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# Measuring inflation in times of globalization – a central banker's view

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Vienna, July 4, 2018

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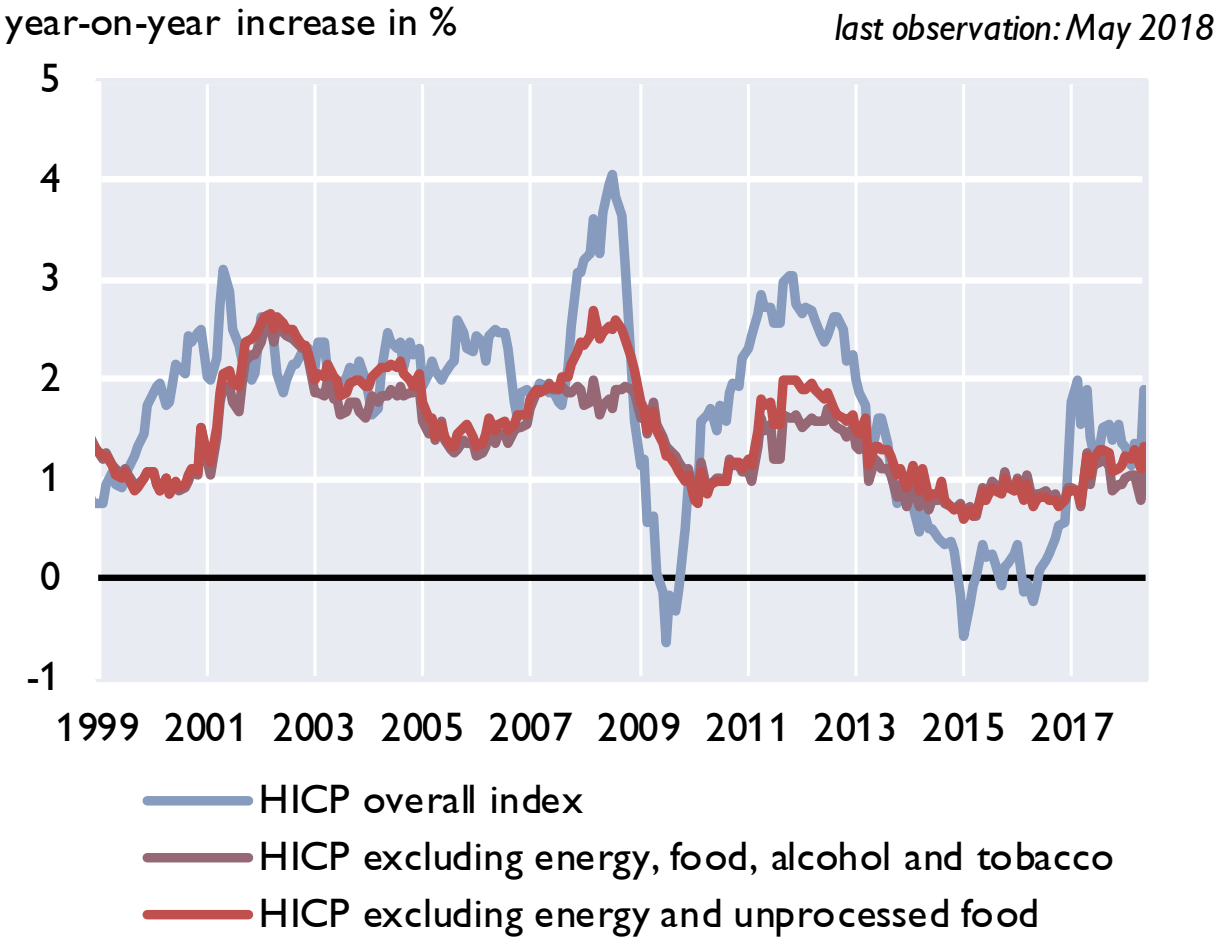
# The primary objective of monetary policy

- Art. 127 of the Treaty on European Union: "The primary objective of the [Eurosystem] shall be to maintain price stability."
- Definition of price stability by the Governing Council of the ECB:
  - year-on-year increase in the HICP
  - below, but close to 2%
  - over the medium term
  - for the euro area average
  - headline inflation, but core inflation is used for internal analysis

## HICP inflation and core inflation



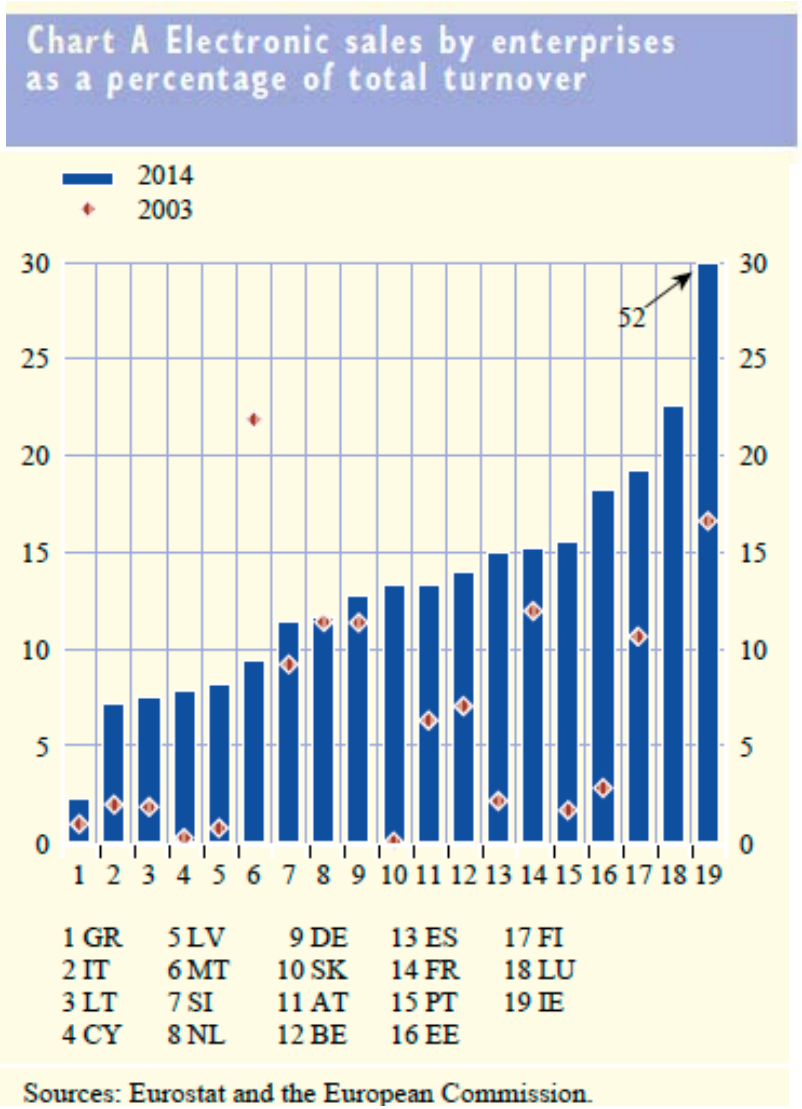

*Source: Eurostat.*

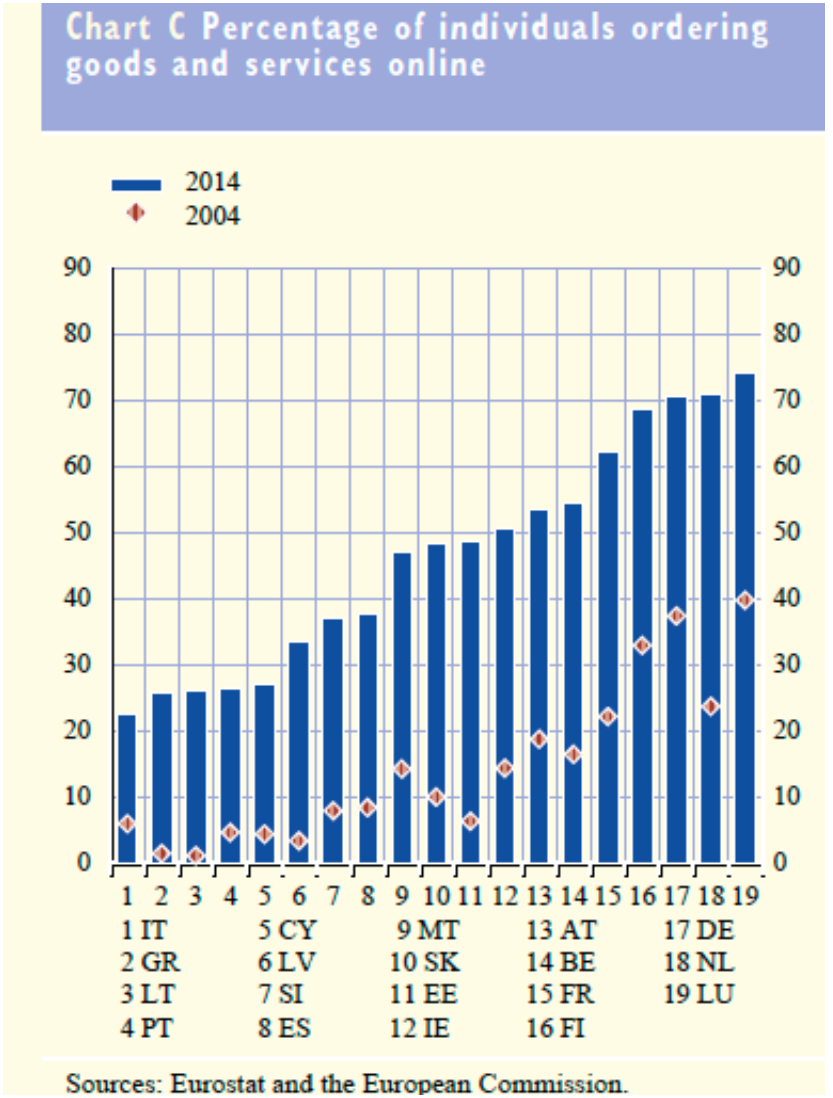
# Challenges in measuring inflation in a globalized world

- Traditional problems in inflation measurement: the four biases – product substitution bias, quality change bias, new product bias and outlet substitution bias
  - New statistical methods have been introduced to reduce these biases: annual updates of consumption baskets, quality adjustment of prices (hedonic methods), frequent adjustment of surveyed outlet structure
- However, at least two new big challenges have emerged in the last 10–15 years:
  - Effect of the Internet on prices and inflation
  - Including the costs of owner-occupied housing (OOH) in inflation measurement

# The effects of the Internet (digitalization) on prices and inflation

- Use of e-commerce has increased in the euro area
- The share of people using the Internet for purchases has increased substantially



# The effects of the Internet (digitalization) on prices and inflation

- Potentially, an increase in e-commerce can lower prices by
  - saving costs for wholesalers and retailers which are passed on to consumers;
  - increasing competition and transparency.

- Effect on prices is likely to be only temporary until the spread of e-commerce has stabilized

- Evidence on the effect of e-commerce on consumer prices and inflation is scarce and inconclusive
  - Online prices of household appliances in 21 EU countries are found to be on average lower than offline prices (Duch-Brown and Martens, 2014)
  - The increase in e-commerce is estimated to lower price increases in the goods sector by 0.5 percentage points per year in the EU-27 (Lorenzani and Varga, 2014)
  - Newer evidence from a cross-country study based on 56 large multi-channel retailers suggests that differences in online and offline prices are negligible (Cavallo, 2017)

# The integration of the costs of owner-occupied housing in the HICP

- **Open question**: Is housing…

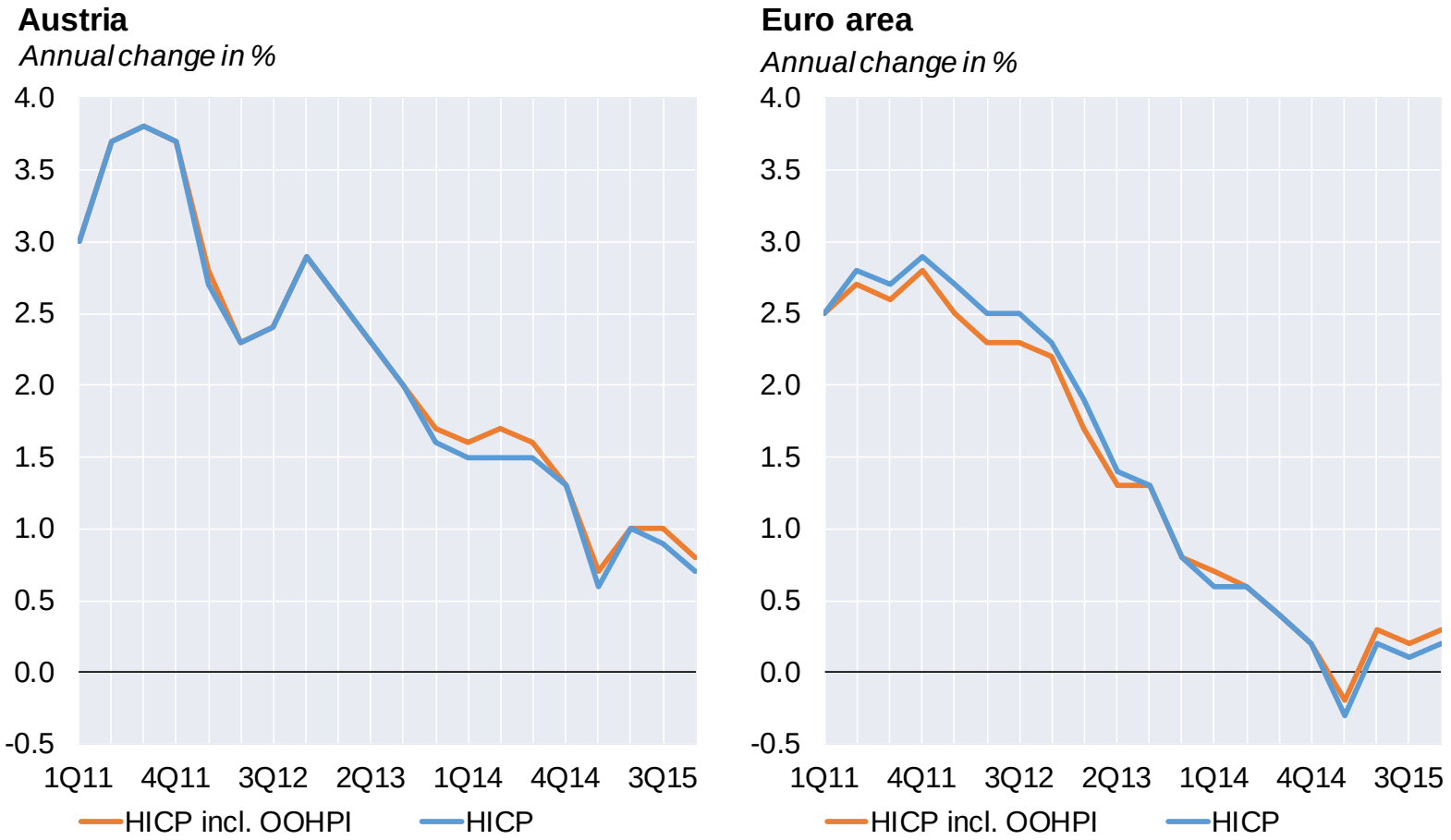
  …a **consumption** good? => inclusion in the HICP as part of households' consumption expenses

  …an **investment** good? => no inclusion

- According to **HICP legal framework**: all goods and services households consume/acquire should be included; monthly data, no asset price elements
- Separate owner-occupied house price indices (**OOHPIs**): net acquisition approach; includes land prices which are asset prices, quarterly data
- Apart from land price problem, OOHPIs are compliant with HICP methodology; however, drawback of lower frequency
- OOH currently not included in the HICP, but by end-2018 European Commission will assess the suitability of integrating OOH into the HICP

# ECB results on including OOH in the HICP point to small differences

## HICP including and excluding OOH




*Source: Eurostat and ECB-internal estimates.*

Euro area: max. absolute impact +0.2 p.p., average less than +0.05 p.p.

For individual countries: differences in annual inflation rates range from –0.4 p.p. to +0.4 p.p. on average

Stronger impact might be expected in periods of more dynamic house price developments

# A central banker's letter Santa Claus…

Dear Santa,

1. Please publish flash estimates of monthly HICP inflation rates.

2. Please exploit the regional dimension of price data and publish regional inflation rates.

3. Please use scanner data from supermarkets and specialist retailers in inflation measurement.

4. Please include automatically downloaded data from online retailers in price statistics ("Webscraping").

# Flash estimates of monthly HICP inflation rates

- Each national statistical institute (NSI) in the euro area produces flash estimates of monthly inflation rates shortly after prices have been collected
- Eurostat constructs a flash estimate for the euro area by aggregating national flash estimates
- All NSIs except in BE, IE, EE, NL and AT publish their flash estimates on their websites
- Publishing the Austrian monthly flash estimate of inflation would help to
  - inform the public about latest price trends in a timely way
  - facilitate the forecasting process of inflation in the short run
  - remove the asymmetric information lag of national inflation rates within the euro area

# Exploiting regional price data

- The regional dimension of collected price data should be exploited more
- The regulation governing the CPI in Austria (VPI-Verordnung) stipulates that prices are collected only in the 20 largest cities
  - This is due to historical practice and to contain the costs of price collection
  - Increasing the number of cities/municipalities where prices are collected would provide a more representative picture of price developments in Austria
  - This would make it possible to assess regional price trends and to analyze interesting research questions: price trends in border regions, different price dynamics in small vs. large towns, in rural vs. urban areas, etc.
- Regional inflation rates (for the individual provinces) could be published to complement the data suitable for regional macroeconomic analysis

# Using scanner data in inflation measurement

- Scanner data from supermarkets and specialist retailers are already used in some euro area countries (e.g. in NL, FI) in inflation measurement, at an experimental level
- Scanner data sets include actual transaction prices and quantities of goods sold
  - They make it possible to measure product substitution when relative prices of products change
    => reduce the product substitution bias
  - Actual transaction prices capture price rebates at the customer level and would make it possible to estimate the importance of sales prices in retailing
  - They are especially valuable for research as they make it possible to estimate demand elasticities of individual items
- However, supermarkets are reluctant to release scanner data due to confidentiality restrictions
- Scanner data require large computing power to be stored and processed

# Webscraping

- Including automatically downloaded data from suppliers' websites (webscraping) in price statistics
  - E-commerce has gained significant importance, also in Austria
  - To account for consumption habits of households, online prices should be included in inflation measurement to the extent goods and services are purchased online
  - Some products and services are already surveyed online, e.g. electricity, flight tickets, etc., but not online retailers
- Using special software to "scrape" websites of online retailers for identical products at high frequency
  - "Webscraped" data make it possible to calculate price trends at high frequencies (even daily), as done in The Billion Prices Project by the MIT: http://www.thebillionpricesproject.com/
- Legal limitations

# Danke für Ihre Aufmerksamkeit

# Thank you for your attention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