the CHELEM nomenclature (see the **Classifications section**). Exports and imports are summed. For each row, the total is 100%.

UNIT VALUE RANGES

We follow the Fontagné, Freudenberg and Péridy (1997) methodology.

A unit value range is assigned to each elementary flow depending on its unit value relatively to a world reference. This reference corresponds to the world median of all unit values weighted by the value of their flow for a given year. The three unit value ranges for each flow at the country-partner-product-year level are defined as follows:

- High unit value range, if the product unit value exceeds the world reference by at least 15%,
- Medium unit value range, if the product unit value ranges between +/-15% around the reference,
- Low unit value range, if the product unit value is below the reference by at least 15%.

Figure 3

**Breakdown of the country's manufactured exports and imports by unit value range
(in % of total exports or imports of manufactured goods,
2000- latest available year [t])**

Source: CEPII, WTFC database.

Notes:

Individual data are not available for Belgium and Luxembourg for the whole period. Illustrations for Belgium or Luxembourg refer to the sum of Belgium and Luxembourg.

Products are defined at the 6-digit level of the Harmonised System (HS) classification in BACI database and aggregated at the manufacturing sector level according to the CHELEM classification (BA to GI and KA to KI, see the **Classifications section**).

Table 2

Breakdown of the country's manufactured exports and imports by unit value range and industry group (in % of manufactured exports or imports of the industry group, 3 years average at the beginning and the end of the last decade)

Source: CEPII, WTFC database.

Notes:

Individual data are not available for Belgium and Luxembourg for the whole period. Illustrations for Belgium or Luxembourg refer to the sum of Belgium and Luxembourg.

Products are defined at the 6-digit level of the Harmonised System (HS) classification in BACI database. Manufactured products (BA to GI and KA to KI) are aggregated by industry according to the CHELEM nomenclature (see the **Classifications section**).

For each industry, and for the total as well, manufactured exports and imports of the country are broken down by unit value range (high, medium, low). For each row, the sum is 100%.

PRODUCTS AND PARTNERS

Individual data are not available for Belgium and Luxembourg for the whole period. Tables for Belgium or Luxembourg refer to the sum of the two countries.

Products correspond to the 4-digits level in the Harmonised System (HS4) of the product classification. It contains 1,241 categories of products.

Table 1 Concentration of trade in goods by partner and product (HS4) (latest available year [t])

Source: CEPII, BACI database.

Notes:

The three columns present the export and import concentration of respectively the country, its region and the world.

Share of the first one: share of the first partner or product in the country's, region's or world's total exports or imports. Similarly the share of the first four represents the share of the four most important partners or products.

Number corresponding to 50% (90%) of exports (imports): number of partners or products which covers 50% (90%) of the country's, region's or world's exports (imports).

Table 2 Share of the first 20 partners in exports and imports (in % of the country's exports or imports in goods, latest available year [t] and [t-10])

Source: CEPII, BACI database.

Table 3 Share of the first 20 products (HS4) in exports and imports (in % of the country's exports or imports in goods, latest available year [t] and [t-10])

Source: CEPII, BACI database.

Table 4 Share of the first 20 flows (partner/HS4 product) in exports and imports (in % of the country's exports or imports in goods, latest available year [t] and [t-10])

Source: CEPII, BACI database.

■ Databases

BACI

[BACI](#) provides bilateral export values (in thousands of US dollars) and quantities (in tons) at the 6-digit level of Harmonised System (5,018 products), for more than 254 countries since 1989. Original data come from the United Nations Statistical Division (COMTRADE database). This source database provides the declarations of the exporter and the importer, that gives double information for each flow (exporter-importer-product-year).

BACI is constructed using an original procedure that reconciles the declarations. This harmonisation procedure enables to extend considerably the number of countries for which trade data are available, as compared to the original dataset. First, as import values are reported CIF (Cost, Insurance and Freight) while exports are reported FOB (Free On Board), insurance and freight costs are estimated and removed from imports values to compute all flows free on board. Second, the reliability of country reporting is assessed based on the reporting distances among partners. These reporting qualities are used as weights in the reconciliation of each bilateral trade flow twice reported ([Gaulier & Zignago, 2010](#)).

CHELEM

For several decades now, the [CHELEM](#) database [*Comptes Harmonisés sur les Echanges et L'Economie Mondiale*], ie harmonised international trade flows, balances of payments and world revenues], developed by the CEPII, has been recognised as one of the most useful tools to analyse global economic trends in a framework combining consistency, exhaustiveness and reliability. The CHELEM database is composed of three databases: CHELEM - International Trade, CHELEM - Gross Domestic Product and CHELEM - Balance of Payments. These three databases contain annual data on long periods, going back to either 1960 or 1967. The three databases are interlinked by a common worldwide geographical classification organised in 95 elementary zones, one "not specified" zone and one "total world", and by specific indicators.

International Trade (INT)

The CHELEM - International Trade database contains the bilateral flow of all traded goods expressed in millions of current dollars since 1967. The sectoral nomenclature has been chosen to provide the optimal fit with international trade and production classifications. The data from the different sources are harmonised and rendered consistent in a framework spanning the entire world and all goods. For each year and product category, trade between the 95 geographical zones (countries or group of countries) is therefore represented by a unique and harmonised matrix (see [de Saint Vaulry, 2008 and 2013](#)). In particular, freight and insurance costs, as well as re-exports and re-imports, are removed.

The flows of goods are detailed in either 71 INT-CHELEM product categories, 43 INT-GTAP categories or 147 INT-*ISIC* categories, to which are added the non-allocated product category and the total products. Product categories may be aggregated by industries, by stages in the production process, by intermediate sections, by sectors or by technological levels. Geographical aggregates are also available. The sectoral and geographical classifications used in the CEPII Country Profiles are presented below in the classifications section.

Balance of Payments (BOP)

The CHELEM - Balance of Payments database contains all partner flows for 194 countries since 1967. Accounts are aggregated using the data and the classification of the IMF 6th manual of the balance of payments (Nayman, 2014). As flows are not broken down by partners in this database, they are not harmonised. Globally, exports (credits) differ then from imports (debits), contrary to the harmonised flows in the CHELEM – International Trade, BACI and WTFC databases.

The Country Profiles are focused on the current account of the balance of payments that group together trade in goods, services, and income (primary and secondary).

Since several publications by the CEPII have analysed investment income within primary income (Nayman & Vicard, 2018a, b, c & d), investment income is thus shown at a detailed level in the CEPII's Country Profiles, unlike the CHELEM – Balance of Payments database where the aggregate is not broken down.

Gross Domestic Products (GDP)

The CHELEM - Gross Domestic Product database consists of five series among which three are estimations of Gross Domestic Products: GDP in value (current prices and dollar); GDP in volume (constant, 2017 prices and dollar); GDP based on Purchasing Power Parity (PPP, constant, 2017 prices and international dollar). The series of total population and nominal exchange rate complete the database.

The CHELEM - GDP series begin in 1960. The data posterior to the last available year in CHELEM - International Trade and Balance of payments databases are based on estimations of the IMF (World Economic Outlook). As the two other CHELEM databases, it covers the whole world at the level of the common classification of 95 elementary zones, but also presents a more detailed level with 201 countries or individualised statistical territories (for an example of using this database, see Únal, 2019).

EconMap

The [EconMap](#) database is developed by the CEPII (Fouré *et alii*, 2012 & 2013) to consider the global economy by 2050 or 2100. It contains statistics on GDP at constant and current prices and on factors of production and technical progress for 167 countries over the period 1980-2050.

It is based on the CEPII [MaGE](#) (Macroeconometrics of the Global Economy) model which combines the projections of the United Nations and of the International Labour Organization with the econometric estimates relative to: (i) the saving rate, (ii) the relationship between capital and savings, (iii) education, (iv) women's participation in the labour market, and (v) technical progress (global factor productivity and productivity specific to energy use).

EQCHANGE

[EQCHANGE](#) is a database containing the effective exchange rates calculated by the CEPII for more than 180 countries from 1973 to the present day. It includes (i) nominal and real effective exchange rates, (ii) real equilibrium exchange rates and corresponding misalignments (Couharde *et alii*, 2017 ; Coudert *et alii*, 2019).

MAcMap-HS6

Initially, Market Access Map HS6 ([MAcMap-HS6](#)) was a database jointly developed by the International Trade Centre (ITC, Geneva) and the CEPII. It provides a comprehensive measure of bilateral tariffs (through *ad valorem* equivalents of the tariff protection) applied by 190 importing countries to 220 exporting countries, on 5,113 products at the 6 digit level of the Harmonised System ([Guimbard et alii, 2012a & b](#)). Applied tariffs take account of trade preferences applied by each importer and of all regional agreements in which it is involved ([Bouët et alii, 2008](#)). It also contains the tariffs applied under the Most-Favoured-Nation clause (MFN) by the members of the World Trade Organization.

For CEPII Country Profiles, MAcMap-HS6 2016 v1.0 is built using raw data coming from ITC. As information is not yet fully available, for products subject to tariff rate quotas, the outside rate is used.

World Trade Flows Characterisation

The World Trade Flows Characterisation ([WTFC](#)) database developed by the CEPII associates each flow with a trade type (one-way trade, two-way trade in similar products or in differentiated products) and a price range (low, middle or high range). Trade characteristics are computed using an harmonised version of CEPII's Trade Unit Values (TUV) database which contains import and export unit value information (in US dollars per ton), at the 6-digit level of Harmonised System (5,113 products) for 182 reporters and 253 partners, from 2000 to the latest year available ([Berthou & Emlinger, 2011a & b](#)). The comparison of trade flows and the unit values analysis allow to distinguish one-way trade from two-way trade and to determine whether it corresponds to trade in similar or differentiated products according to the Fontagné & Freudenberg index (1997). A price range is also assigned to each elementary flow depending on its unit value relatively to a world reference ([Emlinger & Piton, 2014](#)).

■ Classifications

COUNTRY NOTES

Tables and figures are presented for the 80 following countries:

ISO code	Country	Note
008	Albania	
012	Algeria	
032	Argentina	
036	Australia	Re-exports and re-imports are excluded in CHELEM
040	Austria	
050	Bangladesh	
056	Belgium	Luxembourg included in BACI and WTFC
068	Bolivia	
076	Brazil	Re-imports excluded in CHELEM
100	Bulgaria	
112	Belarus	Formerly part of USSR - Not present in EQCHANGE
120	Cameroon	
124	Canada	Re-imports and re-exports are excluded in CHELEM
144	Sri Lanka	
152	Chile	
156	China	Re-imports excluded in CHELEM
158	Taiwan	Not present in EQCHANGE
170	Colombia	Re-imports and re-exports are excluded in CHELEM
191	Croatia	Formerly part of Yugoslavia
196	Cyprus	Re- exports excluded in CHELEM
203	Czech Republic	Formerly part of Czechoslovakia
208	Denmark	
218	Ecuador	
233	Estonia	Formerly part of USSR
246	Finland	
251	France	Including Monaco and French overseas departments – Re-imports excluded in CHELEM
276	Germany	Including East Germany, except in services before 1991
300	Greece	
344	Hong Kong	Domestic exports and imports only in CHELEM, general trade in BACI
348	Hungary	
352	Iceland	Including Faeroe Islands in CHELEM - International Trade
360	Indonesia	Re-imports excluded in CHELEM
372	Ireland	Re-imports excluded in CHELEM
376	Israel	Including State of Palestine in CHELEM - International Trade
381	Italy	Re-exports and re-imports excluded in CHELEM
392	Japan	
398	Kazakhstan	Formerly part of USSR
404	Kenya	
410	South Korea	
417	Kyrgyzstan	Formerly part of USSR – Re-exports excluded in CHELEM
428	Latvia	Formerly part of USSR
434	Libya	
440	Lithuania	Formerly part of USSR
442	Luxembourg	With Belgium in BACI and WTFC – Re-imports and re-exports excluded in CHELEM
458	Malaysia	Re-exports and re-imports excluded in CHELEM
470	Malta	Re-exports excluded in CHELEM
484	Mexico	
504	Morocco	Including Western Sahara in services
528	Netherlands	
554	New Zealand	Re-exports and re-imports excluded in CHELEM
566	Nigeria	
579	Norway	
586	Pakistan	Re-exports and re-imports excluded in CHELEM
600	Paraguay	
604	Peru	
608	Philippines	
616	Poland	
620	Portugal	
642	Romania	
643	Russia	Formerly part of USSR
682	Saudi Arabia	Re-exports excluded in CHELEM

COUNTRY LIST (continuing)		
ISO code	Country	Note
699	India	
702	Singapore	Re-exports and re-imports excluded in CHELEM
703	Slovakia	Formerly part of Czechoslovakia - Re-imports excluded in CHELEM
704	Viet Nam	
705	Slovenia	Formerly part of Yugoslavia - Re-imports excluded in CHELEM
711	South Africa (SACU)	Botswana, Lesotho, Namibia, South Africa, Swaziland – only country South Africa in section Balance & Forex (table 1 and figures 1 to 5)
724	Spain	
752	Sweden	
757	Switzerland	
764	Thailand	Re-exports and re-imports excluded in CHELEM
788	Tunisia	
792	Turkey	
804	Ukraine	Formerly part of USSR
807	Macedonia	Formerly part of Yugoslavia
818	Egypt	
826	United Kingdom	Re-exports and re-imports excluded in CHELEM
842	United States	Re-exports excluded in CHELEM
858	Uruguay	
862	Venezuela	Re-exports and re-imports excluded in CHELEM

COMPOSITION OF THE REGIONS

Alpha code	Num. code	Continent and region	Composition by countries
AMN	1100	North America	Canada, Mexico, United States of America
AMS	1200	South and central America	America, excl. Canada, Mexico and United States
UE+EUA	2100	European Union (EU-28)	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany (former East Germany included), Gibraltar, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom, Albania, Iceland, Norway, Switzerland, Turkey, Bosnia Herzegovina, Serbia-Montenegro (calculated before the partition of former Yugoslavia)
CEI	2200	Commonwealth of Independent States (CIS)	Commonwealth of Independent States : Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan (estimated in TRADE before 1992)
MENA	3100	North Africa	Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syria, United Arab Emirates, Yemen (and State of Palestine in GDP and TRADE), Algeria, Egypt, Libya, Morocco, Tunisia
AFS	3200	Sub-Sahara Africa	Africa, excluding North Africa
	4100	Asia-Oceania advanced	Australia, Hong Kong, Japan, New Zealand, Singapore, South Korea, Taiwan
	4200	Asia-Oceania emergent & development.	Afghanistan, Bangladesh, Bhutan, Brunei, Cambodia, China, Fiji, French Polynesia (in GDP and TRADE), Guam (in GDP and TRADE), India, Indonesia, Kiribati, Lao PDR, Macao, Malaysia, Maldives, Mongolia, Myanmar, Nepal, New Caledonia (in GDP and TRADE), New Zealand North Korea, Pacific Islands (in GDP and TRADE), Pakistan, Papua New Guinea, Philippines, Solomon Islands, Sri Lanka, Thailand, Tonga, US Samoa (in GDP and TRADE), Vanuatu, Viet Nam, Western Samoa, and all others in Asia and Oceania (in TRADE and GDP only)
XXX	990	NES	Not specified
WLD	000	WORLD	Sum of all areas (America + Europe & CIS + Africa, Near & Middle East + Asia & Oceania + NES)

SECTORAL CLASSIFICATIONS

By product category

Products are listed according to the CHELEM classifications in 72 categories for the goods in the International Trade database and in 13 categories for the services in the Balance of Payments database, except in **Products & Partners section's** tables where the Harmonised System (HS4) is retained.

TRADE IN GOODS		
CHELEM code	Product category	Description
BA	Cement	Cement and derived products
BB	Ceramics	Ceramics (including manufactured mineral articles not elsewhere specified)
BC	Glass	Glass (flatware and hollow-ware)
CA	Iron and steel	Iron and steel-making (including pig iron and sheet steel)
CB	Tubes	Tubes and first-stage processing products
CC	Non-ferrous metals	Non-ferrous metals
DA	Yarns and fabrics	Yarns and fabrics
DB	Clothing	Clothing (with fabrics as the main input)
DC	Knitwear	Knitwear (made directly from yarns)
DD	Carpets	Carpets and textile furnishings
DE	Leather	Leather, fur skins and footwear
EA	Wood articles	Articles in wood
EB	Furniture	Furniture (made of wood or other materials)
EC	Paper	Paper and pulp
ED	Printing	Printing and publications
EE	Miscell. manuf.	Toys, sports equipment and miscellaneous manufactured articles
FA	Metallic structures	Large metallic structures
FB	Miscell. hardware	Miscellaneous hardware
FC	Engines	Engines, turbines and pumps
FD	Agricultural equip.	Agricultural equipment
FE	Machine tools	Machine tools
FF	Construction equip.	Construction and public works equipment
FG	Specialised mach.	Specialised machines
FH	Arms	Arms and weaponry
FI	Precision inst.	Precision instruments
FJ	Clock making	Watch and clock making
FK	Optics	Optics and photographic and cinematographic equipment
FL	Electronic comp.	Electronic components
FM	Consumer electro.	Consumer electronics
FN	Telecom. Equip.	Telecommunications equipment
FO	Computer equipment	Computer equipment (including office equipment)
FP	Domestic electrical app.	Domestic electrical appliances
FQ	Electrical equip.	Heavy electrical equipment
FR	Electrical app.	Electrical apparatus (including passive devices)
FS	Vehicle comp.	Vehicle components
FT	Cars and cycles	Cars (including motorcycles)
FU	Commercial vehic.	Commercial vehicles and transport equipment (including public transport vehicles and railway equipment)
FV	Ships	Ships (including oil rigs)
FW	Aeronautics	Products of the aircraft and spatial manufacturing
GA	Basic inorg. chem.	Basic inorganic chemicals
GB	Fertilizers	Fertilizers
GC	Basic org. chem.	Basic organic chemicals
GD	Paints	Paints, colorings and intermediate chemical products not elsewhere specified
GE	Toiletries	Toilet products, soaps and perfumes (including chemical preparations not elsewhere specified)
GF	Pharmaceuticals	Pharmaceuticals products (including veterinary products)

TRADE IN GOODS (continuing)		
CHELEM code	Product category	Description
GG	Plastics	Plastics, fibers and synthetic resins
GH	Plastic articles	Plastic articles
GI	Rubber articles	Rubber articles (including tyres)
HA	Iron ores	Iron ores and scrap
HB	Non-ferrous ores	Non-ferrous ores and scrap
HC	Unproces. min. nes	Unprocessed minerals not elsewhere specified
IA	Coals	Coal (including lignite and other primary energy products)
IB	Crude oil	Crude oil
IC	Natural gas	Natural gas (including all petroleum gases)
IG	Coke	Coke
IH	Refined petrol. Pr.	Refined petroleum products
II	Electricity	Electricity
JA	Cereals	Cereals
JB	Oth. ed. agr. pr.	Other edible agricultural products
JC	Non-edible agr. pr.	Non-edible agricultural products
KA	Cereal products	Cereal products
KB	Fats	Fats (of vegetable or animal origin)
KC	Meat and fish	Meat and fish
KD	Preserved meat	Preserved meat and fish products
KE	Preserved fruit	Preserved fruit and vegetable products
KF	Sugar	Sugar products (including chocolate)
KG	Animal food	Animal foodstuffs
KH	Beverages	Beverages
KI	Manuf. tobaccos	Manufactured tobaccos
NA	Jewel., works of art	Precious stones, jewellery, works of art
NB	Non-monetary gold	Non-monetary gold
NV	Not specified	Not specified
TT	Total	Total

TRADE IN SERVICES		
CHELEM Code	MBP6* Code	Service
120	BS_BP6_USD	Services
121	BSTR_BP6_USD	Transport
122	BSTV_BP6_USD	Travel
123	120-(121+122)**	Other services
123b	BSR_BP6_USD	Maintenance and repair services n.i.e.
123c	BSOCN_BP6_USD	Construction services
123d	BSOIN_BP6_USD	Insurance and pension services
123e	BSOFI_BP6_USD	Financial services
123f	BSORL_BP6_USD	Charges for the use of intellectual property n.i.e.
123g	BSOTCM_BP6_USD	Telecommunications, computer, and information services
123h	BSOOB_BP6_USD	Other business services
123i	BSOPCR_BP6_USD	Personal, cultural, and recreational services
123j	BSOGGS_BP6_USD	Government goods and services n.i.e.
123nv	123-sum(123a:123j)	Other services n.i.e.

* Manuel 6 of the Balance of Payments (IMF)

** Processing (123a) is not included in **Broad patterns** and **Comparative advantages sections**.

By sector

CHELEM code	Sector	Composition (CHELEM categories)
AL	Food, agriculture	JA+JB+JC+KA+KB+KC+KD+KE+KF+KG+KH+KI
H + I	Mining & Energy	HA+HB+HC+ IA+IB+IC+IG+IH+II
M	Manufacturing minimum	BA+BB+BC+CA+CB+CC+DA+DB+DC+DD+DE+EA+EB+EC+ED+EE+FA+FB+FC+FD+FE+FF+FG+FH+FI+ FJ+FK+FL+FM+FN+FO+FP+FQ+FR+FS+FT+FU+FV+FW+GA+GB+GC+GD+GE+GF+GG+GH+GI
NDA	NES	NA+NB+NV
120*	Services*	121+122+123*

* Processing (123a) is not included in sections **Broad patterns** and **Comparative advantages**.

By industry group

In the CEPII Country Profiles, for trade in goods, the grouping of products in 11 industry groups (with an additional grouping for the not elsewhere specified trade) comes from CHELEM - International Trade database. A group including all services from the Balance of Payments database is joined to the other ones in **Figure 4** in **Broad patterns** section.

CHELEM code	Industry group	Composition (CHELEM categories)
R01	Energy	IA+IB+IC+IG+IH+II
R02	Food, agriculture	JA+JB+JC+KA+KB+KC+KD+KE+KF+KG+KH+KI
R03	Textiles	DA+DB+DC+DD+DE
R04	Wood, paper	EA+EB+EC+ED+EE
R05	Chemicals	GA+GB+GC+GD+GE+GF+GG+GH+GI+BA+BB+BC+HC
R06	Iron & steel	HA+CA+CB
R07	Non-ferrous	HB+CC
R08	Machinery	FA+FB+FC+FD+FE+FF+FG+FH+FI+FW
R09	Vehicles	FS+FT+FU
R10	Electrical	FP+FQ+FR
R11	Electronic	FI+FJ+FK+FL+FM+FN+FO
NDA	NES	NA+NB+NV
120*	Services*	121+122+123*

* Processing (123a) is not included in sections **Broad patterns** and **Comparative advantages**.

In the illustrations where the “industry groups” contain only non-energy manufactured products (BA to GI and KA to KI), “Energy”, “NES” or “Services” groups are excluded, and some groups are different from those in the table above. “Food” includes categories KA to KI; “Chemical”, categories GA to GI and BA to BC; “Steel”, categories CA and CB; “Non-ferrous”, category CC.

By stage in the production process

CHELEM code	Stage in the production process	Composition (CHELEM categories)
ST1	Primary	HA+HB+HC+IA+IB+IC+JA+JB+JC
ST2	Basic manufacturing	BA+BB+BC+CA+CC+GA+GC+IG
ST3	Intermediate goods	CB+DA+EA+EC+FA+FB+FC+FL+FS+GB+GD+GG+GI
ST4	Equipment goods	FD+FE+FF+FG+FH+FI+FN+FO+FQ+FR+FU+FW
ST5	Mixed products	DE+EB+ED+GH+IH+II+KB+KC+KF+KG
ST6	Consumption goods	DB+DC+DD+EE+FJ+FK+FM+FP+FT+GE+GF+KA+KD+KE+KH+KI
NDA	NES	NA+NB+NV

Par broad stage in the production process

Code CHELEM	Stade d'élaboration	Composition en catégories CHELEM
ST4	Equipment goods	FD+FE+FF+FG+FH+FI+FN+FO+FQ+FR+FU+FW
ST6	Consumption goods	DB+DC+DD+EE+FJ+FK+FM+FP+FT+GE+GF+KA+KD+KE+KH+KI
ST7	Intermediate goods*	BA+BB+BC+CA+CB+CC +DA+EA+EC+FA+FB+FC+FL+FS+GA+GB+GC+GD+GG+GI

The broad stage "Intermediate goods*" contains two stages: ST2 (basic manufacturing) and ST3 (Intermediate goods) excluding IG (coke).

By large sector: primary goods, manufactured goods and services

Large sector	Composition (CHELEM stages in the production process)
Primary goods	ST1
Manufactured goods	ST2+ ST3+ ST4+ ST5+ ST6+NDA
Services*	120*

* Processing (123a) is not included in sections **Broad patterns** and **Comparative advantages**.

By item of the current transactions account in the balance of payments

Code CHELEM	Code MBP6*	Item	Short name
100	BCA_BP6_USD	Current transactions	
110	BG_BP6_USD	Goods	
120	BS_BP6_USD	Services	
121	BSTR_BP6_USD	Transport	
122	BSTV_BP6_USD	Travel	
123	120-(121+122)	Other services	
123a	BSM_BP6_USD	Processing	
123b	BSR_BP6_USD	Maintenance & repair services	Maintenance
123c	BSOCN_BP6_USD	Construction	
123d	BSOIN_BP6_USD	Insurance & pension services	Insurance
123e	BSOFI_BP6_USD	Financial services	
123f	BSORL_BP6_USD	Charges for the use of intellectual property (licensing)	Licensing
123g	BSOTCM_BP6_USD	Telecommunications, computer & information services	Telcom
123h	BSOOB_BP6_USD	Other business services	Other business serv.
123i	BSOPCR_BP6_USD	Personal, cultural & recreational services	Culture
123j	BSOGGS_BP6_USD	Government goods & services	Government
123nv	123-(123a:123j)	Other services non allocated	
130	BIP_BP6_USD	Primary income	Primary income
130a	BIPCE_BP6_USD	Compensation of employees	
130b	BIPID_BP6_USD	Direct investment income	
130b	BIPIP_BP6_USD	Portfolio investment income	
130b	BIPIO_BP6_USD	Other investment income	
130b	BXIPIR_BP6_USD	Reserve assets	
130c	BIPO_BP6_USD	Other primary income	
140	BIS_BP6_USD	Secondary income	

* Manual 6 of the IMF Balance of Payments. To remain clear, only MBP6 codes related to balances are shown here.

References

- Berthou, A. & Emlinger, C. (2011a), "The Trade Unit Values Database", *CEPII Working Paper*, N°2011-10.
- Berthou, A. & Emlinger, C. (2011b), "The Trade Unit Values Database", *International Economics*, N°128, Q4-2011.
- Bouët, A., Decreux, Y., Fontagné, L., Jean, S. & Laborde, D. (2008), "Assessing applied protection across the world", *Review of International Economics*, 16(5): 850-863.
- Clark, P., MacDonald, R. (1998). "Exchange rates and economic fundamentals: a methodological comparison of BEERs and FEERs", *IMF Working Paper*, 98/00.
- Coudert V., Couharde C., Grekou, G., & Mignon, V. (2019), "[Heterogeneity within the Euro Area: New Insights into an Old Story](#)", *CEPII Working Paper*, N°2019-05.
- Couharde, C., Delatte, A.-L., Grekou, C., Mignon, V. & Morvillier, F. (2017), "[EQCHANGE: A World Database on Actual and Equilibrium Effective Exchange Rates](#)", *CEPII Working Paper*, N°2017-14.
- Couharde, C., Delatte, A.-L., Grekou, C., Mignon, V., Morvillier, F. (2018). "EQCHANGE: A world database on actual and equilibrium effective exchange rates", *International Economics*, Vol. 156(C): 206-230.
- Emlinger, C. & Piton, S. (2014), "[World Trade Flows Characterization: Unit Values, Trade Types and Price Ranges](#)", *CEPII Working Paper*, n°2014-26.
- Fontagné, L. & Freudenberg, M. (1997), "Intra-Industry Trade: Methodological Issues Reconsidered", *CEPII Working Paper*, N°1997-01.
- Fontagné, L., Freudenberg, M. & Péridy N. (1997), "Trade Patterns inside the Single Market", *CEPII Working Paper*, N°1997-07.
- Fouré, J., Bénassy-Quéré, A. & Fontagné, L. (2012), "[The Great Shift: Macroeconomic Projections for the World Economy at the 2050 Horizon](#)", *CEPII Working paper*, N°2012-03.
- Fouré, J., Bénassy-Quéré, A. & Fontagné, L. (2013), "[Modelling the world economy at the 2050 horizon](#)", *Economics of Transition*, 21 (4), p. 617-654.
- Fouré, J., & Fontagné, L. (2016), "[Long term socio-economic scenarios for Representative Concentration Pathways defining alternative CO2 emission trajectories](#)", *CEPII Research Report*, N° 2016-01.
- Gaulier, G. & Zignago, S. (2010), "[BACI: International Trade Database at the Product-Level. The 1994-2007 Version](#)", *CEPII Working Paper*, N°2010-23.
- Grubel H.G. & Lloyd P.J. (1975), *Intra-industry Trade: The Theory and Measurement of International Trade in Differentiated Products*, London, McMillan.
- Guimbard, H., Jean, S., Mimouni, M. & Pichot, X. (2012a), "[MacMap-HS6 2007, an exhaustive and consistent measure of applied protection in 2007](#)", *CEPII Working Paper*, N°2012-10, May.
- Guimbard, H., Jean, S., Mimouni, M. & Pichot, X. (2012b), "MacMap-HS6 2007, an exhaustive and consistent measure of applied protection in 2007", *International Economics*, N°130, Q2, 2012, p. 99-122.
- Nayman L. (2014), "Méthodologie CHELEM - Balance des paiements - Principaux changements intervenus dans le passage de la Balance des Paiements de la version Manuel 5 au Manuel 6 du FMI", *Mimeo*, January.
- Nayman, L. & V. Vicard (2018a), "Profits des multinationales à l'étranger : mesure et impact sur leur pays d'origine", *Panorama du CEPII*, N°2018-01, May.
- Nayman, L. & V. Vicard (2018b), "À qui profitent les revenus des investissements des multinationales ?", *CEPII blog*, 18 June.
- Nayman, L. & V. Vicard (2018c), "Les revenus des multinationales dans les paradis fiscaux", *CEPII blog*, 14 September.
- Nayman, L. & V. Vicard (2018d), "À quoi reconnaît-on un paradis fiscal ?", *CEPII blog*, 11 December.

O'Neill B.C., Kriegler, E., Ebi, K.L., Kemp-Benedict, E., Riahi, K., Rothman, D.S., van Ruijven B.J., van Vuuren, D.P., Birkmann, J., Kokk, K., Levyl, M., Solecki, W. (2017), "[The roads ahead: Narratives for shared socioeconomic pathways describing world futures in the 21st century](#)", *Global Environmental Change*, 42: 169-180.

de Saint Vaulry A. (2008), "[Base de données CHELEM - Commerce international du CEPII](#)", *CEPII Working Paper*, N°2008-09.

de Saint Vaulry A. (2013), "CHELEM - International Trade – Building Methods of the CEPII database", *Mimeo*, November.

Ünal D. (2019), "[L'onde de choc du Brexit sur la maison Europe et la France](#)", *CEPII Blog*, 20 March.

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