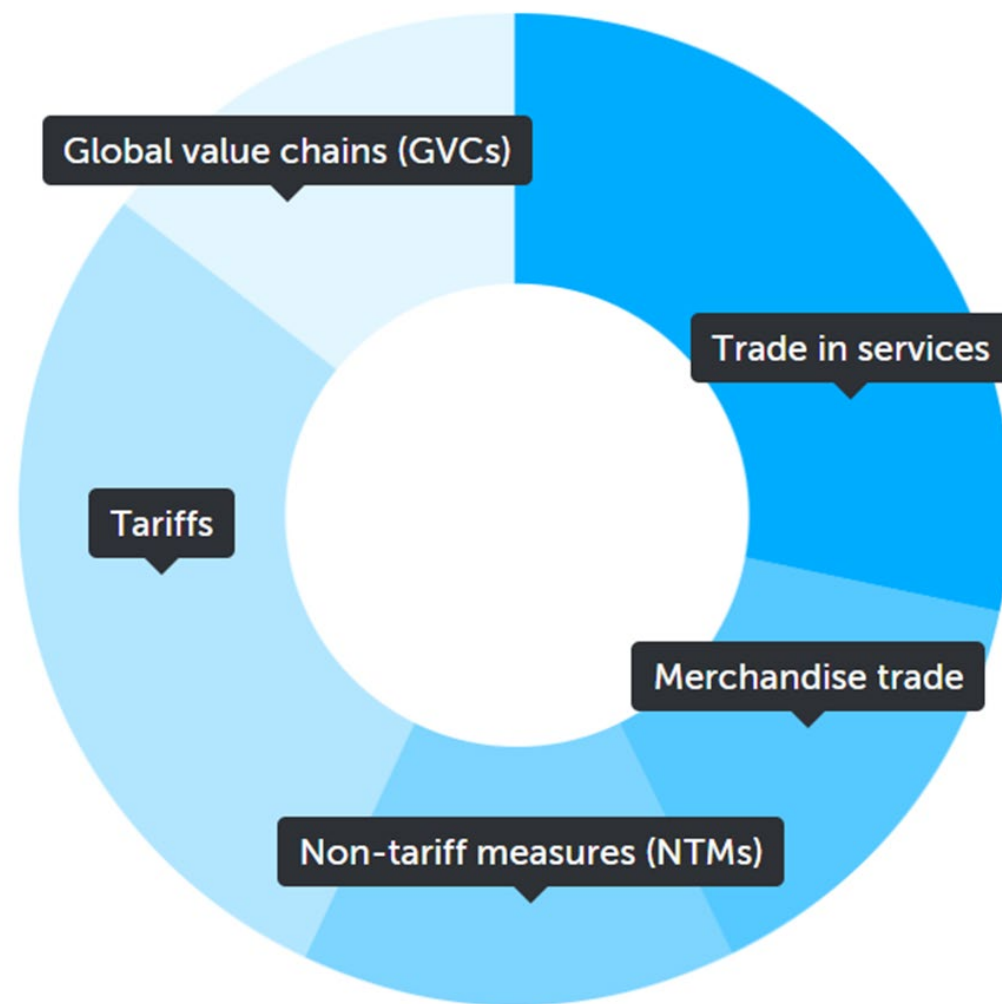# WORLD TRADE ORGANIZATION

Forecasting and Nowcasting in WTO Statistics

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3 February 2020

Global value chains (GVCs)

Trade in services

Tariffs

Merchandise trade

Non-tariff measures (NTMs)

# WTO Trade Forecasts and Trade Barometers

- The World Trade Organization produces a variety of statistics on international commerce, covering merchandise and commercial services trade, trade in value added, and tariffs among others. Most data are backward looking, the main exception being the WTO's bi-annual merchandise trade volume forecasts.

- Interest in the short-term outlook for trade jumped after the Financial Crisis of 2008-09 and has grown further since the recent rise in global trade tensions. To meet the demand for timely information on trade, the WTO has developed a pair of composite indicators ("Barometers") to gauge the current and near-term trajectory of world merchandise and commercial services trade.

- WTO forecasts and barometers are not referred to as nowcasts, but they perform many of the functions. These products are intended to inform policy makers, and provide at-a-glance information for business, NGOs and other stakeholders.

- In this presentation I will briefly summarize the WTO's forecast and indictor methodologies, highlighting their strengths and weaknesses, explaining their interpretation, and suggesting areas where they could be improved.

Nowcasting and WTO Trade Forecasts

- The WTO releases its preliminary annual trade statistics through press releases every year in April. This press release also includes forecasts of world merchandise trade volume for the current year and the next year. A brief forecast update is issued around six months later, in early October.

- Demand for imports by individual countries is estimated as a function of real GDP and relative prices (exchange rates, commodity prices) Exports are estimated similarly as a function of import demand in the rest of the world, with foreign demand weighted by the structure of the country's exports.

- Univariate estimates of imports and exports are aggregated up to regional and world totals, with some adjustments based on informed judgement. Individual country forecasts are not disseminated due to their political sensitivity, but breakdowns of world trade by region and level of development are provided.

- The April trade forecast includes estimates for the current year, but these are based on data through Q4 of the previous year, so they cannot be considered true nowcasts. On the other hand, the fall forecast update is based on partial data for the current year through Q2, so it can be characterized as a nowcast.

Merchandise trade growth in 2019 set to be the weakest since the financial crisis

World merchandise trade volume and real GDP growth, 2012-20
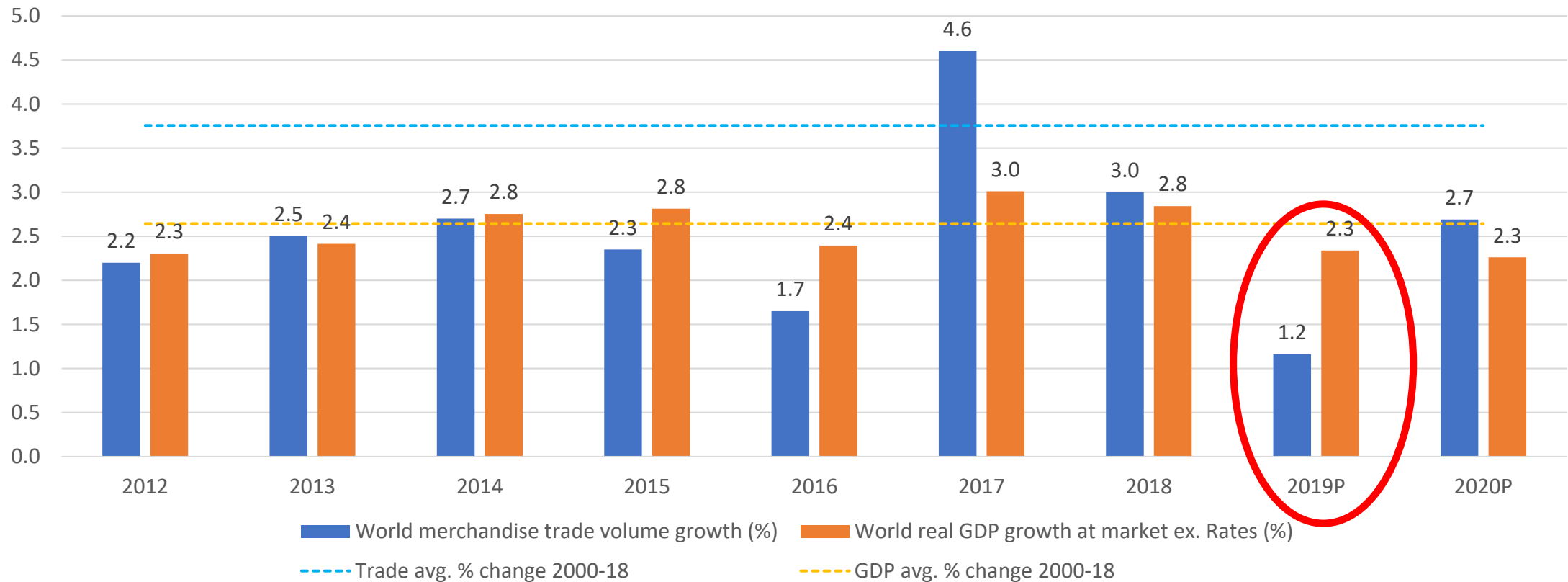
Source: WTO Secretariat for trade, consensus estimates for GDP.

Nowcasting in WTO Trade Forecasts (continued)

- To forecast the current year in the fall update, we switch from structural estimation with annual data to time-series estimation using on quarterly trade volume data for selected economies, sourced from WTO and UNCTAD.

- Two quarters are estimated to fill out the current year and produce an annual growth rate. This is then treated as fixed and trade growth for the next year is estimated using annual data, as before.

- Use of higher frequency data greatly improves forecast accuracy for the current year in the October update, particularly if there were any economic shocks in the second half of the previous year. This was the case in 2019, when the threat of new trade measures led to stockpiling of imports in Q3 and a slump in Q4 of 2018.

WTO forecasts for current year trade outperformed

Evaluation of trade forecasts by international organizations

	Mean absolute deviation (MAD)	Root mean squared error (RMSE)
WTO Press Releases		
Spring forecast (April)	1.8	2.2
Fall update (October)	0.3	0.4
IMF World Economic Outlook		
Spring forecast (April)	1.6	2.4
Fall update (October)	0.6	0.7
World Bank Global Economic Prospects		
Winter forecast (January)	2.8	4.0
Summer forecast (June)	1.2	1.4
OECD Economic Outlook		
Spring forecast (May)	1.2	1.3
Fall update (November)	0.3	0.3

Sources: WTO Secretariat, IMF, World Bank, OECD.
Note: Based on forecasts form 2010-2017.

- The WTO's most recent trade forecast featured a strong downward revision to the estimate for 2019, from 2.6% to 1.2%. Even this figure may be overly optimistic as trade was up just 0.6% for the year-to-date through Q2.

- October trade forecasts from the WTO are slightly more accurate than those from the IMF. Comparisons to the OECD and World Bank are less informative since they have more or less data in hand.
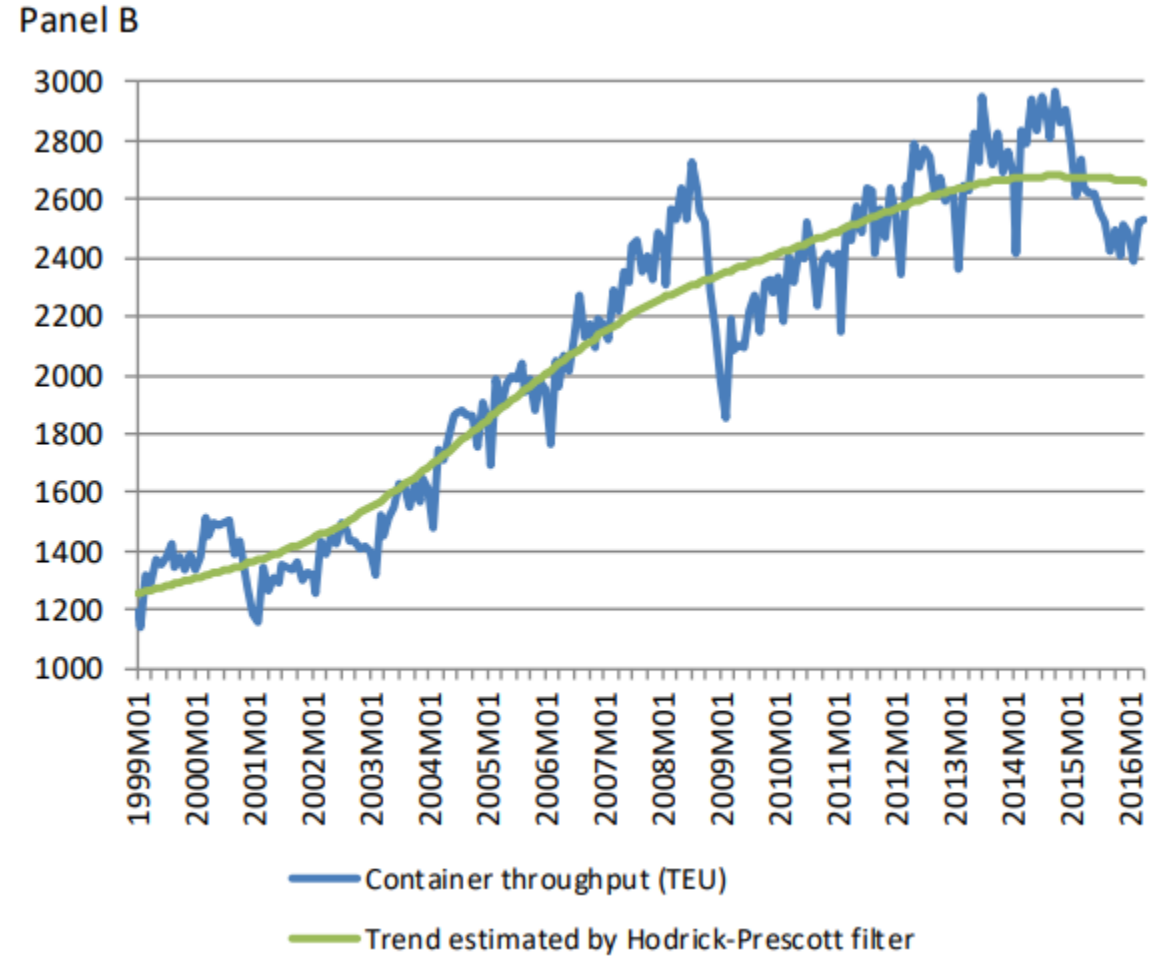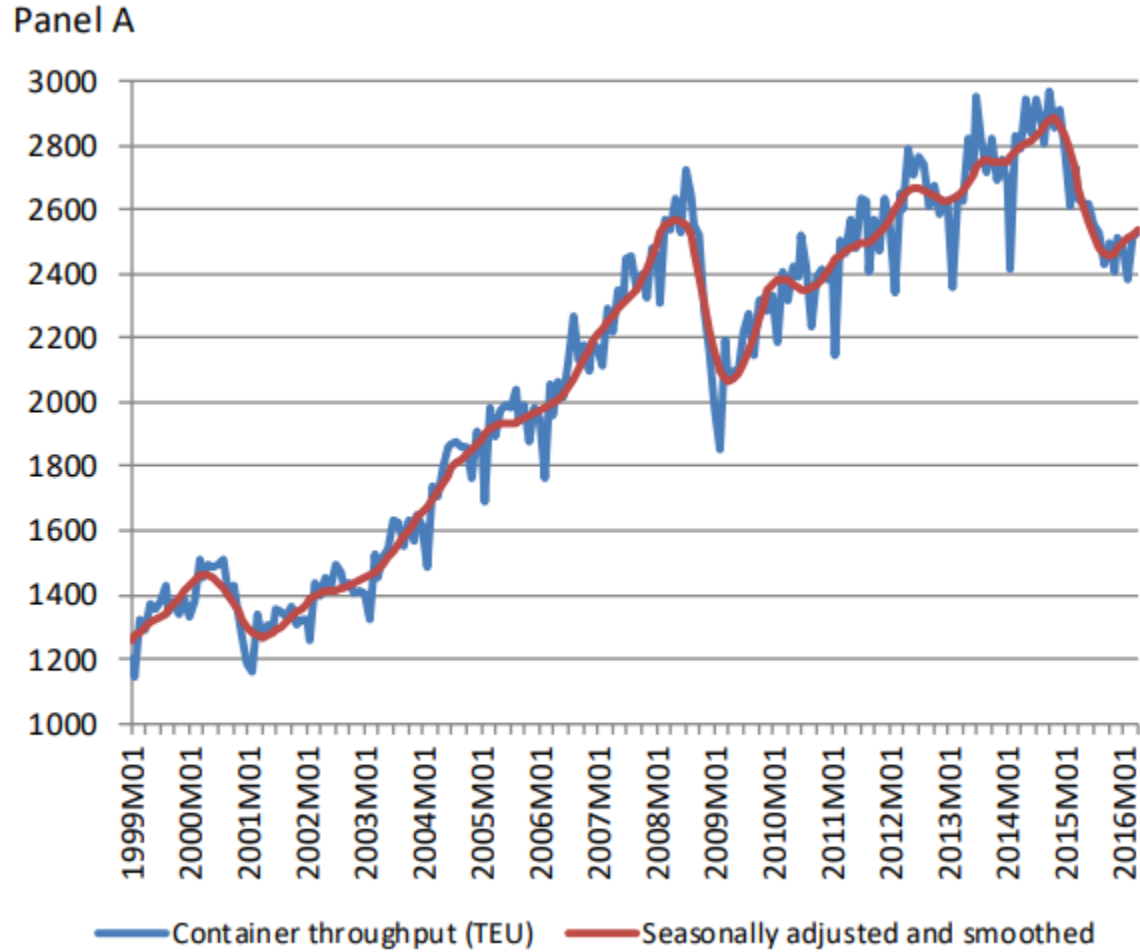
WTO Goods Trade Barometer (former WTOI)

- The decision to develop the WTO trade barometers originally with members, who requested a composite leading indicator for world trade. It was launched as the World Trade Outlook Indicator (WTOI) in July 2016, and superseded by a revamped indicator, the Goods Trade Barometer, in August 2019.

- The overall Goods Trade Barometer index combines information on several component indices representing trade-related variables including export orders, international air freight (IATA), container shipping, automobile sales and production, electronic components and agricultural raw materials.

- The Goods Trade Barometer anticipates changes in the trajectory of world merchandise trade volume relative to recent trends by three months on average, so for example the value of the index for January would provide an indication of trade conditions in April-May.
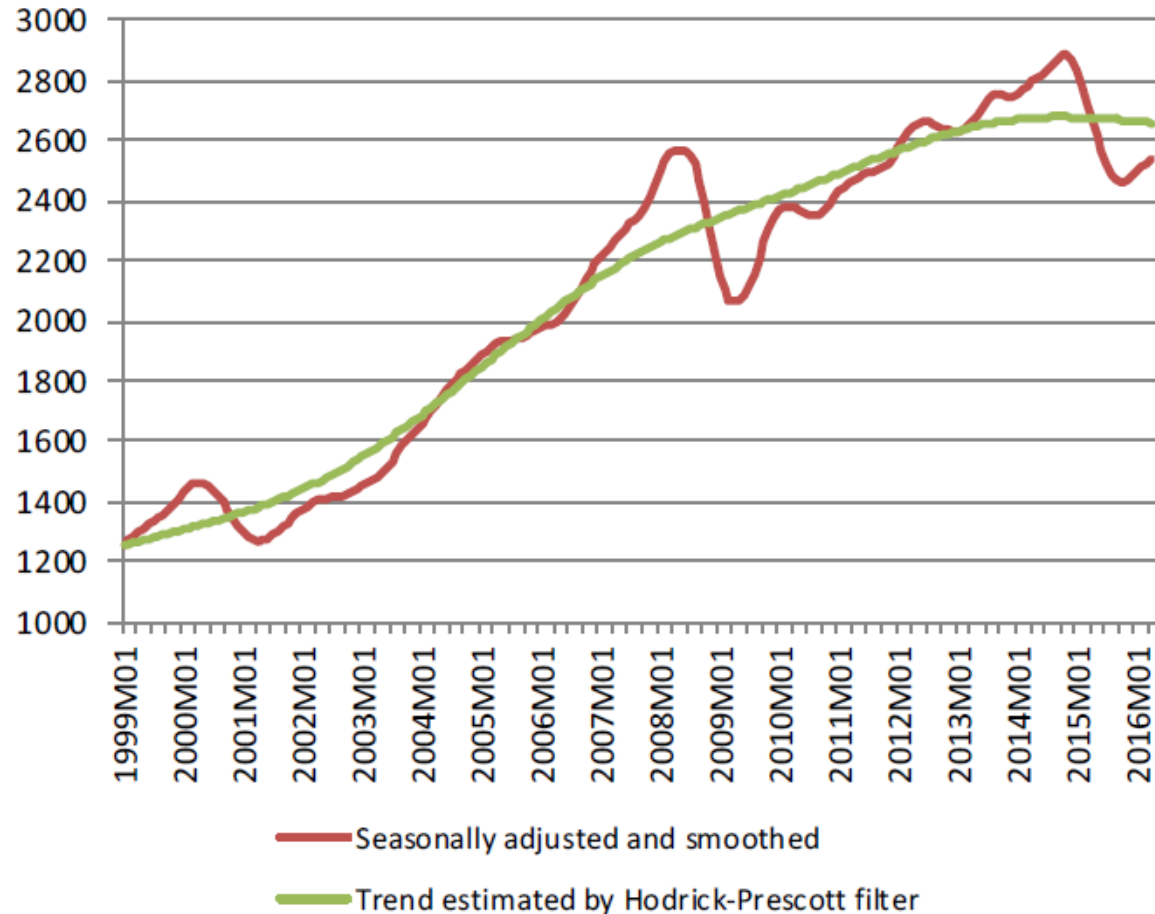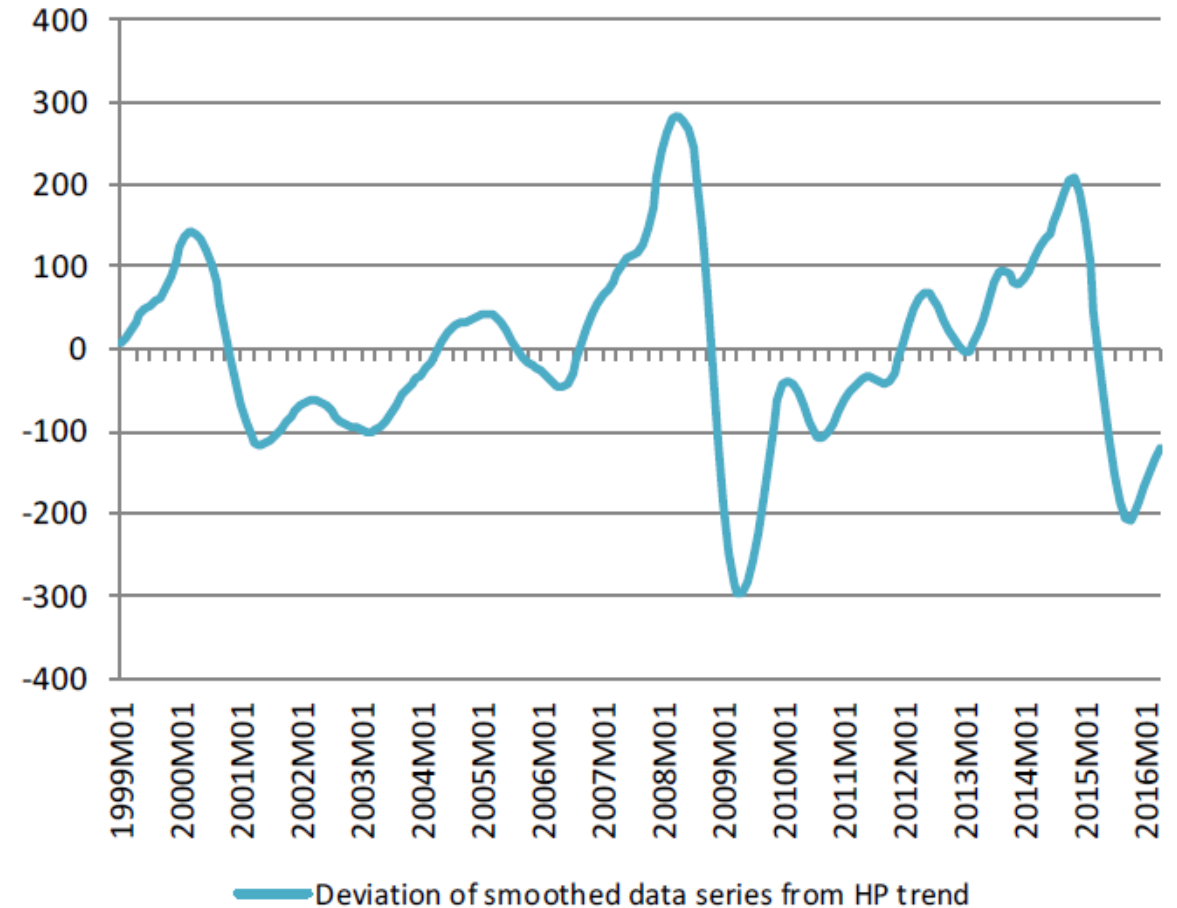
Seasonal adjustment and HP trend calculation

Panel A

Container throughput (TEU) — Seasonally adjusted and smoothed

Panel B

Container throughput (TEU)

Trend estimated by Hodrick-Prescott filter

Composite index calculated as deviation from HP trend

Panel C

Panel D

Seasonally adjusted and smoothed

Trend estimated by Hodrick-Prescott filter

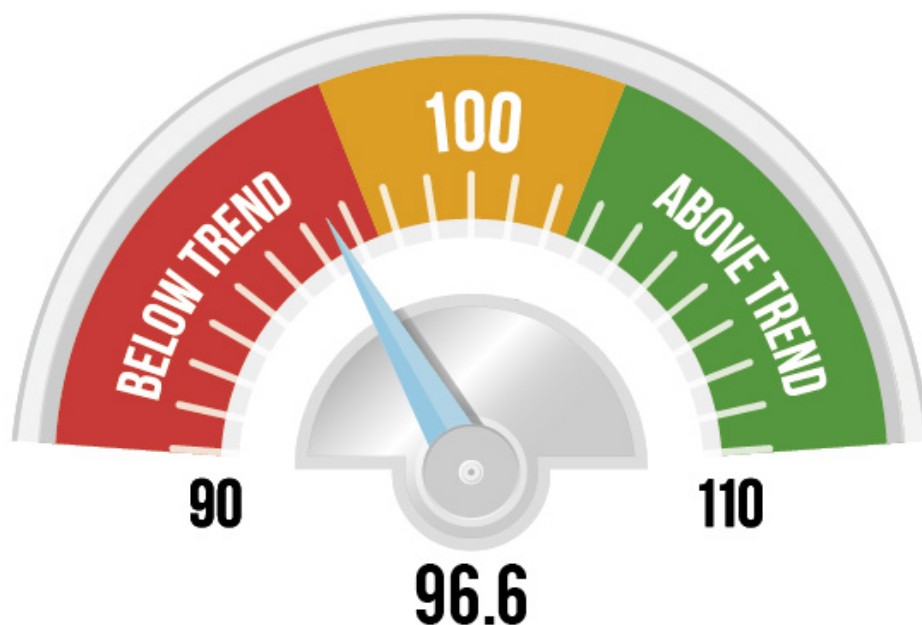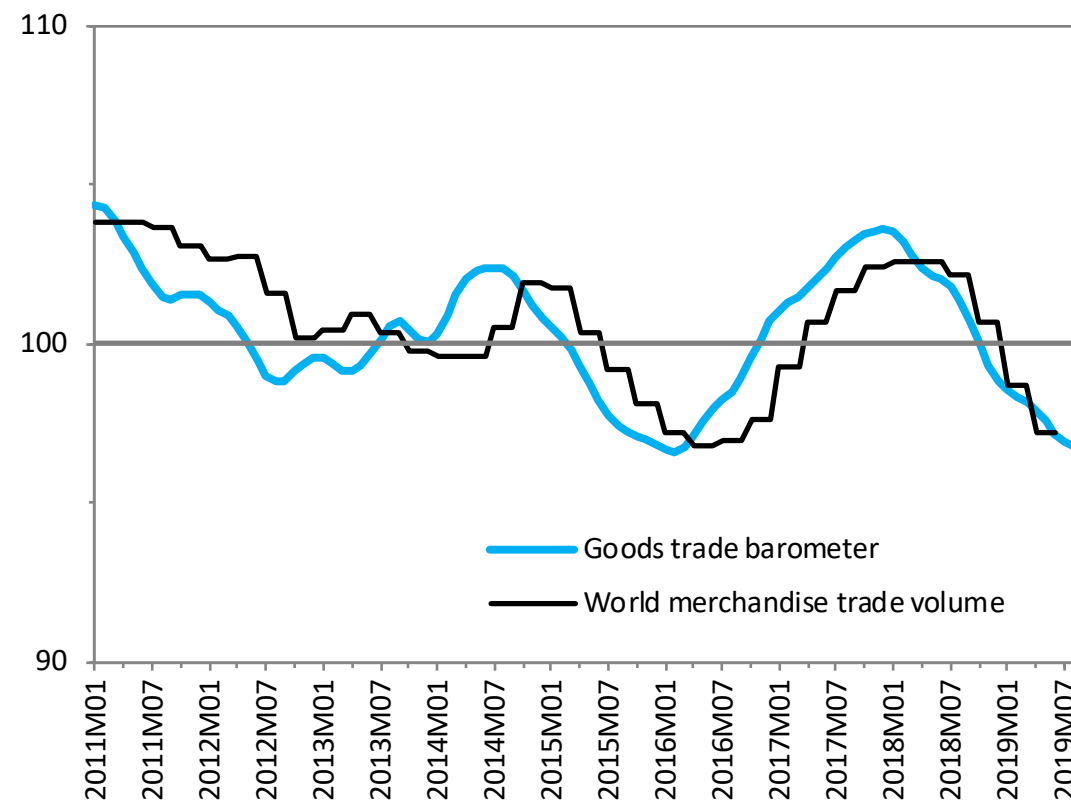Deviation of smoothed data series from HP trend

WTO Goods Trade Barometer remained below trend in September as tensions continued to weigh on world trade

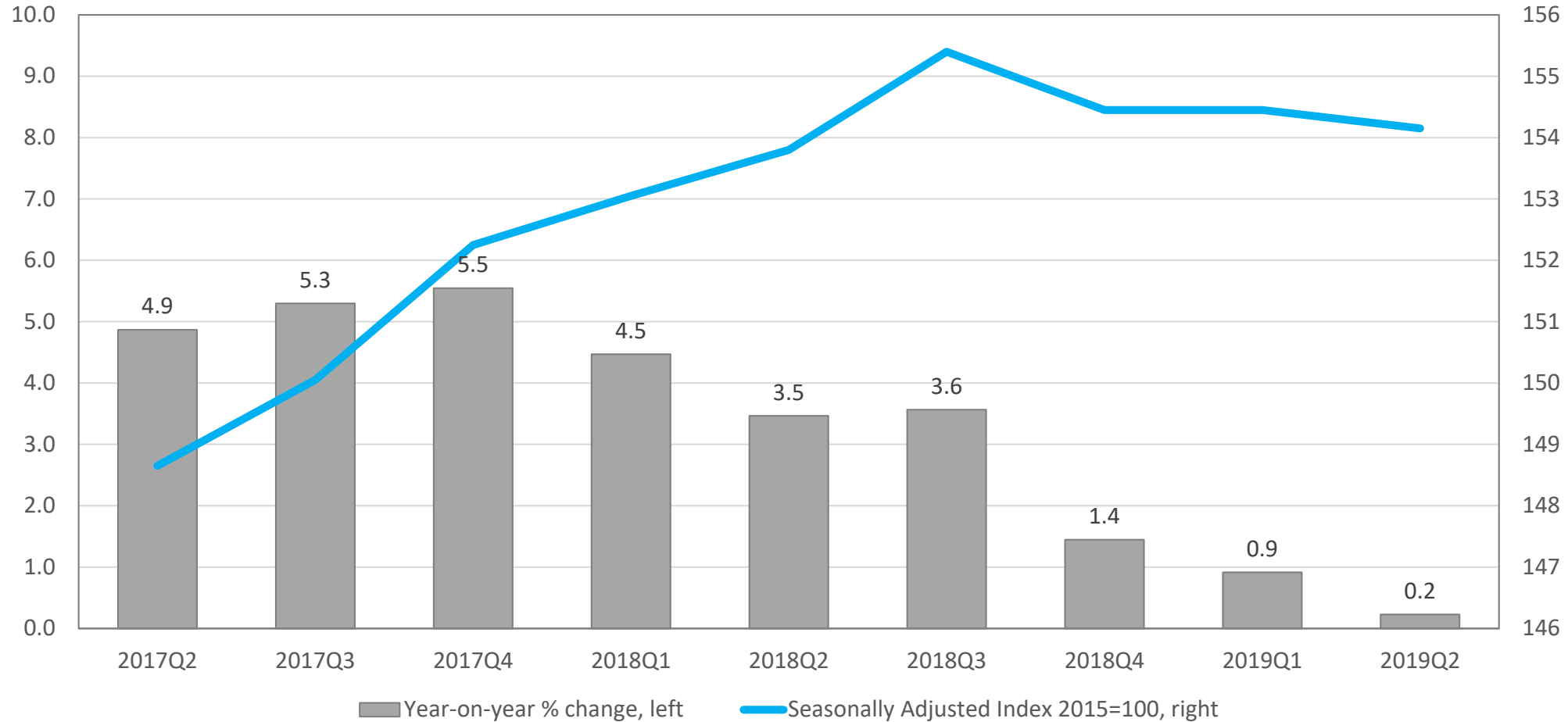**WTO OMC**

Goods trade barometer

Index value, September 2019

Index history, trend = 100

Source: WTO International Trade Statistics.

Problem: No composite indicators available for services (until now!)

- Services value-added accounts for close to half of the value of international goods and services trade.

- Some issues:
  - Statistics mostly in nominal US$ terms rather than volume terms.
  - Aggregate data for world are of lower frequency.
  - Indicators for services are less timely than for goods.
  - Some countries report merchandise trade very early (CN, BR).
  - Services trade less sensitive to business cycle fluctuations.

- WTO has developed a services barometer as a companion to the goods barometer using similar methodology.

Services activity index serves as a baseline for comparison, approximating service trade "volume"

WTO OMC

Global services trade activity
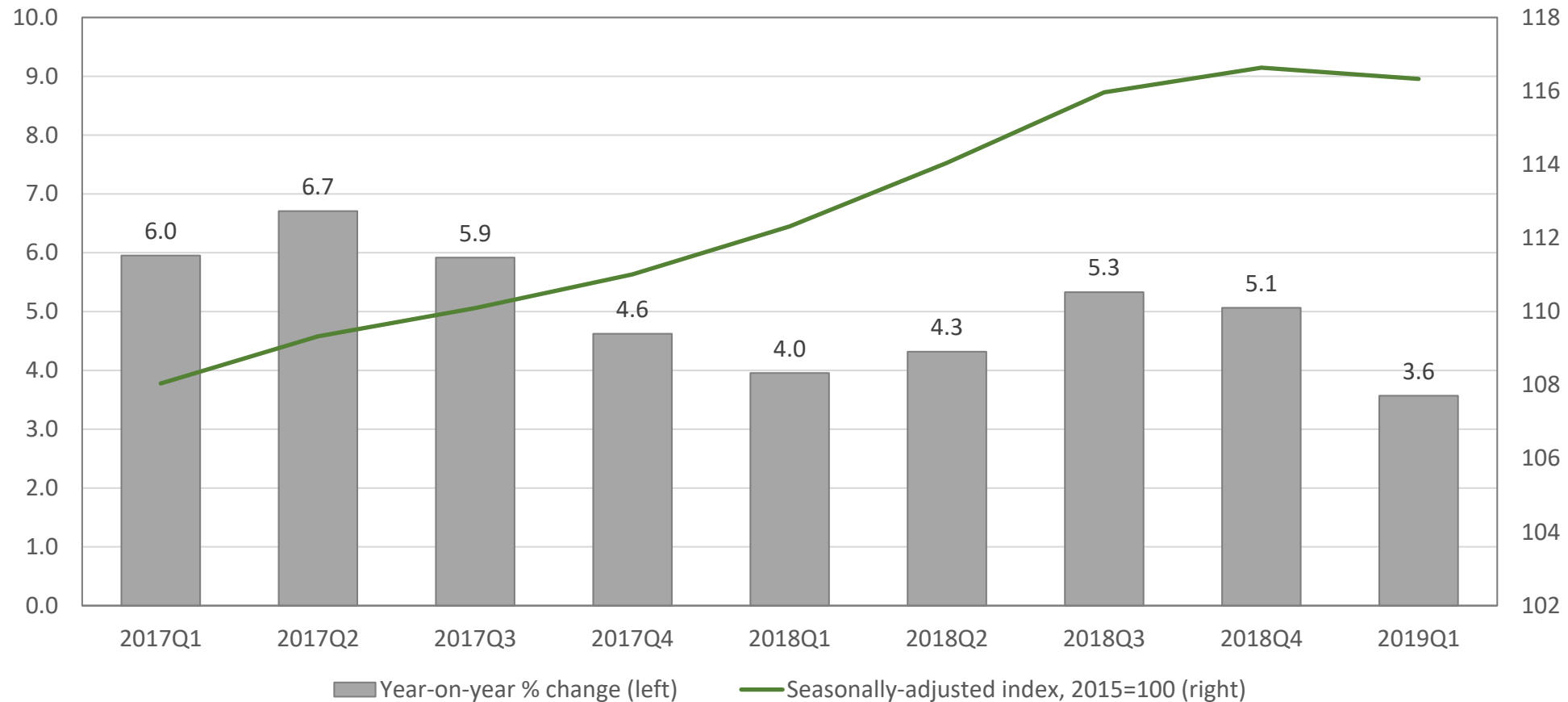
Source: WTO Services Trade Barometer

Components of the Services Trade Barometer

- Global Services Purchasing Managers' Index (PMI) from IHS-Markit.

- Global financial transaction messaging from SWIFT.

- Composite index on information, computer and telecommunication (ICT) services based on production data from China, European Union and United States, derived from national sources.

- Revenue passenger kilometres (RPK) from the International Air Transport Association (IATA), as a proxy for travel expenditure.

- Container throughput of major international ports from the Institute of Shipping Economics and Logistics (ISL).

- Index of construction activity based on national statistics from China, France, Germany, Japan and the United States.
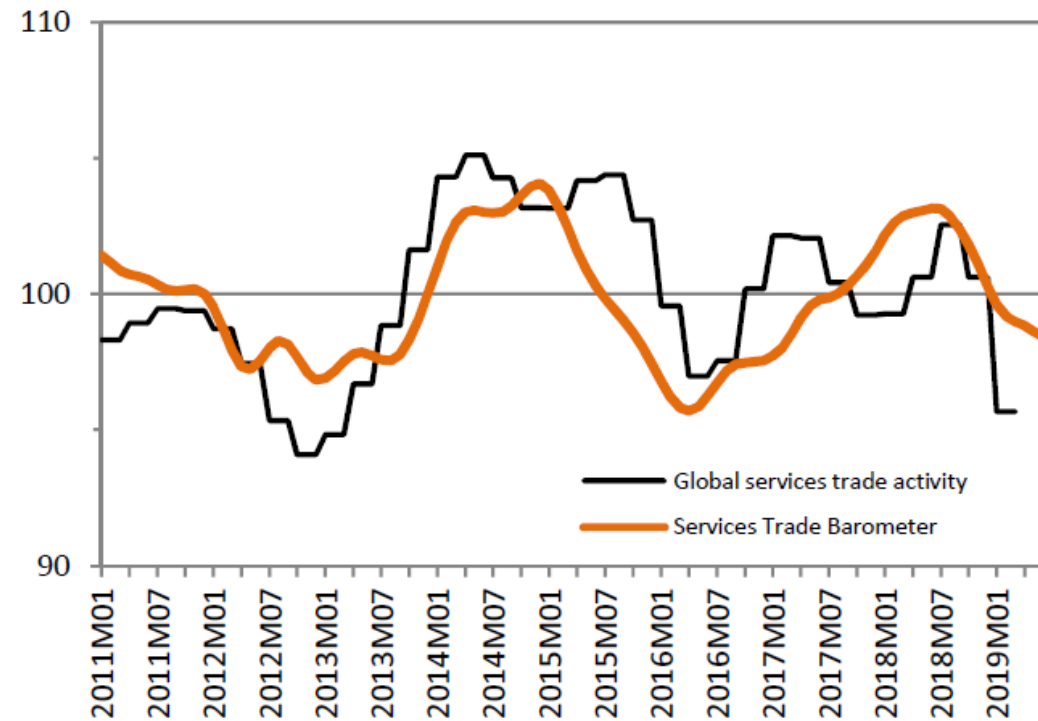
WTO Services Trade Barometer suggest a loss in momentum in world services trade in 2019

Services Trade Barometer
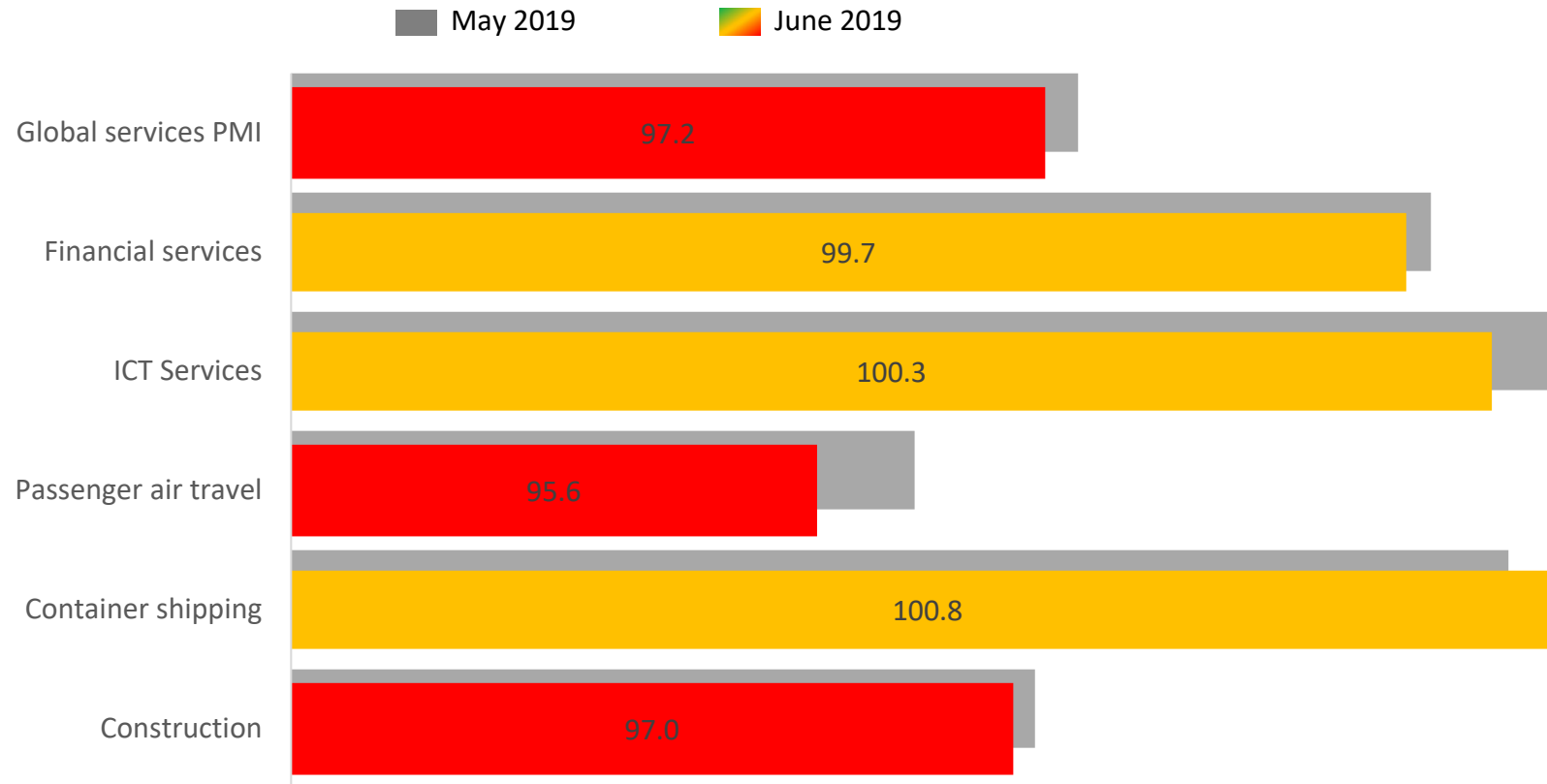Index value, June 2019

Index history, trend = 100

Source: WTO Services Trade Barometer

Loss of momentum across the board in the first half of 2019

WTO OMC

	May 2019	June 2019

Global services PMI — 97.2

Financial services — 99.7

ICT Services — 100.3

Passenger air travel — 95.6

Container shipping — 100.8

Construction — 97.0

WTO Services Trade Barometer

Advantages and disadvantages of trade forecasts compared to trade barometers

- Forecasts have a proven track record, provide a numerical value that can be checked against actual outcomes, but…

- Producing a trade forecast is a substantial undertaking, requiring more large amounts data that are often delayed.

- The trade barometers provide up-to-the minute information, allowing users to monitor the pulse of world trade, but…

- May be difficult for policymakers, general public to understand.

- In practice the WTOI and goods Trade Barometer have performed as intended, signalling turning points and gauging momentum in world trade. Service Barometer has less of a track record but should perform similar to its counterpart for goods.

Advantages and disadvantages of trade forecasts compared to trade barometers (Continued)

- In principle, parsimonious methodology and high frequency data could allow barometers to be updated more frequently.

- Barometers may be exploited by statisticians produce better estimates of trade flows by country using partial data.

- The HP filter is sensitive to the first and last data points, leading to end-point bias. It settles down after a few months but false maxima/minima may be seen.

- Relies on a relatively small set of indicators, which could be disrupted by an economic shock affecting one country/region (e.g. a port strike in Rotterdam?) or a particular industry (Boeing 737 Max?).

Thank you!