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Why is world trade so weak?

- Since the 2008-2009 financial crisis, world trade in goods and services has been struggling to regain its pre-crisis momentum. World trade growth averaged only 3% or so a year between 2012 and 2015, versus 6.7% a year between 2000 and 2008–a decrease due to weaker global economic growth and a decline in trade intensity of economic activity.

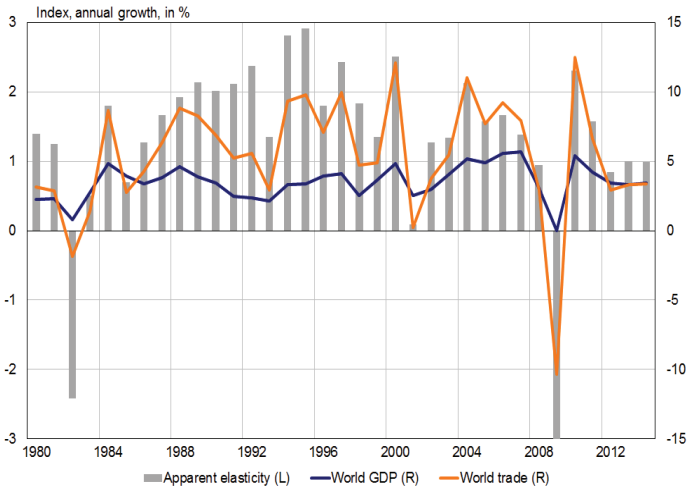
- Trade liberalisation and the increasing fragmentation of world production chains drove the vibrant growth in world trade until the mid-2000s. The 1990s and 2000s saw the increasing integration of China and countries of the former Soviet bloc into trade flows and the ramping up of free-trade agreements. These factors, together with technological progress, have promoted a growing fragmentation of production stages. This trend has gradually run out of steam.

- Another factor affecting trade in recent years has been the composition of GDP growth. The share of investment and industry in the global economy is shrinking, while that of consumption and services–which are relatively less import-intensive–is rising. World trade flows are also influenced by the geographic composition of GDP growth: between 2011 and 2013, the European economy was particularly sluggish as a result of the euro area crisis. As it happens, the European economy is generally very trade-intensive, notably because of the substantial flows within the euro area.

- In 2015, the slackness of world trade was accentuated by the contraction in emerging-country imports. The downturn exceeded what one might have expected from these countries' economic activity. The steep depreciations of many emerging currencies in 2015 drove up the cost of imports and curbed their volume in the short run.

- By 2017, world trade growth should revive somewhat, but without regaining its pre-crisis buoyancy. World economic growth is forecast to remain moderate, and the elasticity of trade to GDP should increase again but stay close to unity. The above-mentioned structural factors fuelling the slowdown will likely continue to affect trade, while emerging-country imports should align more closely with their domestic demand. In the longer run, a moderate rebound in world trade is conceivable. However, a scenario where trade growth would lastingly outpace GDP growth seems rather improbable.

World trade and world GDP (in %)



Source: IMF, October 2015 World Economic Outlook (WEO).

MINISTÈRE DES FINANCES ET DES COMPTES PUBLICS

MINISTÈRE DE L'ÉCONOMIE DE L'INDUSTRIE ET DU NUMÉRIQUE

1. Since the 2000s, world growth has become less trade-intensive

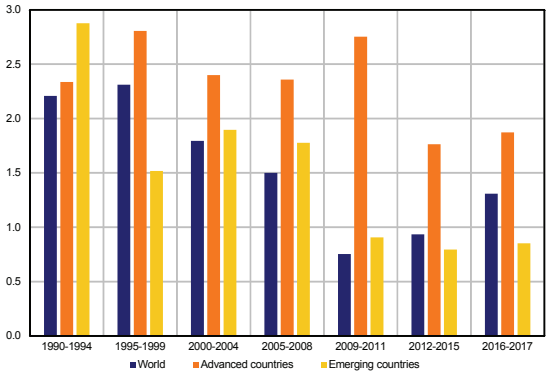
International trade flows posted spectacular growth in recent decades but have slowed in the latest period. Between 1990 and 2008, world trade[1] grew by an annual average of 6.7%–far outpacing the 3.7% annual average growth in global GDP. Since 2009, world trade has slowed sharply, averaging 3% a year between 2012 and 2015 versus 3.3% for global GDP. This was due to the relative weakness of world GDP growth[2] and a decrease in the elasticity of trade to GDP which measures trade's sensitivity to economic growth.

After rising sharply in the 1980s, the elasticity of trade to GDP peaked at over 2 in the 1990s. The main causes include trade liberalisation and the integration of China and Central and Eastern European countries into globalisation, which promoted the development of global value chains. Elasticity then declined to 1.5 in the pre-crisis period (2005-2008), and has fluctuated around unity since the crisis. It was below unity in 2015.

The elasticity of imports to GDP has been structurally higher in the euro area than in the rest of the world, entailing a higher elasticity in the advanced economies than in the emerging ones (see Chart 1)–a gap that has widened in recent years. The persistence of high elasticity in the euro area since the 2000s may be due to the further extension of supply chains by the euro area countries, particularly towards Central and Eastern European countries[3].

The downtrend in the long-term elasticity of trade to GDP is confirmed by several recent empirical studies. Constantinescu and al. (2015)[4] estimate a long-term elasticity of 2.2 between 1986 and 2000 versus 1.3 for 2001-2013. The downtrend is also observed by Boz and Ruta (2015)[5]–who argue that the decline in elasticity between the two periods is due to lower elasticity of trade in manufactured goods-and by Veenendaal et al. (2015)[6] using a value-added measure of trade. Ollivaud and Schwellnus (2015)[7] estimate similar results with a conventional measure of GDP in purchasing power parity (PPP) terms. However, unlike most of their colleagues, Ollivaud and Schwellnus find no structural break in 2000 when world GDP is measured using market exchange rates: they estimate the elasticity of trade to GDP using this gauge at 2.4 between 1986-2000 and 1.8 between 2000 and 2014. The authors emphasise the importance, for calculating the elasticity of trade to GDP, of measuring world GDP with weights based on market exchange rates rather than with conventional PPP values. They argue that the PPP measure overweights the emerging countries–which were experiencing strong growth in the period studied–and so overestimates the growth in world demand for market goods. The authors find an annual average growth rate for global GDP since 2008 of 2% with market exchange rates versus 3% with PPP weights. In later sections, we examine the causes of this slowdown by separating short-term factors from structural ones, in order to project the possible trend in world trade in the years ahead.

Chart 1: Apparent elasticity of imports to GDP by area[8]



Source: IMF, January 2016 WEO update; calculations: DG Trésor.

(1) In theory, world imports should equal world exports. However, accounting discrepancies can occur because of imperfect measurements and gaps in data availability. That is why the IMF calculates world trade growth as the average growth of real world imports and exports by 189 countries, weighted by their previous year's nominal exports (for imports) or imports (for exports) expressed in dollars. Other institutions, such as the European Commission, choose to estimate world trade from import data alone. We have made the same choice for determining the elasticity of a specific country or area.

(2) According to the recent literature, the weakness of world demand is responsible for at least one-half of the slowdown in world import growth.

(3) Constantinescu, C., Mattoo, A. and Ruta, M. (2014), "Slow Trade", IMF, *Finance and Development*, December.

(4) Constantinescu, C., Mattoo, A. and Ruta, M. (2015), "The global trade slowdown. Cyclical or structural?, World Bank", *Policy Research Working Paper* No. 7158.

(5) See box 1.2 by Boz, E. and Ruta, M. in IMF, "World Economic Outlook (WEO)", April 2015, chap. 1.

(6) Veenendaal, P., Rojas-Romagosa, H., Lejour, A. and Kox H-LM. (2015), "A value-added trade perspective on recent patterns in world trade", CPB (Netherlands Bureau for Economic Policy Analysis).

(7) Ollivaud, P. and Schwellnus, C. (2015), "Does the Post-Crisis Weakness of Global Trade Solely Reflect Weak Demand?, OECD Economics Department, *Working Papers*, No. 1216.

(8) The apparent elasticity of trade to GDP in t is calculated as the ratio of the growth in trade between t and t-1 and GDP growth between t and t-1.

2. The slowdown in world trade is partly due to structural factors

2.1 Value-chain fragmentation is running out of steam

The fragmentation of production stages to form more efficient international supply chains was a key driver of the rapid growth in trade, particularly in the 1990s[9] [10]**.** International trade widened to all intermediate goods used in the production of a final good, enabling firms to optimise production by relocating some production stages to destinations offering cheaper labour or other advantages. This international vertical specialisation was particularly significant in China, which specialised in importing spare parts, processing and then re-exporting them ("processing trade": see Box 1). Value-chain fragmentation was facilitated, among other factors, by the development of new communication technologies.

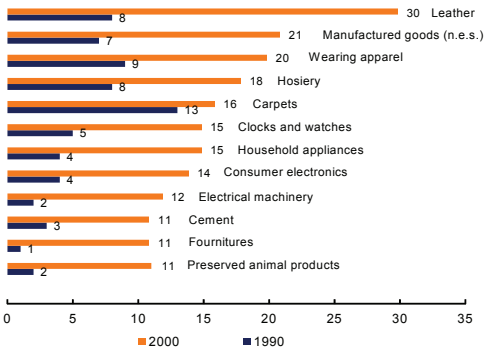
Box 1: **Tariff measures in favour of "processing" trade**

Since the 1980s, several countries have adopted tariff measures in favour of assembly and/or processing activities in order to stimulate their firms' competitiveness and participation in international trade flows. These activities are known as the "processing trade", which comprises imports of inputs that are processed before re-export ("inward processing") and (re-)imports of products previously exported to a third country for subcontracting work ("outward processing")[a]. Such products are covered by special customs procedures, called "economic regimes", that qualify them for tariff advantages, namely, partial or total tax exemptions.

These tariff measures have facilitated greater involvement by certain countries in world trade. One example is China, which was able to participate in the production of high-value-added goods by concentrating on the labour-intensive stages of production where it held a comparative advantage in the form of cheap labour. The rise of Chinese industries based on the import of products for re-export–such as electrical and electronic products–triggered a rapid diversification of Chinese exports and allowed China to extend its presence in world trade (see Chart 2).

China's remarkable trade performance in the 1990s-2000s is partly due to the tax exemptions introduced as early as the mid-1980s[b].

Chart 2: China's share of world exports (%)



Source: Lemoine F. and Ünal-Kesenci D. (see note b).

Note: n.e.s. = not elsewhere specified.

a. The World Customs Organization (WCO) defines inward processing as "the Customs procedure under which certain goods can be brought into a Customs territory conditionally relieved totally or partially from payment of import duties and taxes, or eligible for duty drawback, on the basis that such goods are intended for manufacturing, processing or repair and subsequent exportation.". Outward processing is defined as "the Customs procedure under which goods which are in free circulation in a Customs territory may be temporarily exported for manufacturing, processing or repair abroad and then re-imported with partial or total exemption from import duties and taxes" (text of the Revised Kyoto Convention, Specific Annex F, pp. F.1/1 and F.2/1).

b. Lemoine F. and Ünal-Kesenci D. (2002), "China in international segmentation of production processes" CEPII *Working Paper* 2002-02.

This trend towards the fragmentation of global value chains seems to have slowed or even ceased since the mid-2000s. There are several possible explanations: (a) the rise in wage costs in the emerging countries, particularly in China; (b) a reassessment of the benefit/risk tradeoff with a new awareness of major risk in the event of a disruption in the chain (e.g., the 2011 earthquake in Japan); (c) a political decision to relocate value chains, for example to China, where major efforts have been made to reconcentrate production and thus allow the economy to upgrade quality: this has helped to increase Chinese exports' value added[11] [12] (see Chart 3).

There is no consensus on the future trend in the fragmentation of global value chains. Some authors argue that the potential for fragmentation is already largely exhausted, as the low-hanging fruit has already been picked[13]. On the other hand, some sectors (the service sector) or geographic areas (Africa, South America, parts of Asia) could still eventually benefit from efficiency gains due to fragmentation[14]. On balance, a strong acceleration of value-chain fragmentation seems unlikely in the short to medium term.

(9) Escaith, H, Lindenberg, N. and Miroudot, S. (2010), "International Supply Chains and Trade Elasticity in Times of Global Crisis", WTO Economic Research and Statistics Division, *Staff Working Paper ERSD*-2010-08.

(10) The more world production is fragmented, the larger gross world trade flows are with respect to flows measured in value-added terms, which record only domestically produced value added.

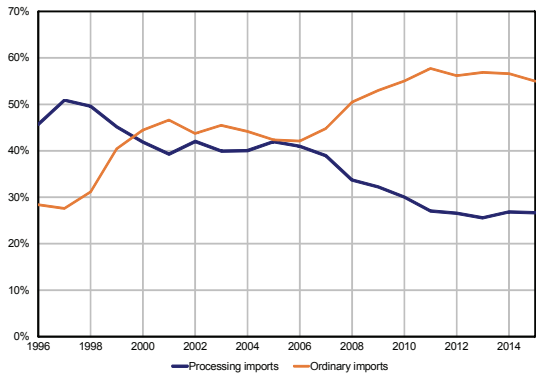
(11) Kee, H. L. and Tang, H. (2014), Domestic Value Added in Exports: Theory and Firm Evidence from China, World Bank, Policy Research Working Paper WPS7491. The authors use a microeconomic analysis at firm level to show that the growth in Chinese exports' value added is due to the substitution of domestic inputs for intermediate products from abroad.

(12) Lemoine, F. and Ünal, D. (2015), "Mutations du commerce extérieur chinois", *Lettre du CEPII* no. 352.

(13) Crozet, M., Emlinger, C. and Jean, S., (2015), "On the gravity of world trade's slowdown" (see B. Hoekman, ed., "The Global Trade Slowdown: A New Normal?", VoxEU.org book, chap. 9).

(14) Constantinescu, C., Mattoo, A. and Ruta, M. (2014), op. cit. (see note 3 above).

Chart 3: Share of imports linked to processing trade versus "ordinary" trade in total Chinese imports



Source: Chinese customs data; calculations: DG Trésor.

How to read this chart: Processing imports are goods imported under "inward processing" or "outward processing" customs procedures. Ordinary imports are goods imported to meet domestic demand.

Chart 4: Trade in goods with long value chains has slowed faster than world trade

Source: Ferrantino and Taglioni (2014).

How to read this chart: To illustrate trade in goods integrated into global value chains, the authors examine trade in three groups of products with long value chains: apparel and footwear; electronics; and motor vehicles and parts.

Beyond its long-term effect on world trade, international value-chain fragmentation also influences its short-term elasticity. The fragmentation trend seems partly correlated with the business cycle (Ollivaud and Schwellnus, 2015). Imports of products with long value-added chains, such as durable goods, tend to respond more strongly to the business cycle than products with shorter value-added chains (see Chart 4), causing trade to overreact to GDP in the short term[15]. Empirical analyses tend to confirm this assumption: Crozet, Emlinger and Jean (2015)[16] show that, for countries with limited involvement in global value chains[17], the observed growth in trade flows in 2012-2013 is barely below what one would expect from its determinants. By contrast, for countries with medium or high involvement in global value chains, the growth in trade flows is substantially below what the determinants would lead one to expect.

2.2 A pause in world trade integration and the signing of free-trade agreements

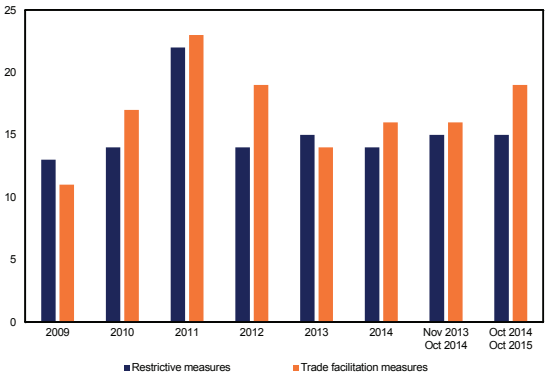
In the 1990s, the countries of the former Soviet bloc, China and several developing countries gradually integrated into world trade. At the same time, the number of regional trade agreements containing trade facilitation provisions rose sharply[18], and multilateral free-trade agreements have led to reductions in customs duties, promoting world trade growth. China, for example, joined the WTO in 2001. **Since the mid-2000s, progress in multilateral trade negotiations has stalled**, contributing to a decrease in the elasticity of trade to GDP relative to the 1990s.

Since the 2009 crisis, some authors have feared a rampant return to protectionism that would inhibit trade[19] [20]–and difficulties in removing restrictive measures once they have been implemented[21]. These concerns, however, do not seem warranted for now[22]. The strong fragmentation of global value chains appears to have contributed to preventing a massive use of protectionist instruments that make products with long value chains less competitive[23].

(15) Ferrantino, M. and Taglioni, D., (2014), "Global Value Chains in the current trade slowdown", World Bank, *Economic Premise* no. 137.
(16) Crozet, M., Emlinger C., and Jean, S., (2015), (in B. Hoeckman, ed., op. cit. chap. 9: see note 13 above).
(17) The degree of involvement is evaluated using the production fragmentation indicators by country and sector developed by K. D. Backer and S. Miroudot (2013), "Mapping Global Value Chains", *OECD Working Paper* 159.
(18) WTO, *World Trade Report 2015*.
(19) Evenett, S. J. (2013), "Five More Years of the G20 Standstill on Protectionism?", voxeu.org.
(20) Evenett, S. J. (2014), "The Global Trade Disorder", CEPR, 14th GTA Report.
(21) According to the *WTO World Trade Report* dated December 2015, progress on eliminating restrictive measures is slow.
(22) The overall effects of protectionism on world trade are marginal, according to the articles cited earlier by Crozet et al. (2015) (note 16), Ollivaud and Schwellnus (2015) (note 7) and Constantinescu et al. (2015) (note 4).
(23) Gawande, K., Hoekman, B. and Cui, Y. (2015), "Global Supply Chains and Trade Policy Responses to the 2008 Financial Crisis", *World Bank Economic Review* 29(1), pp. 102-28.

In recent years, the number of new restrictive trade measures adopted by WTO members has remained stable and slightly below that of new trade facilitation measures (see Chart 5)[24]. Moreover, the restrictive measures adopted by G20 countries in 2012 covered a mere 1.3% of world imports–comparable to the 1% covered by the new facilitation measures[25]. It is difficult, however, to identify and assess the impact of restrictive measures that are subtler than simple tariff barriers, such as support for local production through the tax system.

Chart 5: Number of trade measures taken by WTO members (monthly average, excluding corrective trade measures)

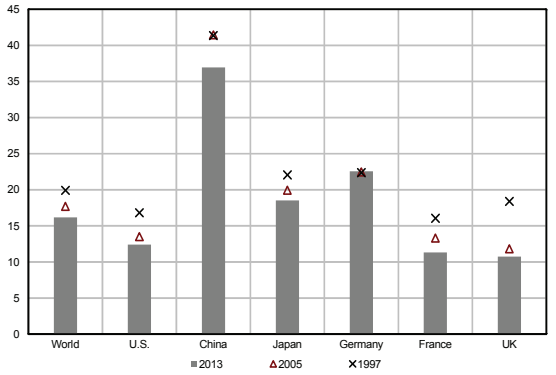


Source: WTO Secretariat, annual report for mid-October 2014 to mid-October 2015.

2.3 A structural decrease in industry's share of GDP

The service sector's share of GDP has been growing in recent years, to the detriment of industry (see Chart 6). The one exception is Germany, where the manufacturing industry's share of GDP has been stable for the past 15 years. **The decrease in industry's share of the economy contributes to weakening the elasticity of trade to GDP**, for industrial production has a relatively higher imported input content than the service sector.

Chart 6: Manufacturing industry's share of GDP (value added, in %)



Source: World Bank.

Box 2: **Trade and changes in shipping costs**

According to several authors, average shipping costs have been trending down since 1980, although this analysis has been challenged[a]. Technological progress, it is argued, is one of the main drivers of the downtrend in shipping costs in the broad sense–i.e. including the reduction in shipping time. Movements in fossil-fuel prices and production cycles for heavy cargo ships have a cyclical impact on shipping costs.

The downtrend in costs, it is argued, was halted between 2010 and 2013, perhaps because of the concurrent rise in oil prices. Escaith and Miroudot (2015)[b] suggest that this may have had a negative effect on the elasticity of trade to GDP during the period.

Since 2014, some shipping cost indicators have been trending down. More recently, the Baltic Dry Index (which measures ocean freight costs), dropped sharply (see Chart 7). This drop is sometimes interpreted as a leading indicator of trade weakness, but the link between the two has not been significant in the past[c]. Indeed, the fall in the index seems to be mainly due to the drop in oil prices and excess supply of heavy cargo ships–a consequence of past over-optimistic forecasts for world trade growth.

Chart 7: Ocean freight cost index (Baltic Dry Index)

Source: Baltic Exchange - DataInsight; calculations: DG Trésor.

a. Daudin G. (2013), " La logistique de la mondialisation ", OFCE.
b. Escaith H. and Miroudot S. (2015), "World trade and income remain exposed to gravity", The Global Trade Slowdown: A New Normal?, VoxEU.org eBook, pp. 127-160.
c. INSEE (2009), "Focus - The Baltic Dry Index is not a reliable lead indicator of world trade", Conjoncture in France, June, p. 39.

(24) The restrictive measures adopted by the G20 are stabilising but the lifting of protectionist measures has slowed.*WTO, World Trade Report 2014*.
(25) WTO, *World Trade Report 2014*.

3. The trade slowdown is also caused by factors of a more short-term nature

3.1 A cyclical downturn in investment

The weakness of productive investment since the crisis is a possible cause of the slackness of world trade since 2009. The high cyclicality of investment relative to economic performance may be partly responsible for the trade downswings during recessions. Ollivaud and Schwellnus (2015) argue that world trade rebounds when investment recovers. They find that the investment-to-GDP ratio has been exceptionally weak in the world since the crisis, particularly when one excludes China: the country carried out major investment expenditures on infrastructure projects with low import content.

This relative weakness of investment may, however, reflect a long-term trend[26], driven by factors such as increasingly consumption-intensive global growth. The phenomenon is particularly visible in China, whose economy is rebalancing towards consumption and, above all, services[27]. The decline in investment as a share of the world economy may therefore contribute to the low elasticity of trade to GDP, as investment is more imported-input-intensive than consumption[28].

3.2 The tightening of trade financing conditions in times of crisis

In many OECD countries, access to trade financing (trade credits and export guarantees) became difficult during the 2008-2009 financial crisis, before gradually easing in the years that followed. These difficulties mainly affected small and medium-sized enterprises, which have fewer alternative financing options than large firms. At macroeconomic level, however, the contribution of this factor to the world trade slowdown seems limited[29] .

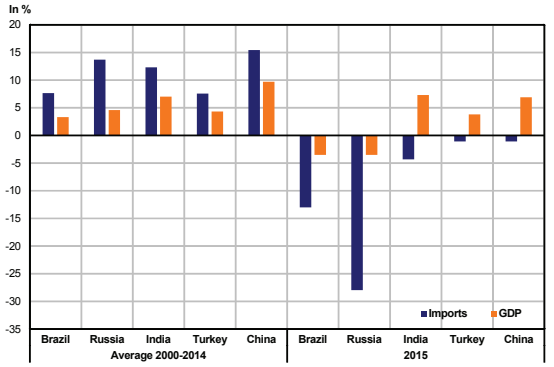
3.3 Weak growth in the euro area in recent years

The recovery was slow in taking hold in the euro area after the 2009 recession: the sharp rise in unemployment and fiscal consolidation after the sovereign debt crisis weighed on consumption, while the lacklustre market outlook and rising uncertainty eroded investment. Between 2011 and 2013, the euro area posted 0.2% average annual GDP growth and 1.4% import growth, versus 2.0% and 5.3% respectively between 2000 and 2008[30]. The economic slowdown in the euro area had a greater impact on international trade than on the global economy, owing to the euro area's high trade intensity and its structurally high elasticity of GDP to trade–a consequence of production-chain fragmentation in Europe. **The GDP and import slowdown in the euro area therefore had an automatically negative effect on the world elasticity of trade to GDP**.

3.4 Factors specific to the main emerging economies

The decrease in real imports by the main emerging countries in 2015 was very substantial relative to their GDP growth figures (see Chart 8). In Brazil and Russia, imports contracted far more sharply than GDP. In China, India and Turkey, real imports fell despite the persistence of robust GDP growth.

Chart 8: Import and GDP growth in the main emerging economies



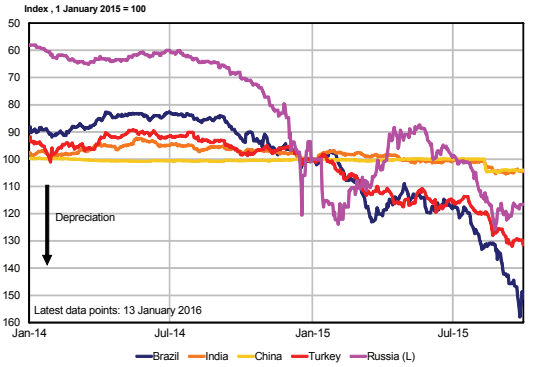
Source:national statistics; calculations: DG Trésor.

The decline in commodity prices may make it harder to estimate real imports, particularly in emerging countries. Commodities account for a large share of emerging-country imports: in India, for example, oil-product imports made up 37% of total imports in 2014. The steep falls in commodity prices in 2015 have made it harder to estimate changes in import prices and, consequently, import volumes. Some statistical institutes, such as China's, do not even publish real import series in their national accounts[31].

(26) Wolff M. (2013), "Why the future looks sluggish", Financial Times, 19 November. The author argues that investment was trending down before the global crisis, particularly owing to the decline in the relative price of capital goods.
(27) Albert, M., Jude, C. and Rebillard, C. (2015), "Actual and potential growth in China", *Trésor-Economics* no. 155.
(28) This notion is not entirely supported by Constantinescu et al. (2015), who argue that world trade is just as sensitive to investment as to consumption in the long term.
(29) Boz, E., Bussière, M. and Marsilli, C. (2015), "Recent slowdown in global trade: Cyclical or structural?" (in B. Hoeckman, ed., op. cit. [see note 13 above], chap. 3).
(30) Source: IMF, *World Economic Outlook* (WEO), October 2015.
(31) China's General Administration of Customs, however, publishes a monthly index of import prices.

Beyond the economic slowdown, certain specific factors may have curbed imports in the main emerging economies. In Brazil, the strong depreciation of the real (down 32% against the dollar in 2015: see Chart 9) eroded purchasing power and led to a substitution of local products for imports. Russia, as well, experienced a sharp currency depreciation and remains subject to international sanctions whose impact on external trade is heightened by the counter-sanctions adopted in response. In India, gold imports–the second largest import category after oil–have been restricted since 2013 by customs barriers; these, however, were partially lifted at end-2014. China is presently facing major imbalances accumulated over past years, in the form of excess debt and industrial and real-estate gluts. These have a particularly strong impact on investment, which is more import-intensive than private consumption.

Chart 9: Bilateral exchange rate against USD



Source: national statistics.

4. World trade outlook

By 2017, world trade should accelerate, but its growth will likely remain relatively slack. The structural slowdown factors discussed above should continue to weigh on the elasticity of trade to GDP, maintaining it at near unity in the short to medium term.

An improvement in short-term economic conditions could contribute to a moderate trade rebound in the years ahead, particularly in the emerging economies. In Russia, a lifting of international sanctions and counter-sanctions would allow a resumption of international trade flows. In Brazil, a stabilisation of the real and a gradual exit from the political crisis could help to revive imports. In China, the official support measures and the large infrastructure investment projects may contribute to an acceleration of imports despite the expected persistence of the economic slowdown. A pick-up in investment could generate a more import-intensive economic growth and a gradual return to near-unity elasticity.

In the advanced economies, the elasticity of trade to GDP should remain relatively high between now and 2017 (reaching nearly 2 in 2017) in the wake of its performance in the euro area, where elasticity could return to its pre-crisis level over the forecasting horizon particularly thanks to a recovery in private investment.

While trade growth cannot outpace GDP growth indefinitely[32], world trade could still achieve substantial gains in the medium term: further value-chain fragmentation is probable, especially in the service sector or through the greater participation of areas such as Africa in global value chains. Moreover, the regional trade agreements currently being negotiated (Transatlantic Trade and Investement Partnership) or ratified (Trans-Pacific Partnership) should also support trade growth[33] in the 2020s-2030s.

Laetitia FRANÇOIS, Julien LECUMBERRY, Linah SHIMI

(32) A large majority of theoretical models of world trade are based on a near-unity long-run elasticity of trade to GDP.
(33) "Potential Macroeconomic Implications of the Trans-Pacific Partnership", World Bank, *Global Economic Prospects*, January 2016, chap. 4.

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