Impact of COVID-19 on the BLS Price Programs

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Big picture questions

- How have key BLS price indexes moved during the COVID-19 pandemic?
- How has the pandemic affected procedures and response rates in BLS price indexes?
- What should we keep in mind when interpreting BLS price indexes from the pandemic period?

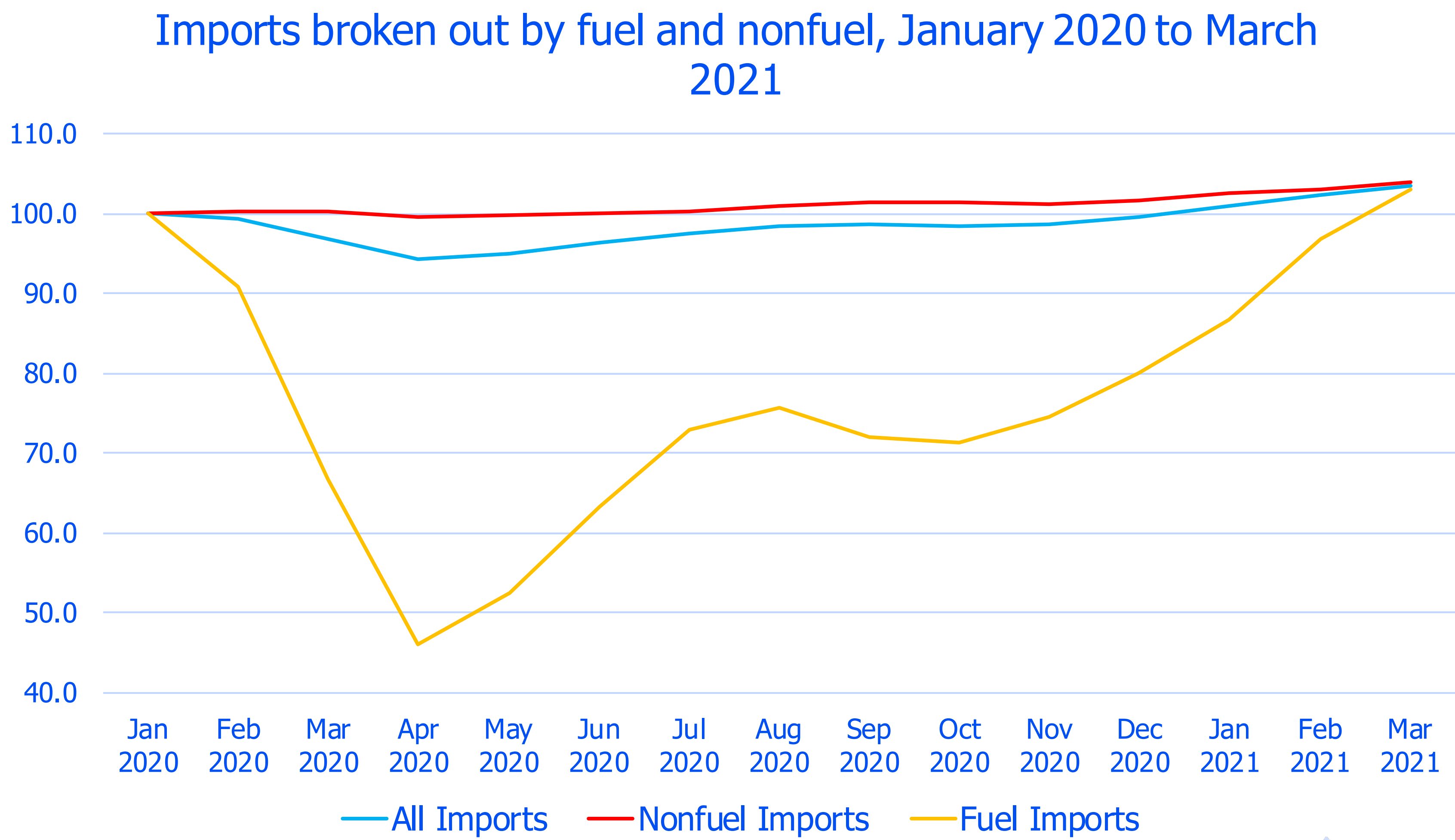
Impact of COVID-19 on Price Movements and Response Rates

Dave Mead
International Price Program

Prices during COVID-19

- Overall, the pattern of prices were characterized by the following:
  - Sharp drops from March to May
  - Large upward price movements in the months that followed
  - Smaller advances throughout the rest of 2020
  - An upward trend in the pace of higher prices in early 2021 as economies re-open
- Despite challenges, the pandemic did not impact the ability to produce price indexes

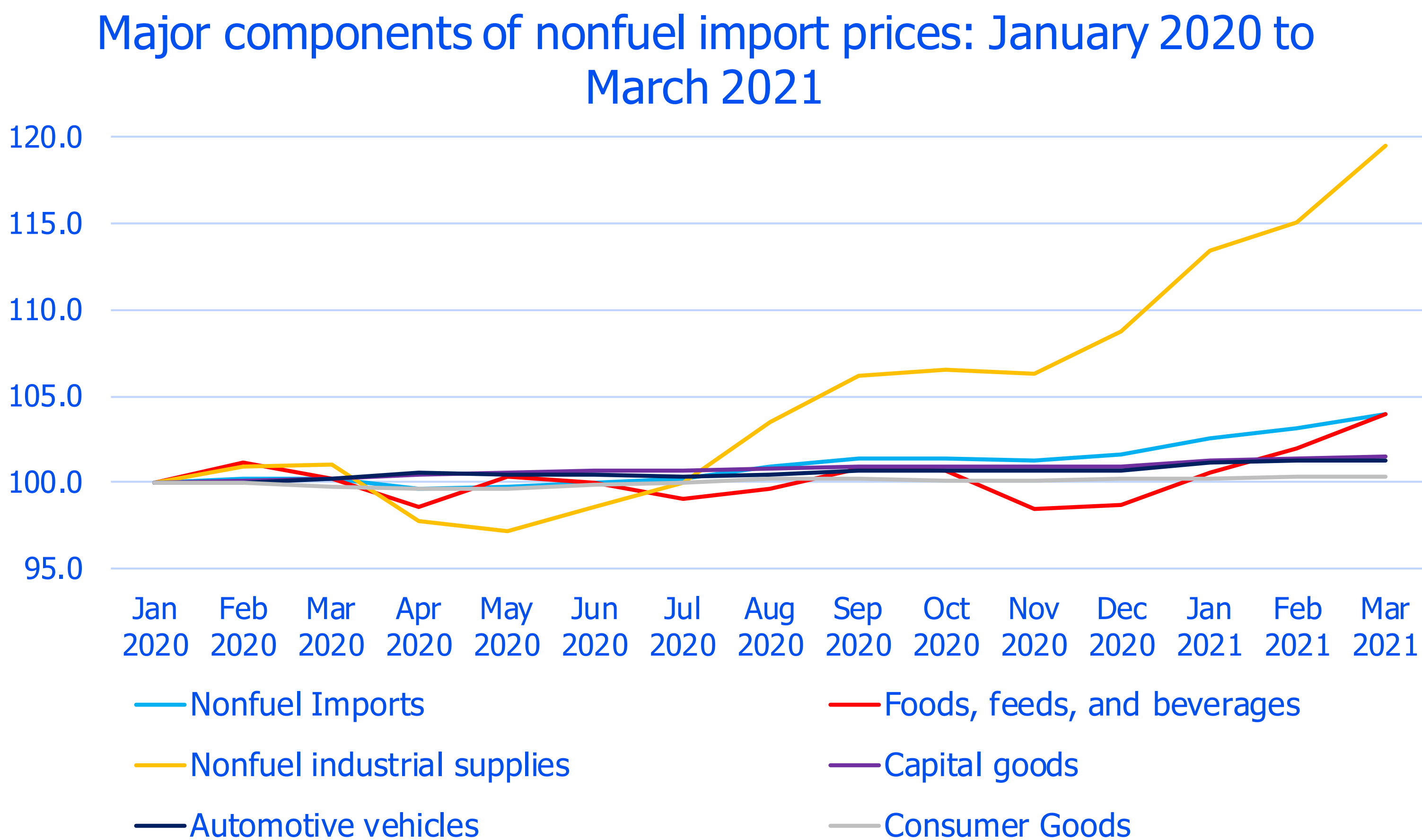
Import prices during COVID-19



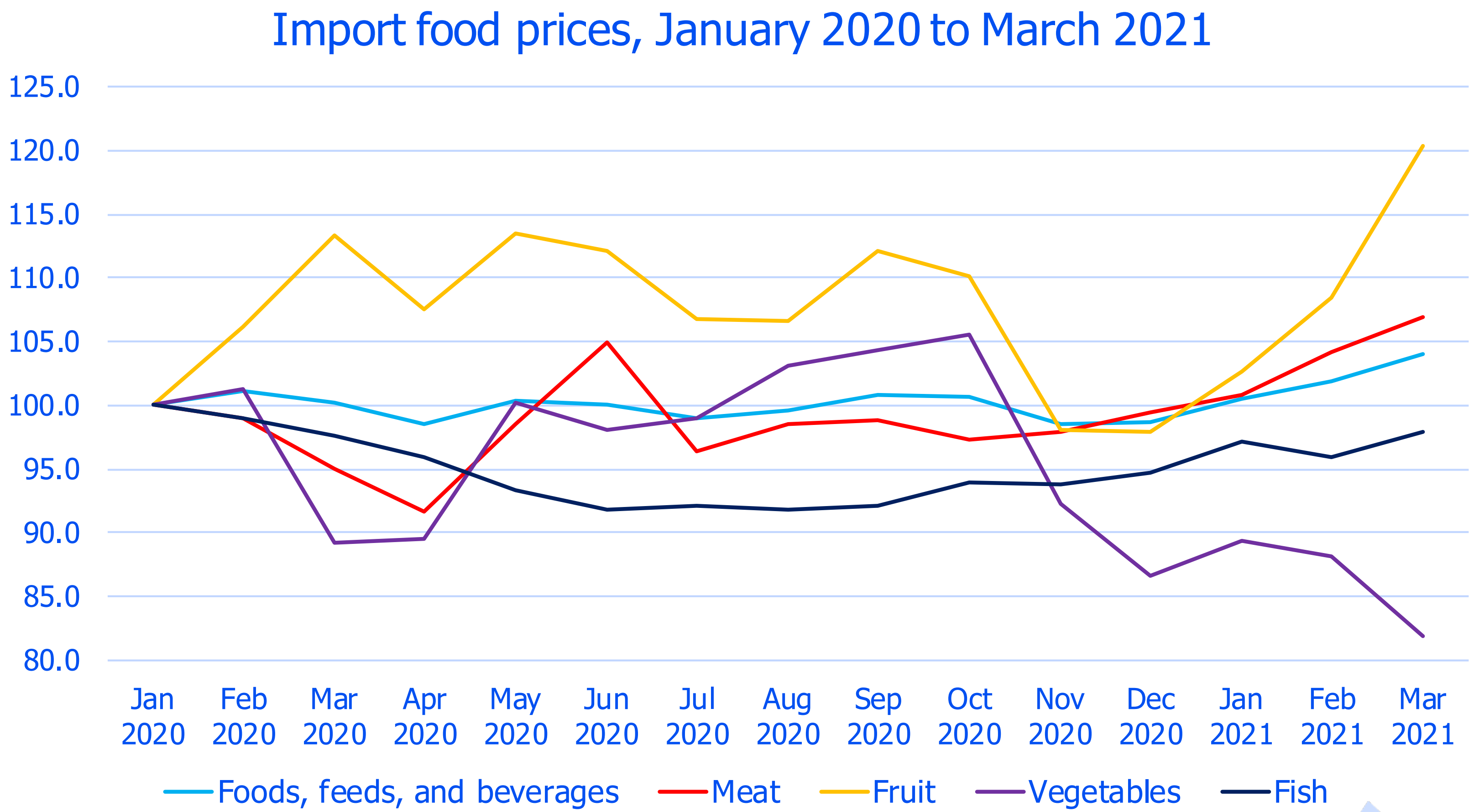
Oil prices

- Following the onset of the pandemic, import oil prices fell sharply, plunging 62.8 percent from January to April
- Once OPEC+ agreed to initiate production cuts, import oil prices then surged 92.4 percent from April to July
- Prices then remained steady until they began to rise again near the end of the year, increasing 52.1 percent from October to March

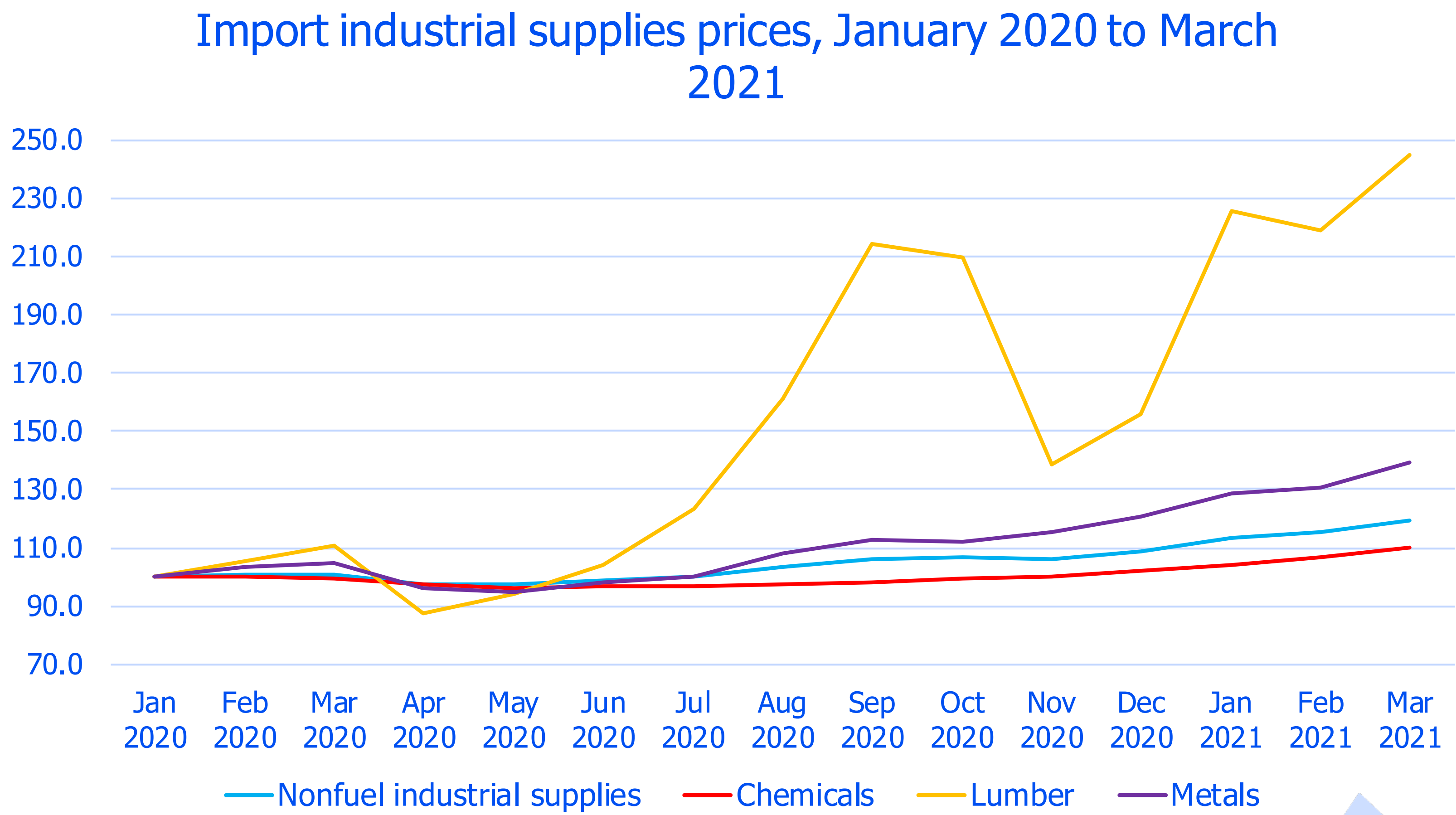
Import prices during COVID-19: nonfuel import prices



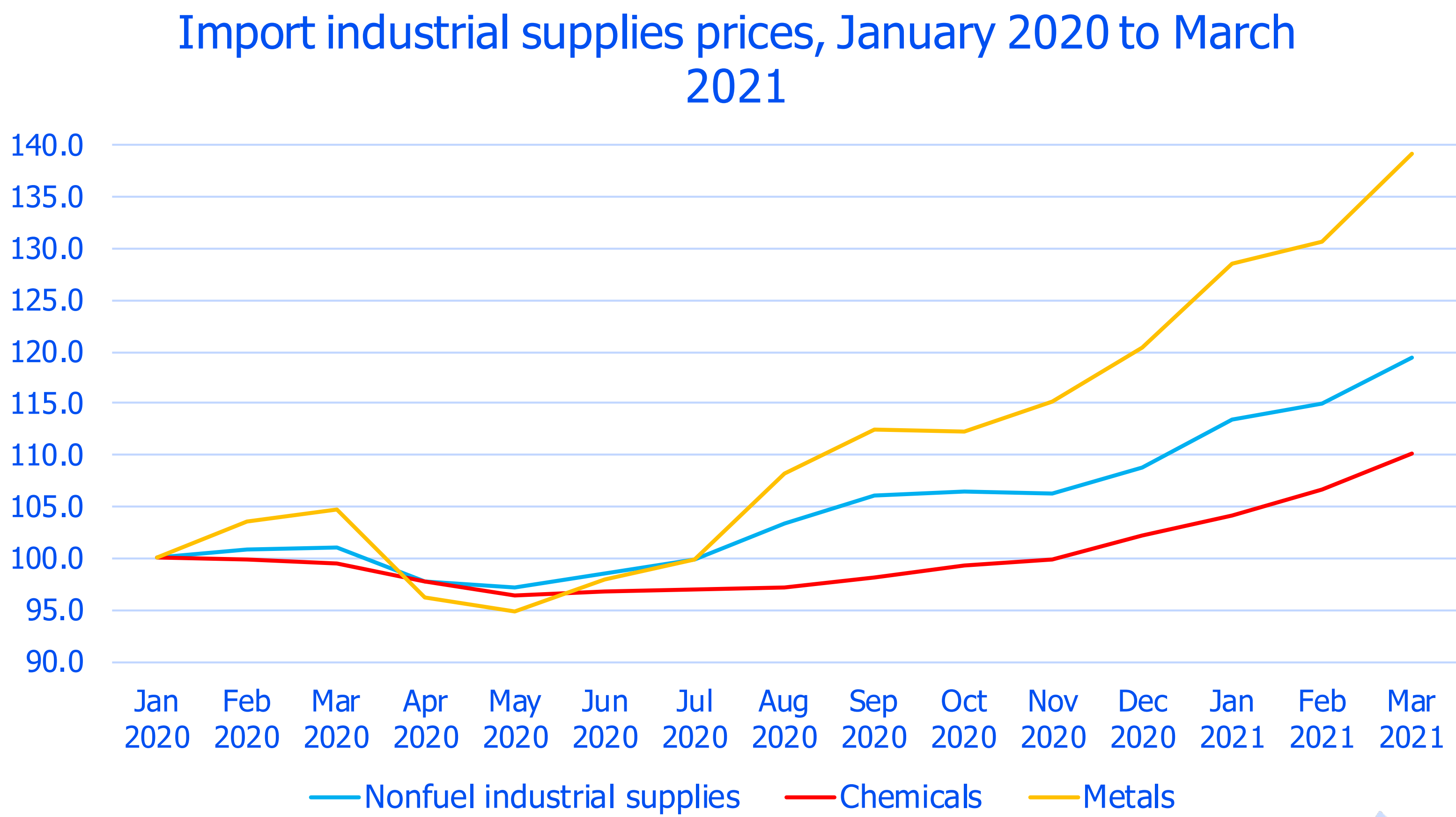
Import prices during COVID-19: import food prices



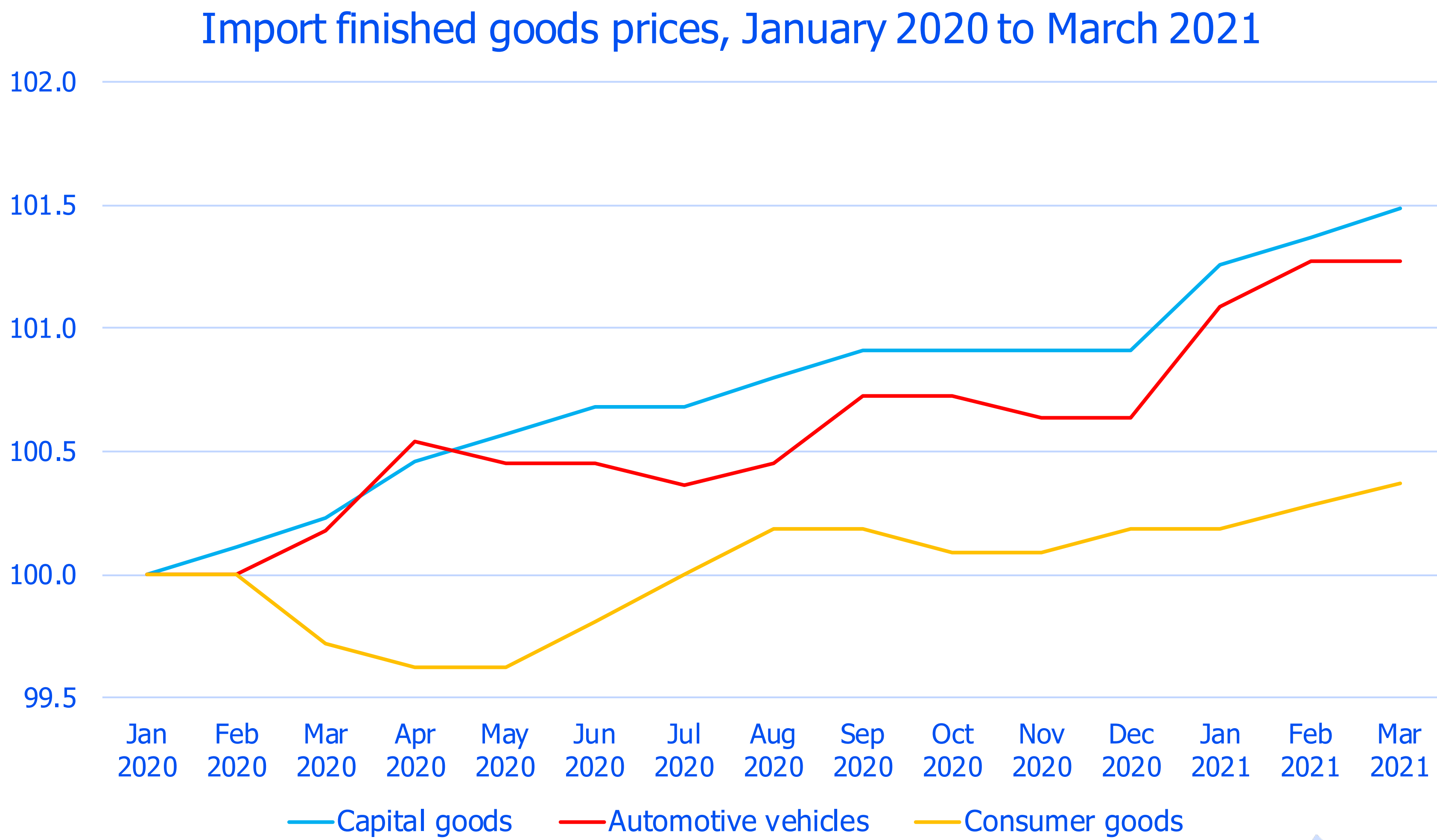
Import prices during COVID-19: import industrial supplies



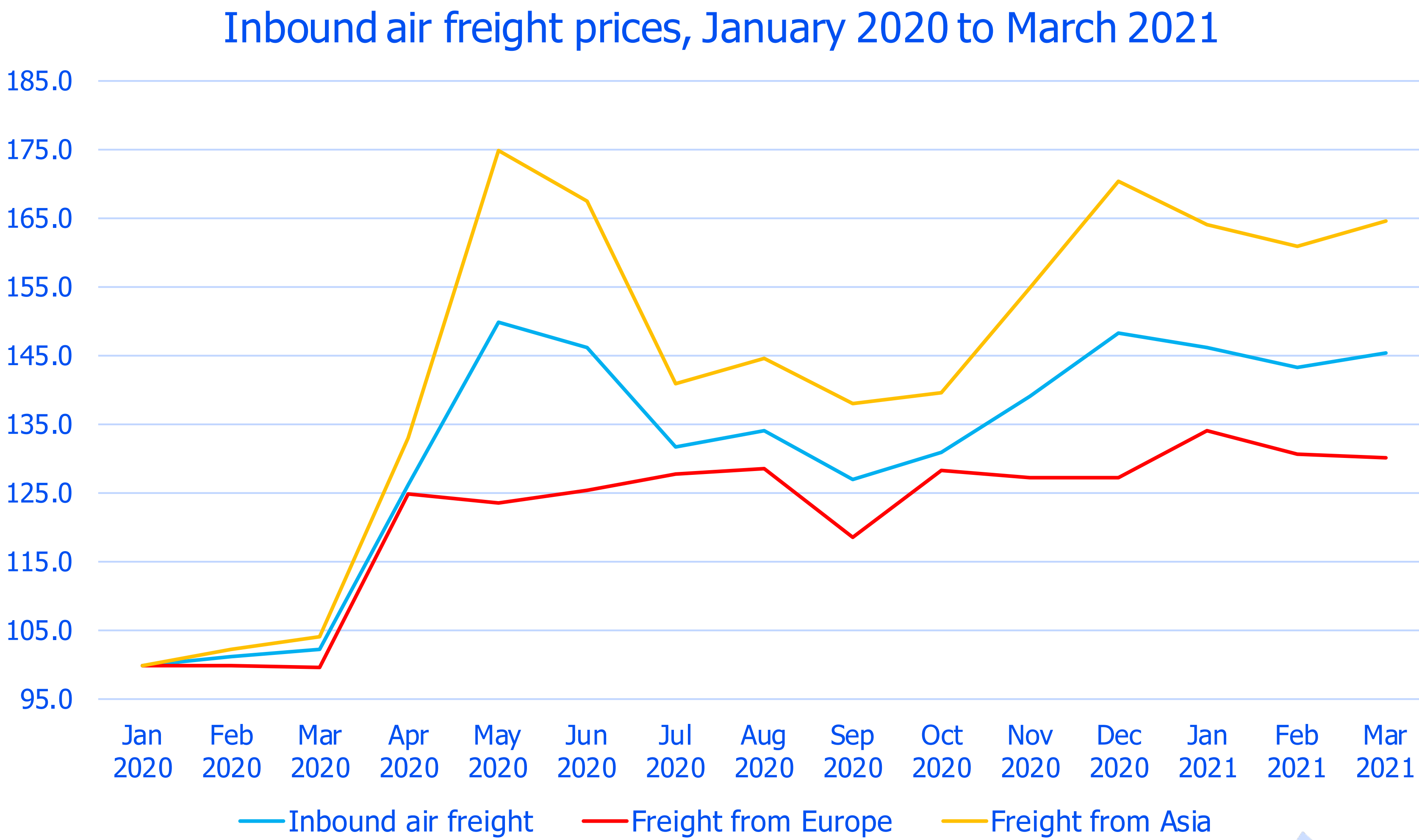
Import prices during COVID-19: import industrial supplies (cont.)



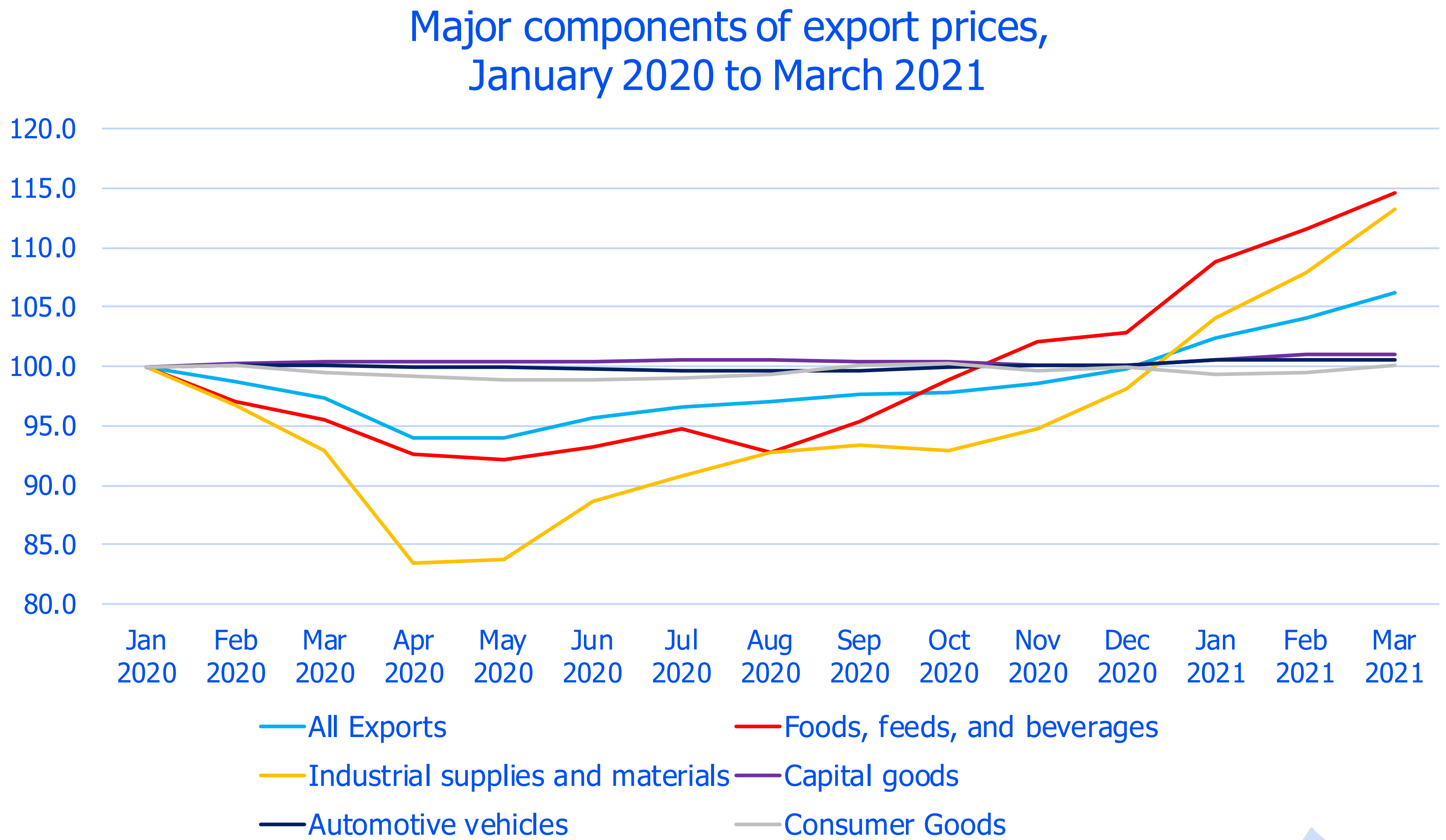
Import prices during COVID-19



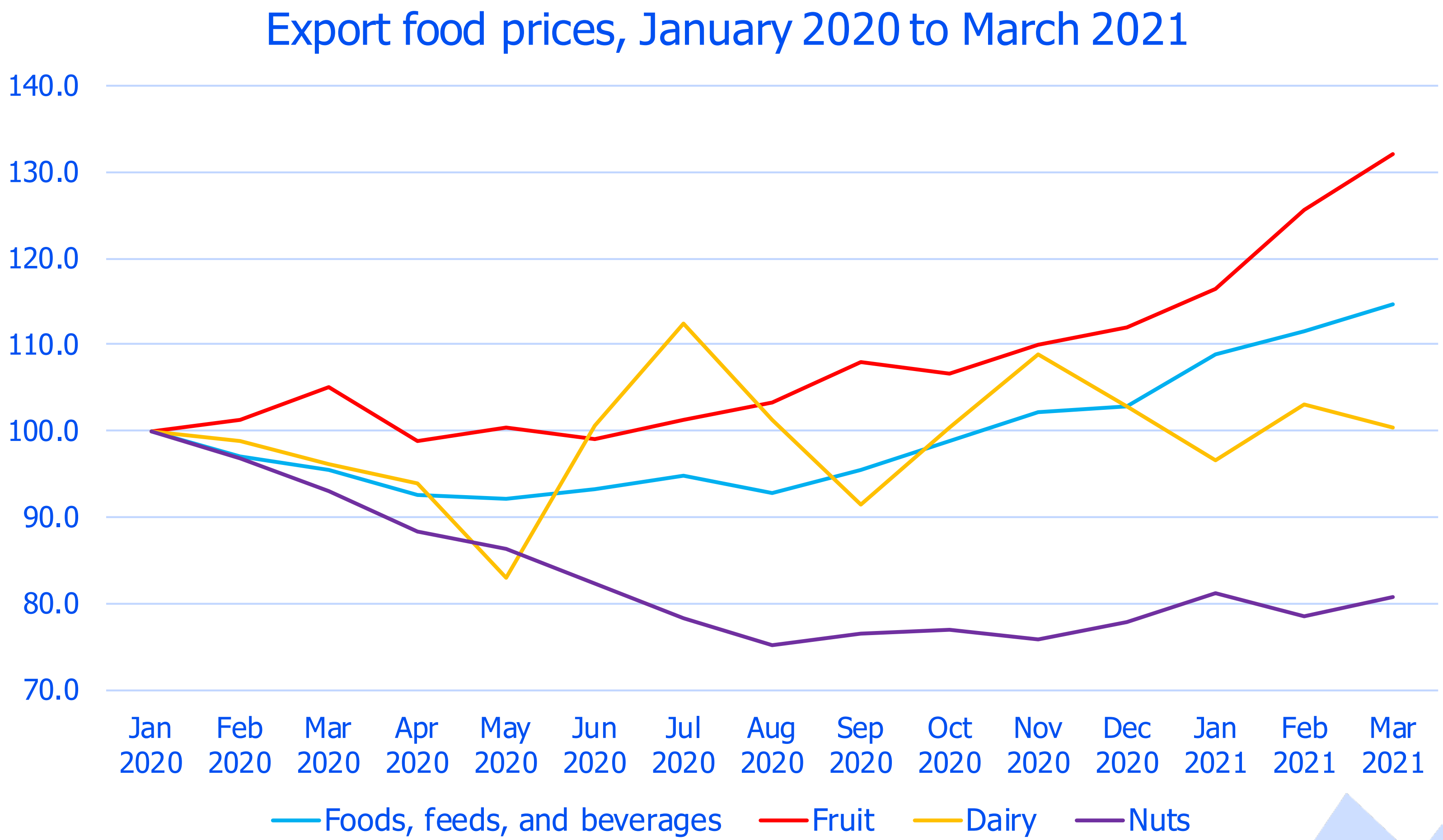
Inbound prices during COVID-19



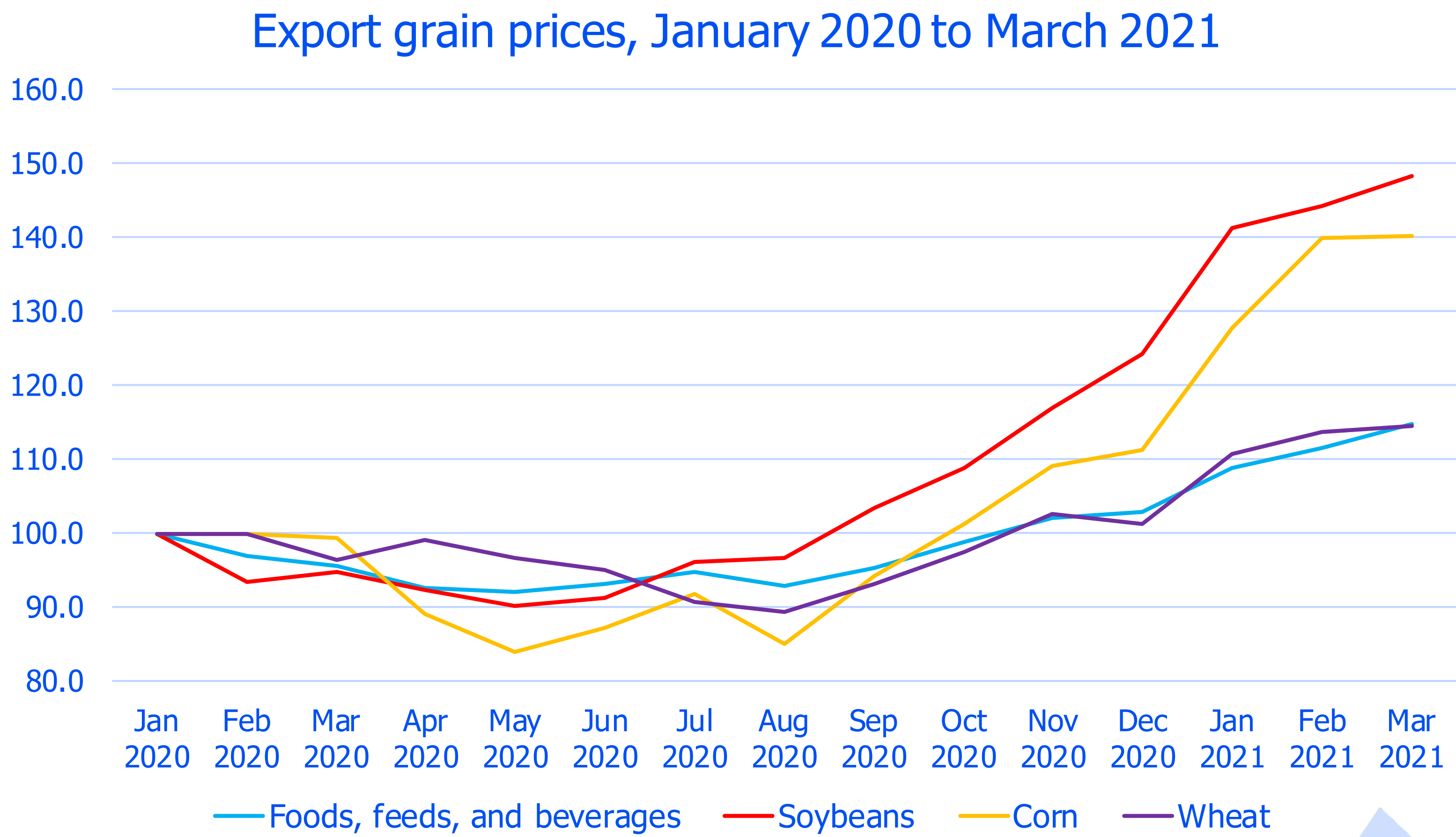
Export prices during COVID-19



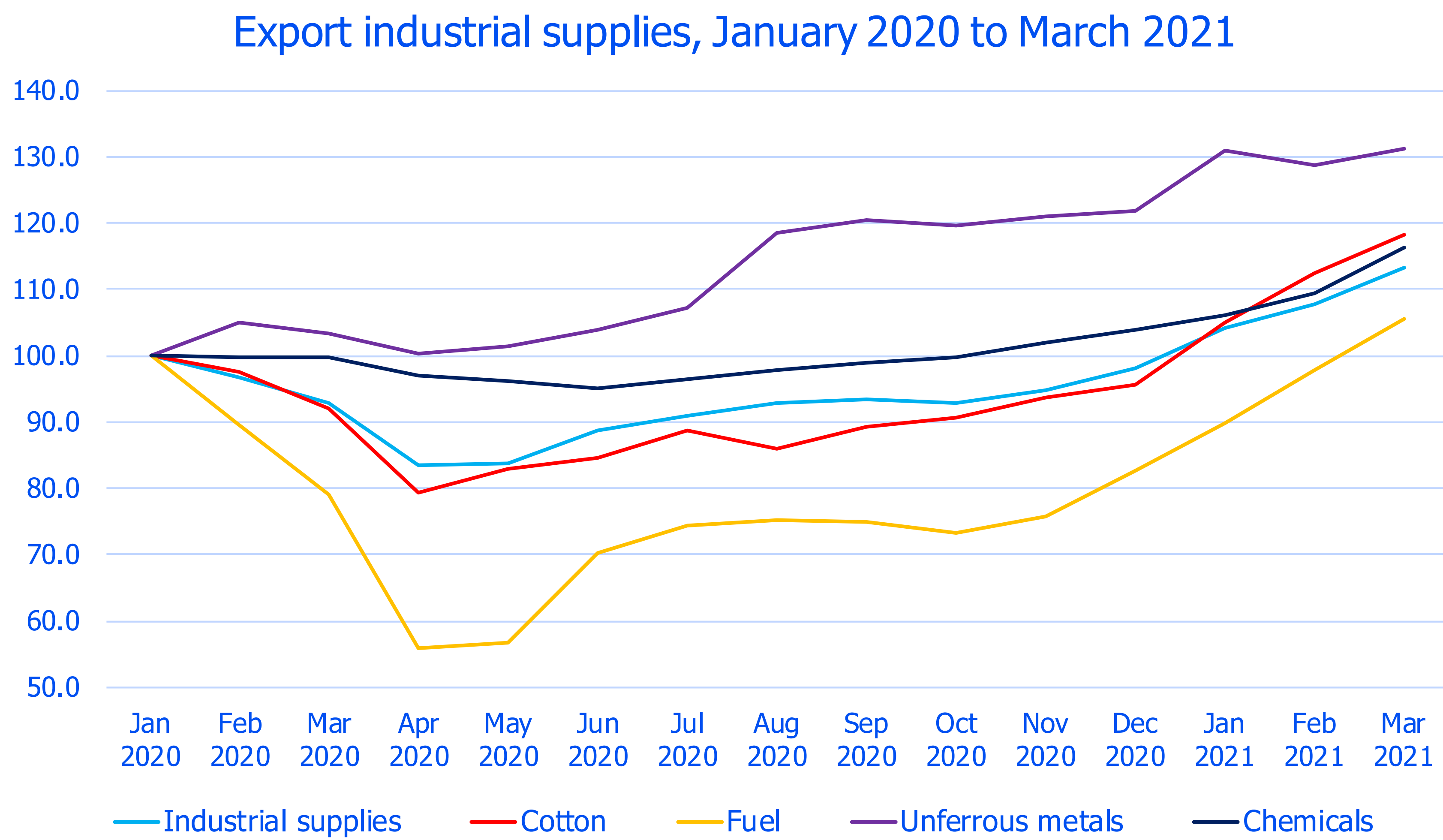
Export prices during COVID-19: food prices



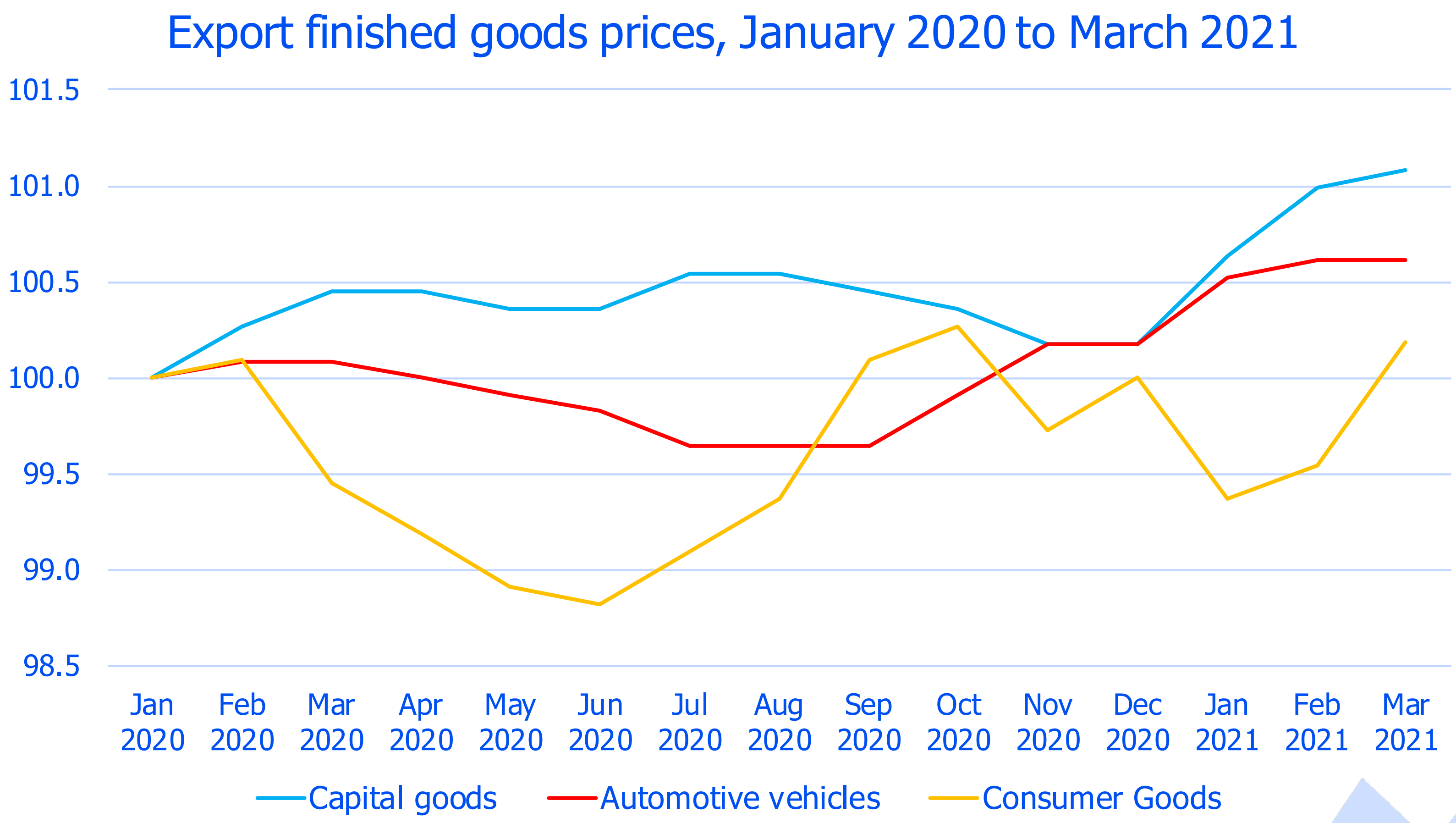
Export prices during COVID-19: export grain prices



Export prices during COVID-19

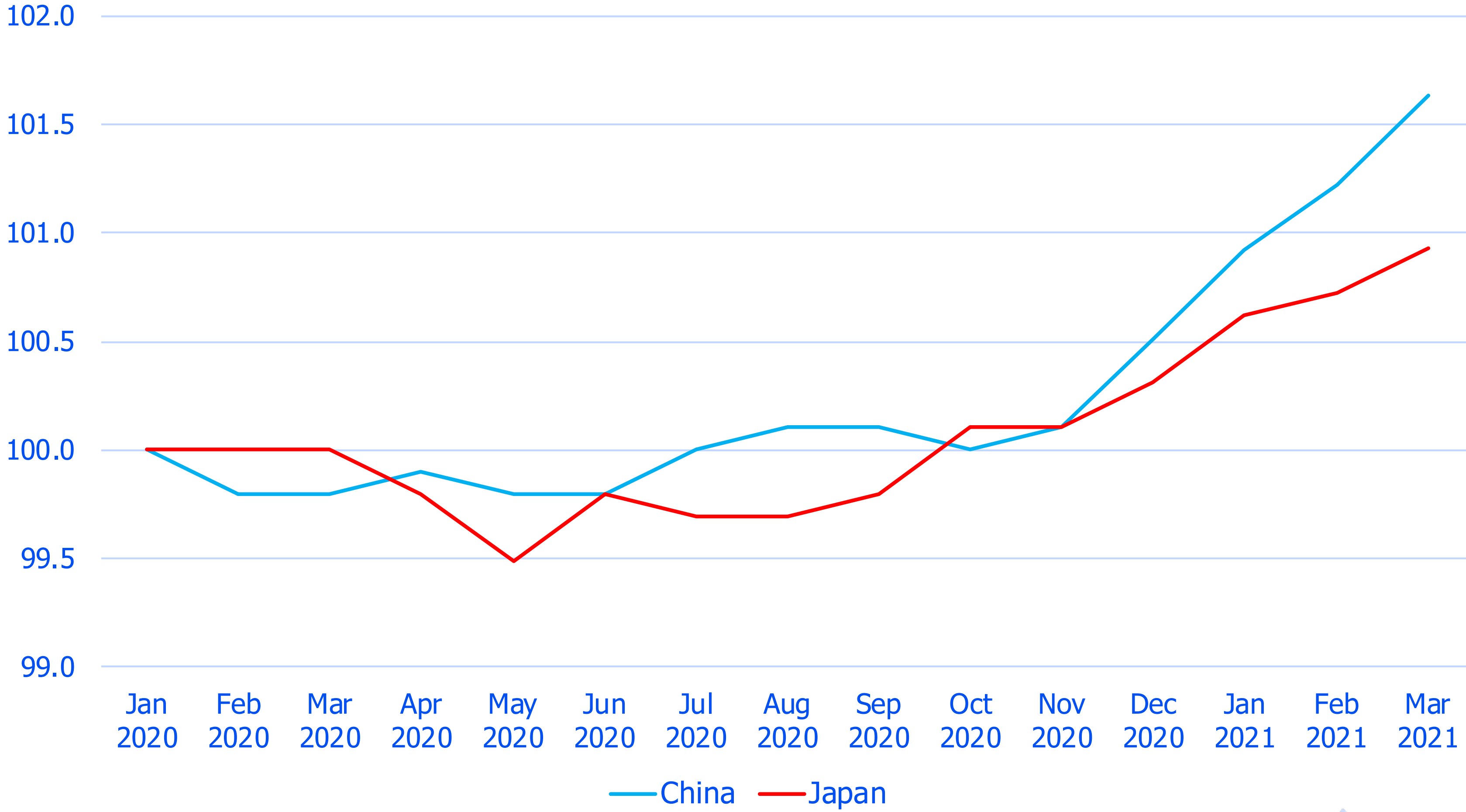


Export prices during COVID-19: export finished goods

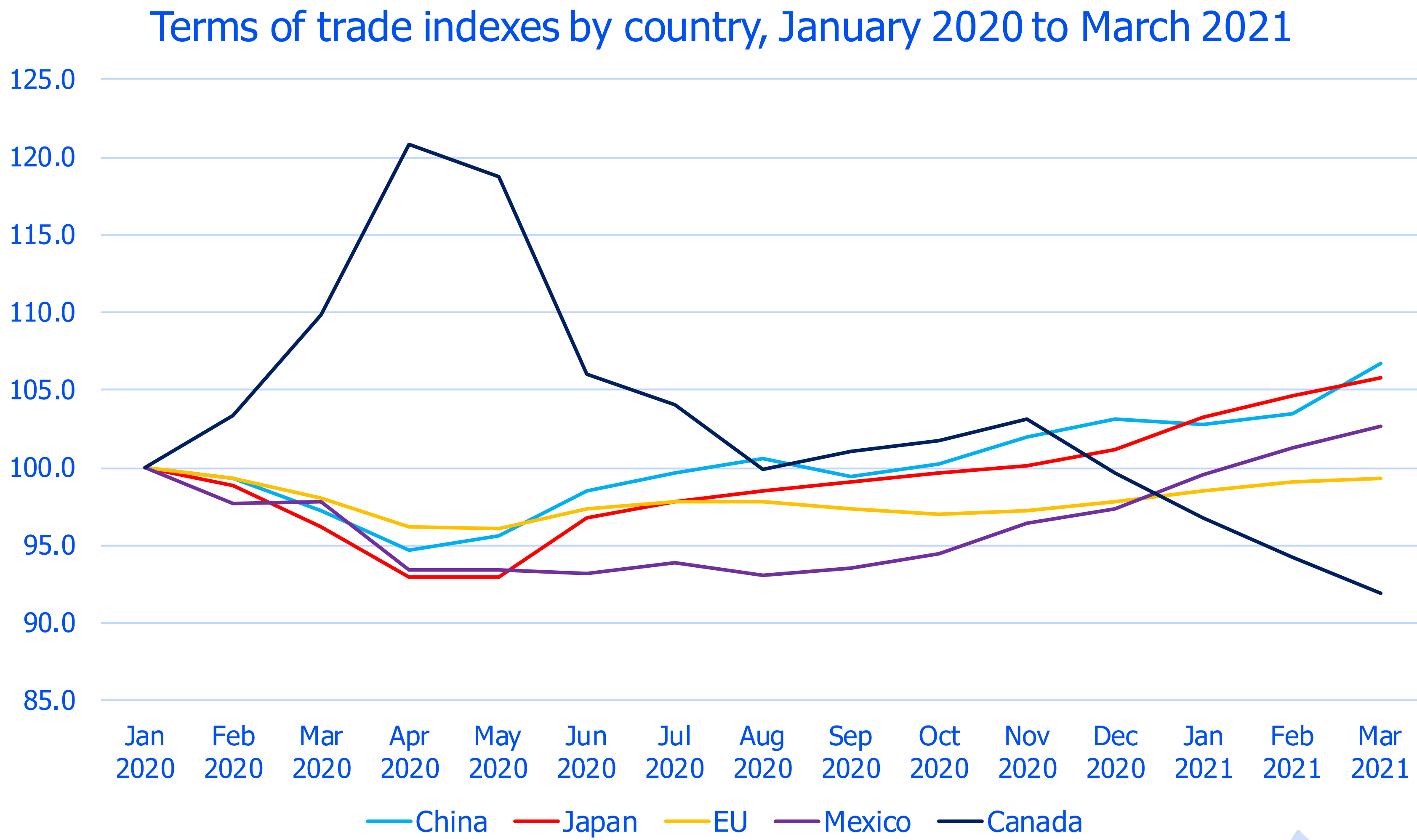


Imports during COVID-19

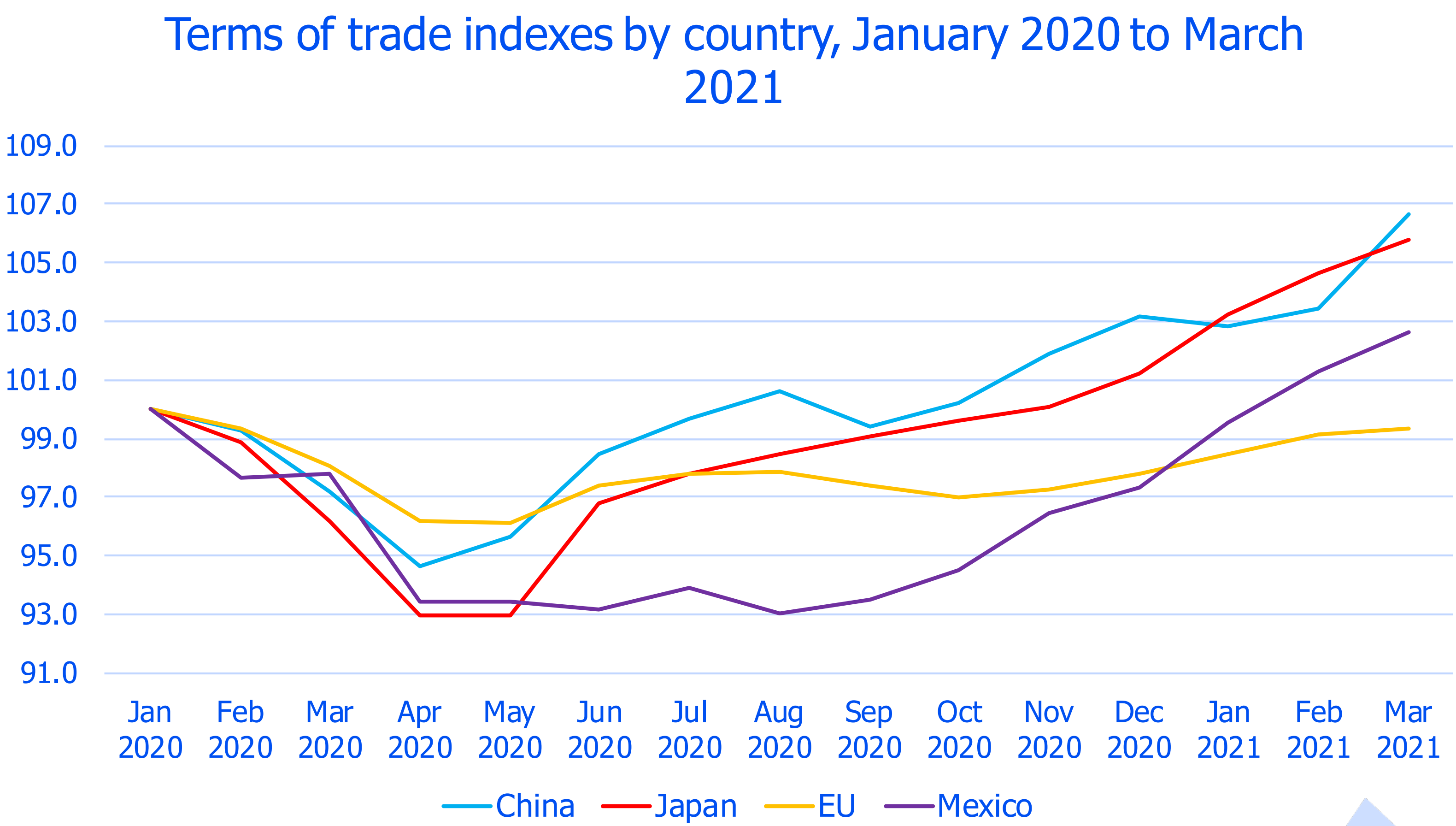
Import price by country, January 2020 to March 2021



U.S. terms of trade during COVID-19



U.S. terms of trade during COVID-19: terms of trade by country



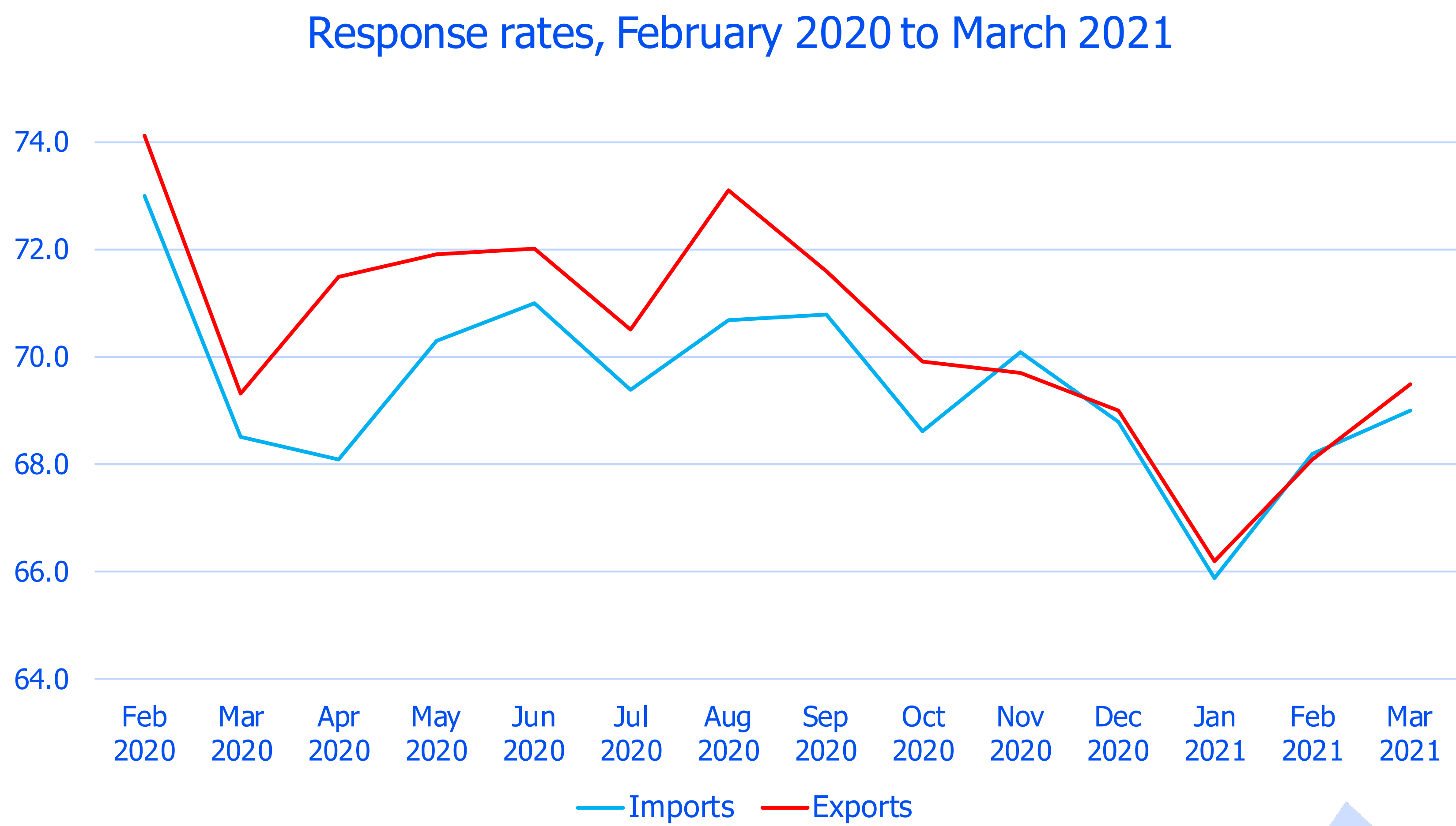
Data Collection for Imports and Exports

- Teleworking
  - Both the staff in Washington and the staff in the field that initiate new items have been in a full-time telework environment
  - Despite challenges, this has not impacted the division's ability to publish the import and export price indexes on schedule

Data Collection for Imports and Exports (cont.)

- Changes Needed Because of the Pandemic
  - Only minor changes to collection: everything now collected through a secure internet site
  - No changes were needed to the calculation methodology
  - A small number of published indexes had to be suppressed from publication (depending on the month, 6-10 out of over a 1000)

Data Collection for Imports and Exports: response rates



Impact of COVID-19 on Price Movements and Response Rates

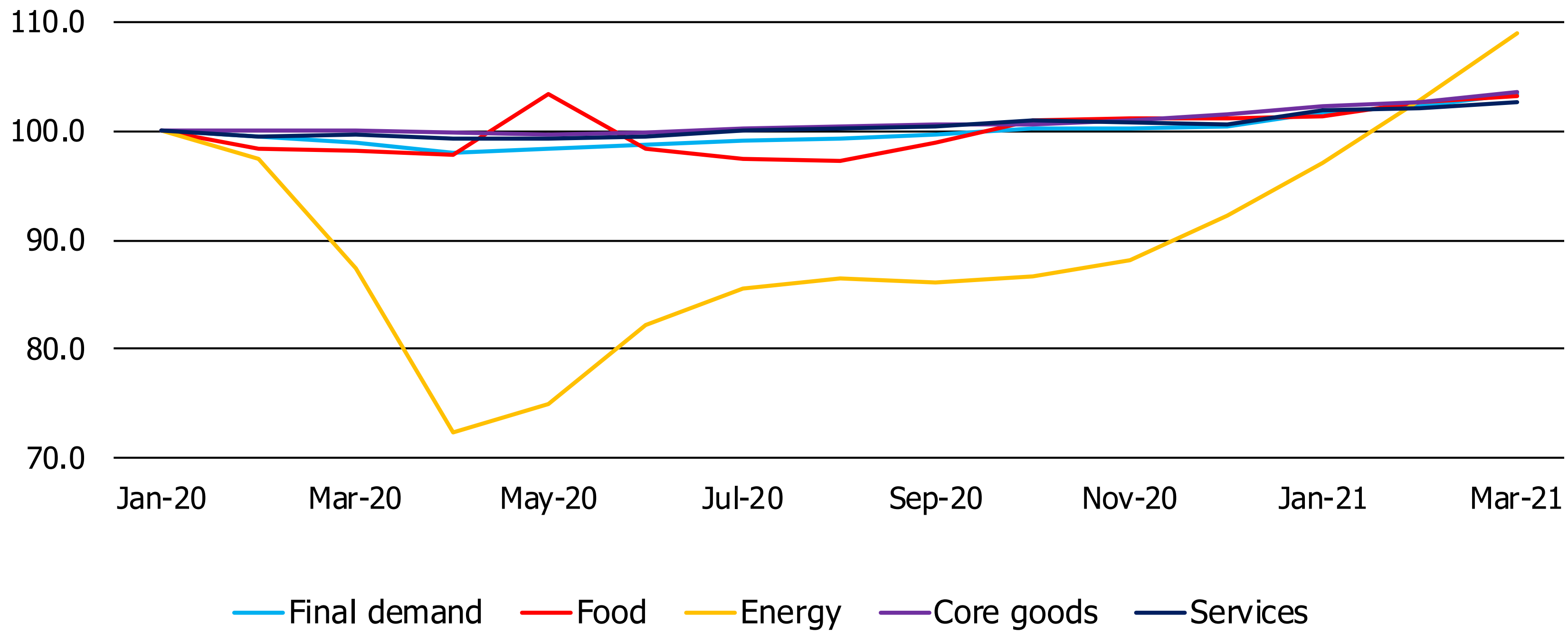
Scott Sager
Producer Price Program

PPI during COVID-19 pandemic

- First effect on domestic prices in March 2020
  - Energy prices lower
    - Cost push due to lower input prices
  - Food prices mixed
    - Demand shocks affected supply chain
      - Final demand food volatile
      - Unprocessed food prices initially lower, before moving higher
  - Core goods and services relatively prices steady before moving higher later in 2020 and into 2021

PPI during COVID-19 Pandemic: final demand and components

Producer Price Index for Final demand and components, seasonally adjusted, January 2020 – March 2021



January 2020 = 100

PPI energy during COVID-19

- Lower world-wide prices for Crude petroleum starting in Feb 2020 as COVID-19 shutdowns depressed demand for petroleum products in Asia and Europe
- Lower input prices pass through to domestic refined petroleum products
- Domestic COVID-19 shutdowns and travel restrictions in March 2020 depress demand sending prices ever lower

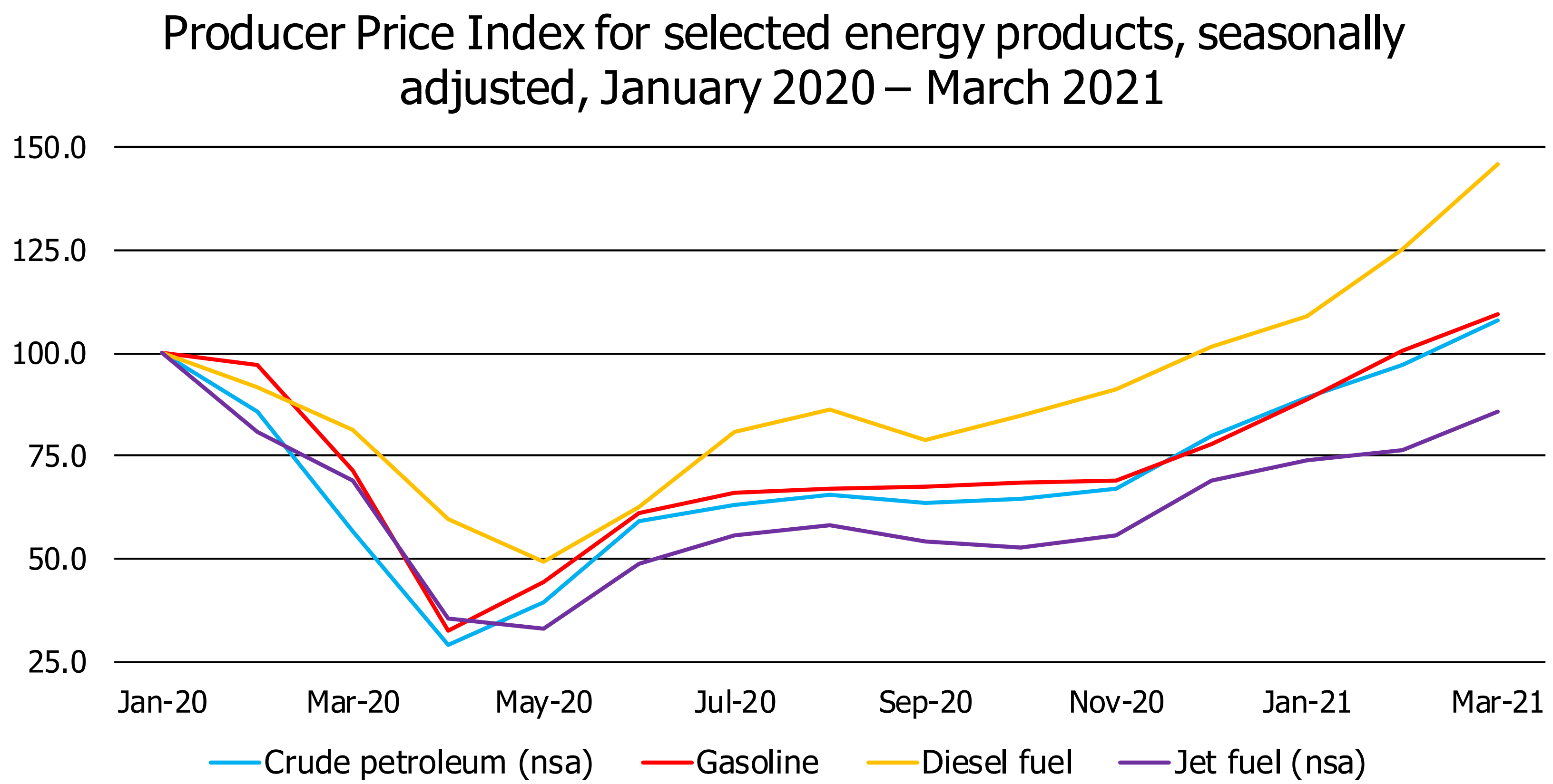
PPI energy during COVID-19 (cont.)

- Prices bottom out in April 2020
  - OPEC agrees to production cuts, putting a floor under Crude petroleum prices.
- In May 2020, the U.S. starts to reopen, bolstering demand for refined petroleum products.
  - The combination of lower inventories and increased demand allow prices to start moving higher.

PPI energy during COVID-19: price trends

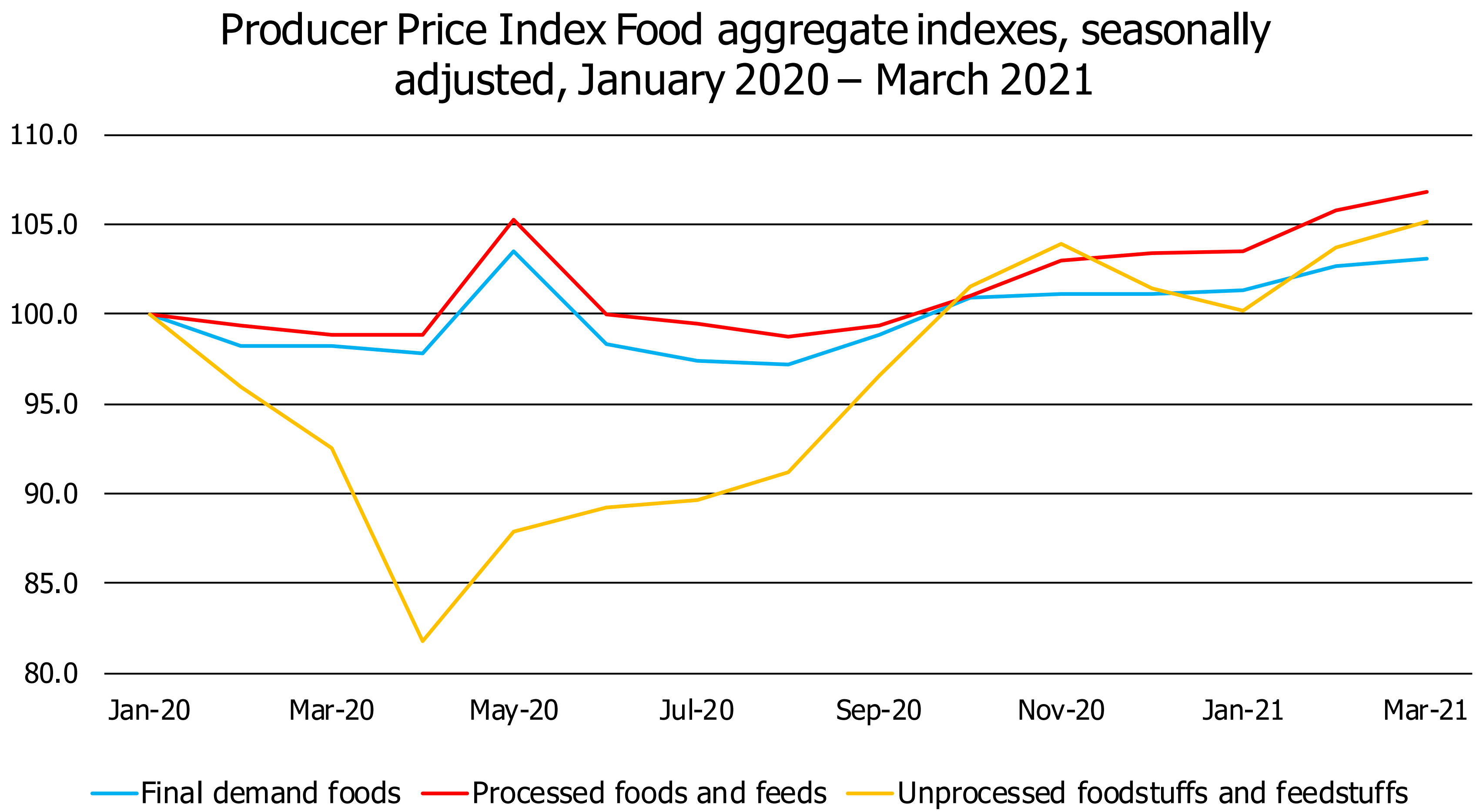
- Prices continued to trend higher through the remainder of the year.
  - Recovery of crude petroleum prices as production remained limited.
  - Domestic demand increased for refined products as the U.S. continued to reopen.

PPI energy during COVID-19: selected energy products



January 2020 = 100

PPI food during COVID-19 (cont.)



January 2020 = 100

PPI food during COVID-19

- Stay-at-home orders instituted on wide-spread basis in mid-March 2020
  - Restaurants reduced or eliminated in person dining
  - Supermarkets saw increased demand from consumers
  - Food suppliers shut down or severely curtailed production
    - Illness among staff
    - Facilities not equipped to handle new customers
  - Farmers have no market for their products

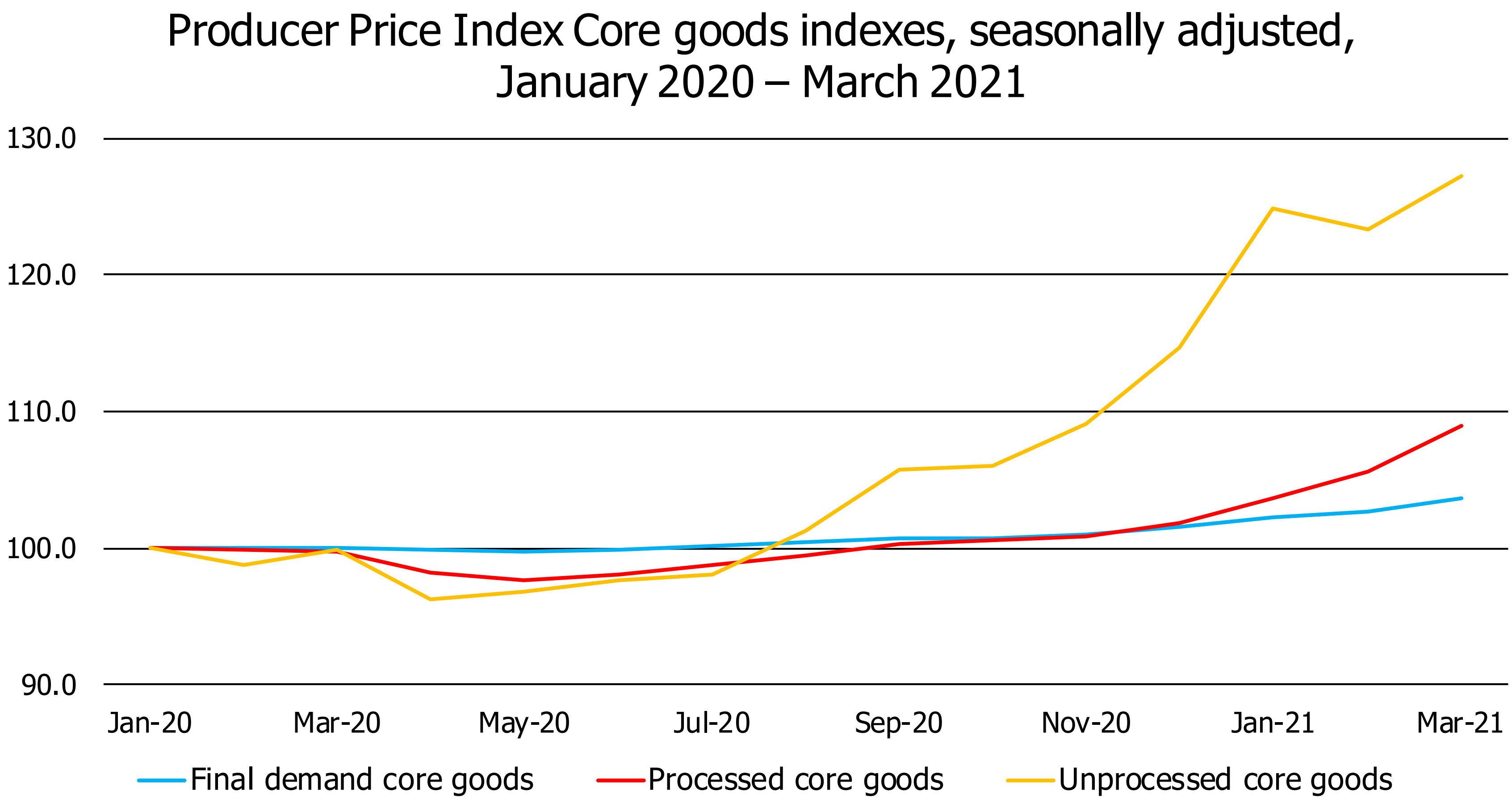
PPI food during COVID-19: food items

- Disparity in movement between unprocessed and processed foods
  - Timing differed based on perishability of products
    - Slaughter livestock vs. Meats
      - Slaughter livestock prices lower though April due to lack of processor capacity
      - Meat prices increase through May due to lower supplies and increased consumer demand
    - Raw milk vs. Dairy products
      - Raw milk fell consistently through June
      - Dairy products started to recover in June as inventories became depleted

PPI food during COVID-19: holiday demand

- Eggs
  - Higher prices through April due to increased demand from Easter and consumer-fueled panic buying
  - In May, lower post-holiday demand coupled with a increased supplies, resulted in significantly lower prices through the Summer.

PPI core goods during COVID-19



January 2020 = 100

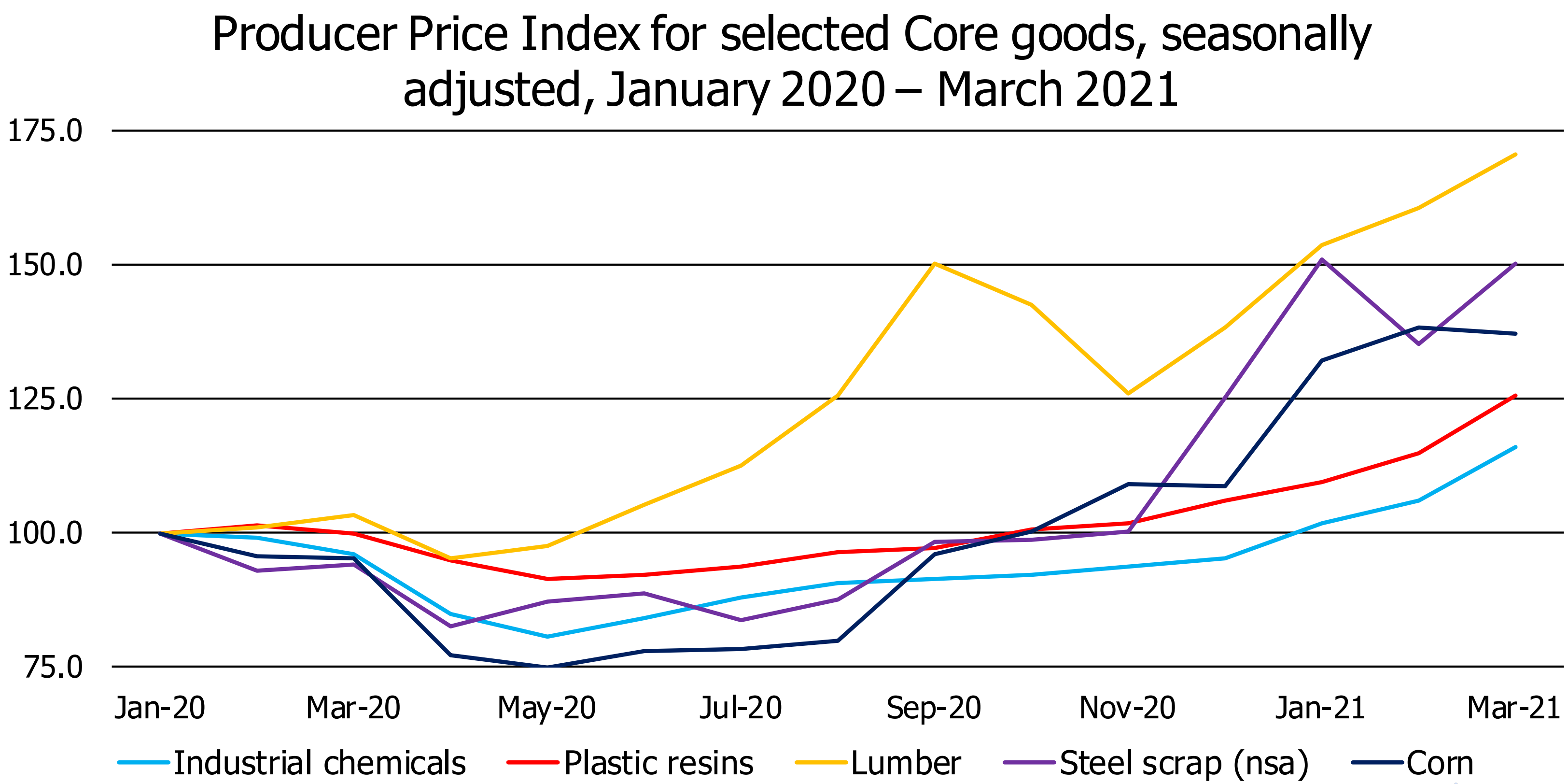
PPI core goods during COVID-19 (cont.)

- Final demand core goods prices remained relatively constant
- Processed core goods prices fell though May as world-wide closures hampered demand for manufacturing materials.
- Unprocessed core goods prices fell through April before increasing rapidly later in the year, as reopenings spurred economic growth

PPI core goods during COVID-19: final demand core goods

- Little movement among Final demand core goods, as highly weighted components had prices that remained relatively stable
  - Motor vehicles
  - Pharmaceuticals
  - Tobacco products
  - Aircraft

PPI core goods during COVID-19: selected core goods



PPI core goods during COVID-19: processed core goods

- Moderate movement lower for processed core goods through May, then moving higher through the remainder of the year as the country reopened
  - Industrial chemicals
  - Plastic resins
  - Lumber

PPI core goods during COVID-19: unprocessed core goods

- Unprocessed core goods fell moderately in April, but rebounded strongly throughout the remainder of the year
  - Iron and steel scrap
  - Corn (for ethanol)

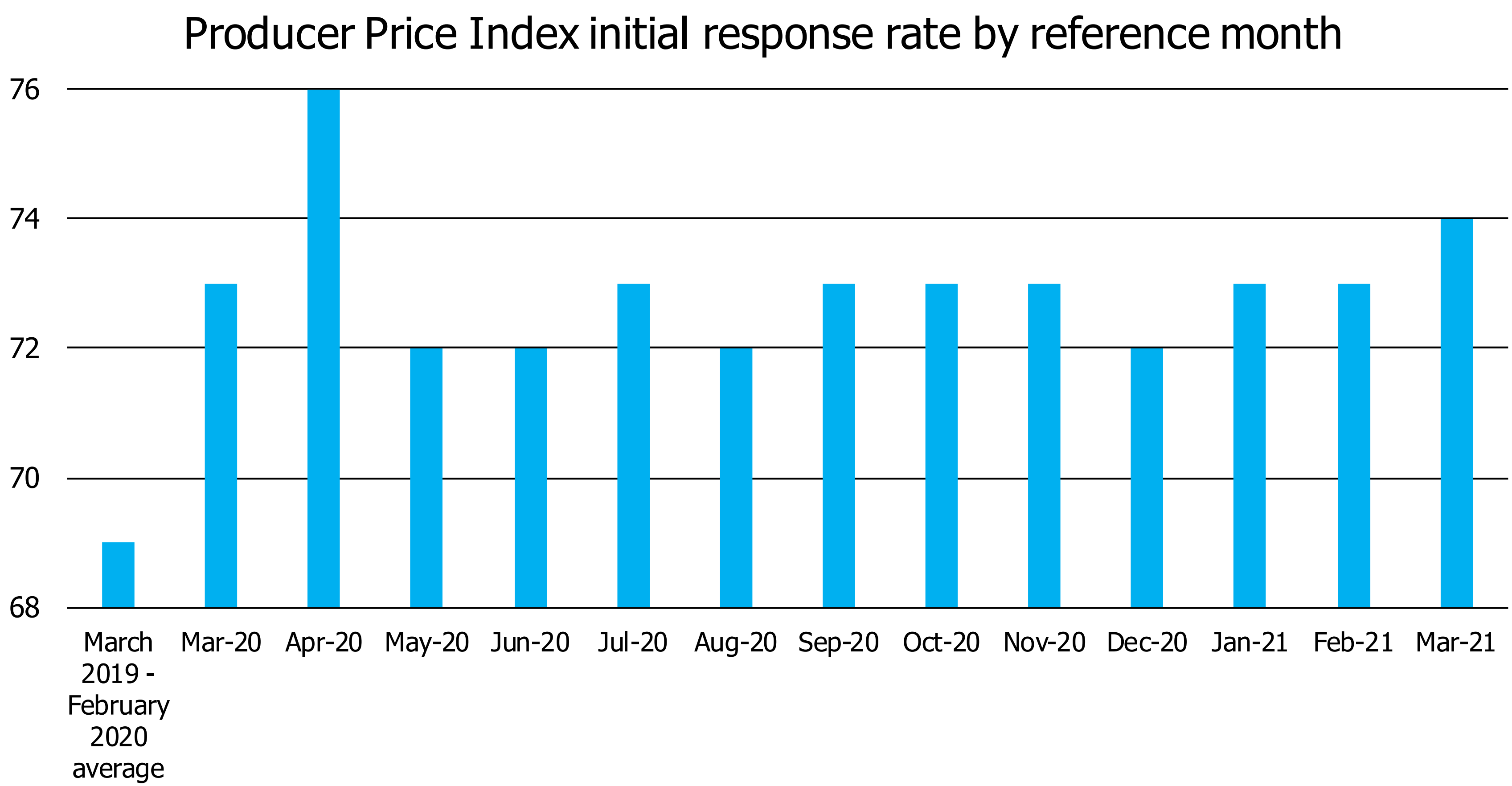
PPI services during COVID-19

- Little aggregate volatility because heavily weighted components were unaffected
  - Healthcare – about a quarter of Final demand services
    - Reimbursement rates set by annual agreements
      - Private insurance
      - Medicaid
      - Medicare

PPI services during COVID-19 (cont.)

- Services areas with significant movement
  - Guestroom rental and Airline passenger services
    - Significant price declines as stay-at-home orders resulted in no demand for travel
  - Portfolio management
    - Increases throughout the year as portfolio managers compensation is based on stock market returns

PPI response rates during COVID-19



PPI response rates during COVID-19 (cont.)

- Response rates improved during COVID-19
  - 12-month average pre-COVID-19: 69%
  - Average since onset of COVID-19: 73%
- Anecdotal information
  - Respondents' remote-work posture provided greater efficiencies for price submissions and better accessibility to PPI staff for follow-up

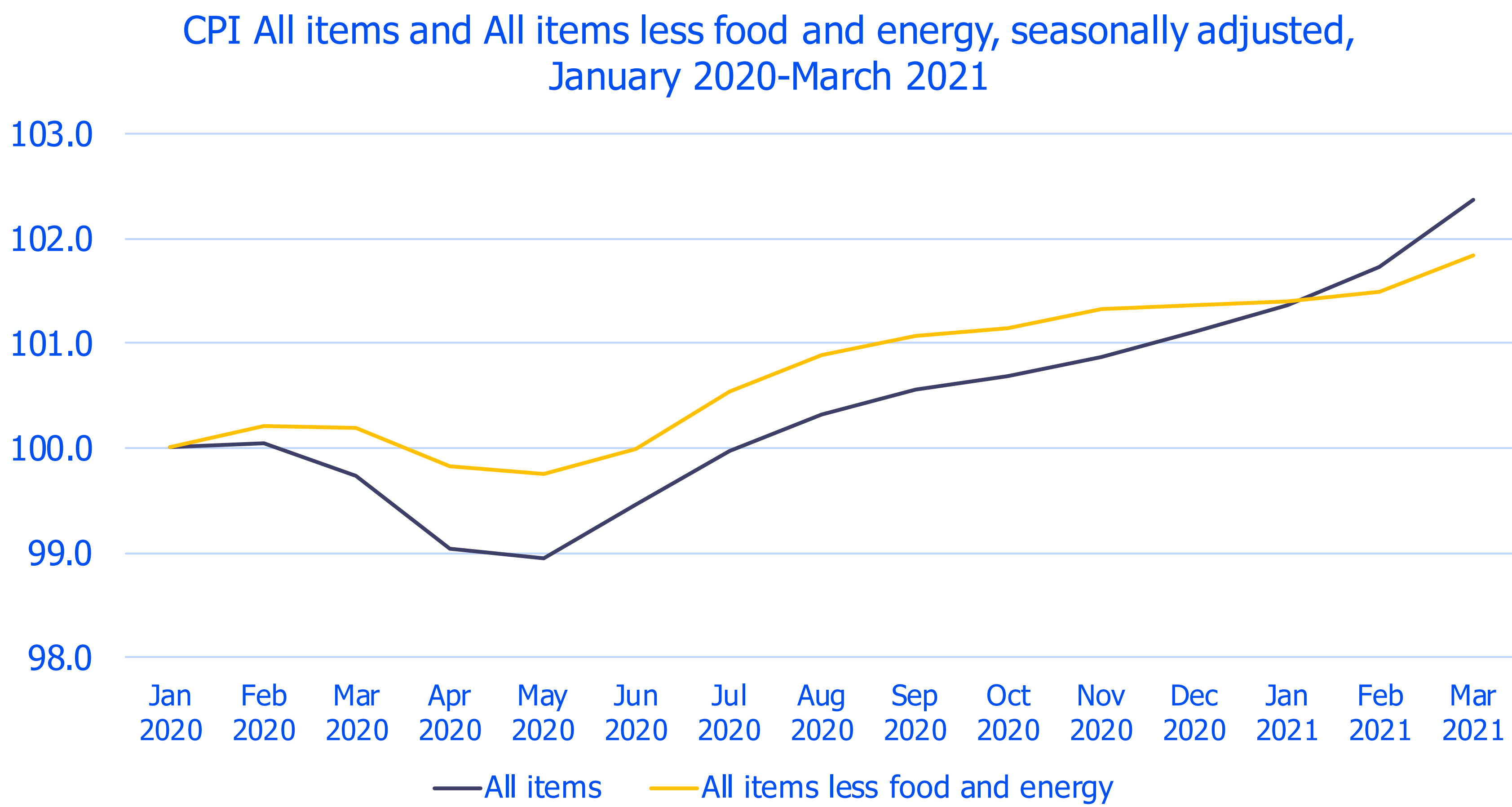
Impact of COVID-19 on Price Movements and Response Rates

Steve Reed
Consumer Price Program

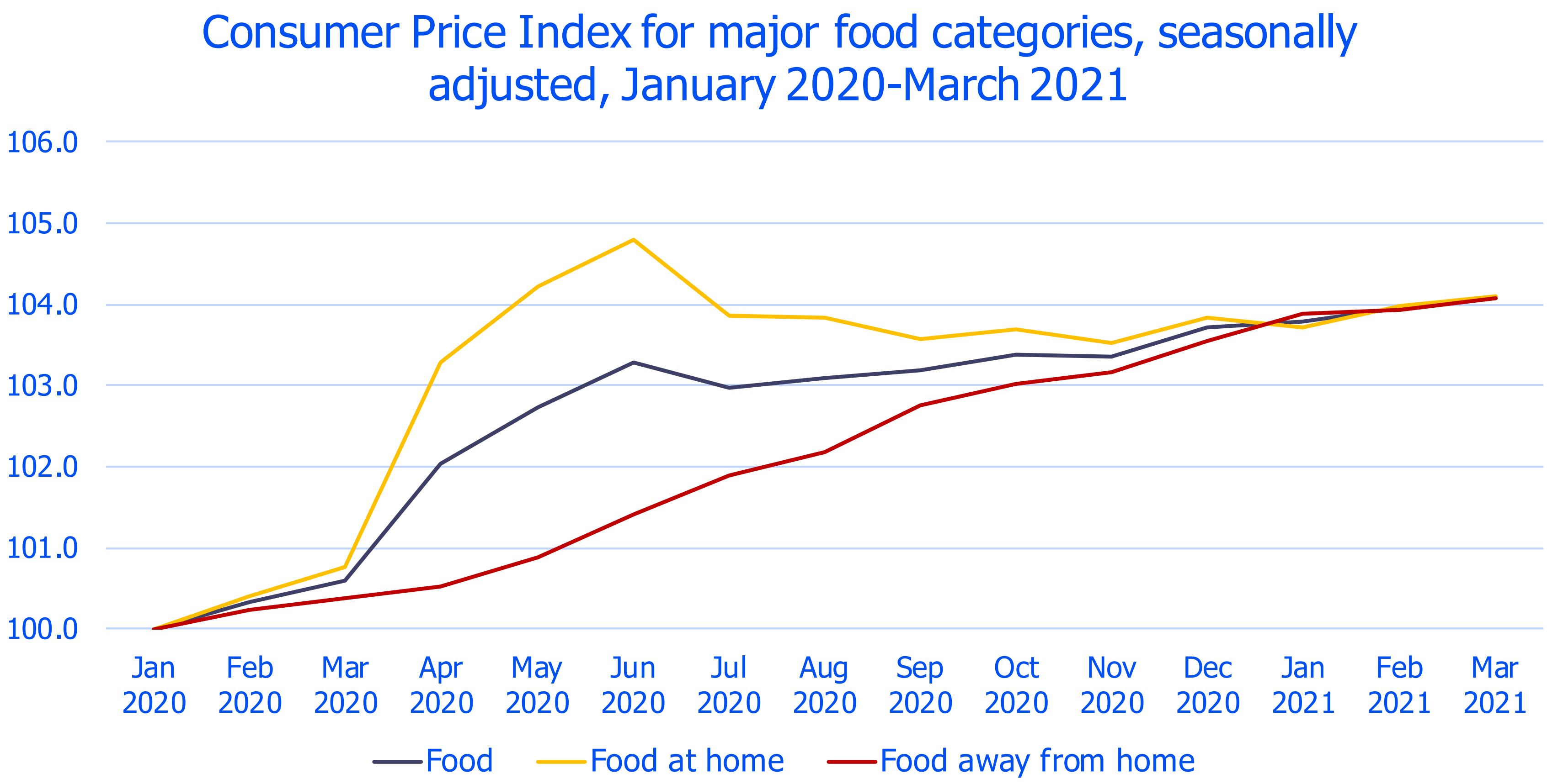
Consumer Price Index

- Movements in major CPI indexes
- Indexes with unusual movements during pandemic period
- Trends and issues in CPI rent and Owners' Equivalent Rent (OER) indexes during pandemic

Headline CPI during COVID-19



CPI food indexes during COVID-19

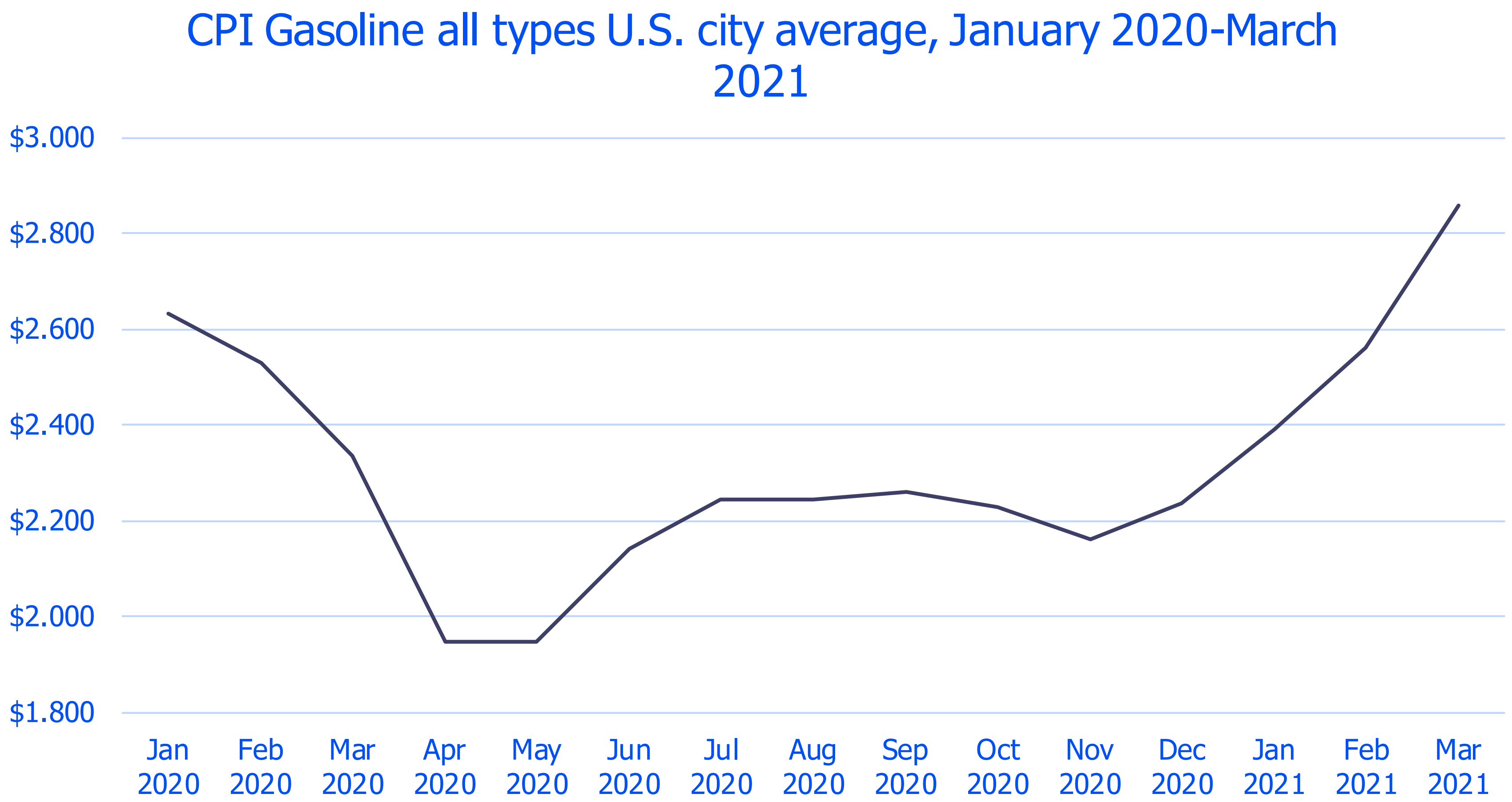


Food acceleration during COVID-19

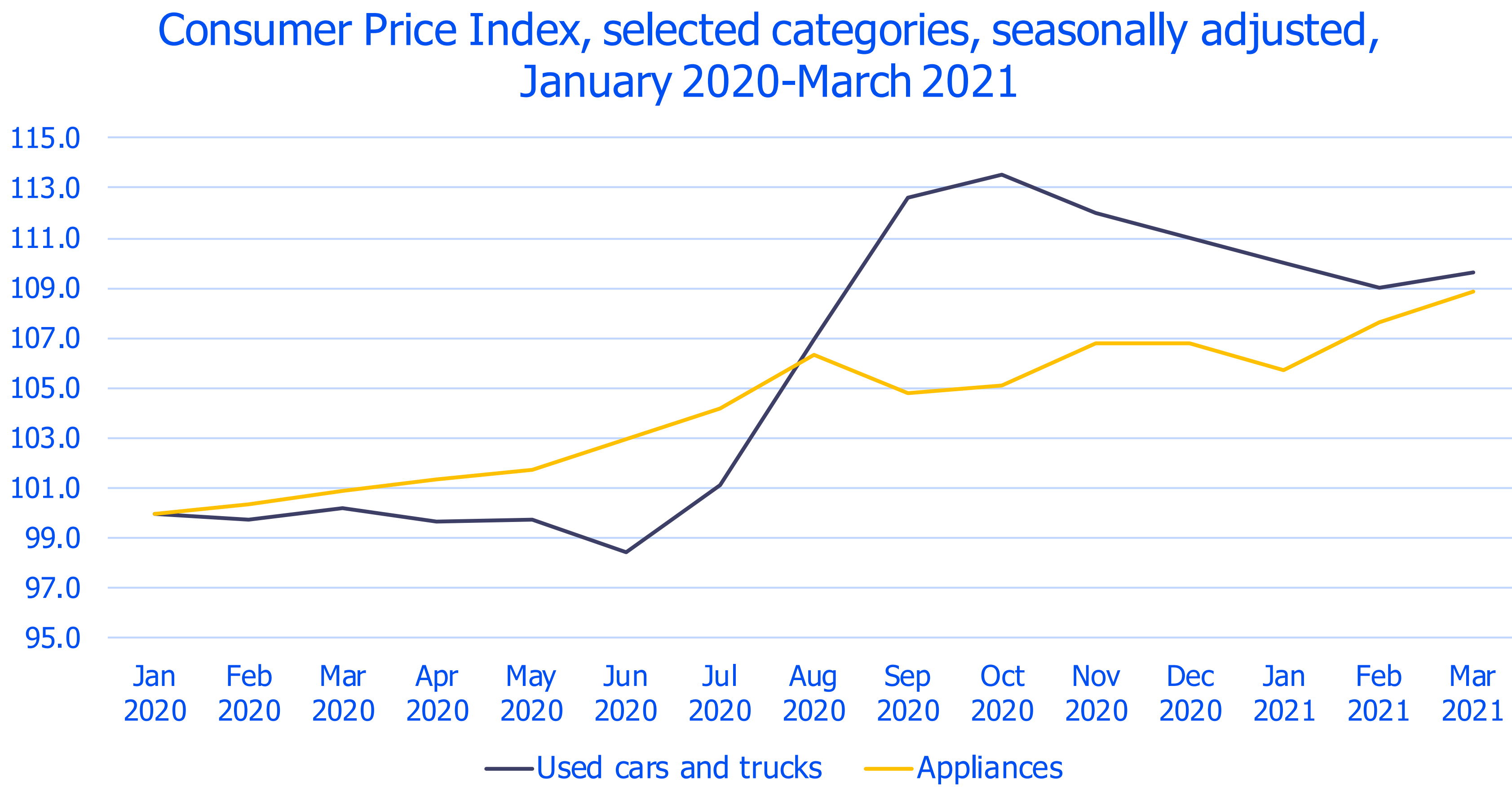
CPI food categories, 12-month percent change

Category	March 2019-March 2020	March 2020-March 2021
Food at home	1.1	3.3
Cereals and bakery products	0.1	2.6
Meats, poultry, fish, and eggs	2.3	5.4
Beef and Veal	3.8	7.1
Dairy and related products	3.7	1.6
Fruits and vegetables	-1.9	3.8
Nonalcholic beverages	1.4	3.2
Other food at home	1.4	2.2
Food away from home	3.0	3.7
Full service meals	3.2	3.2
Limited service meals	2.8	6.5

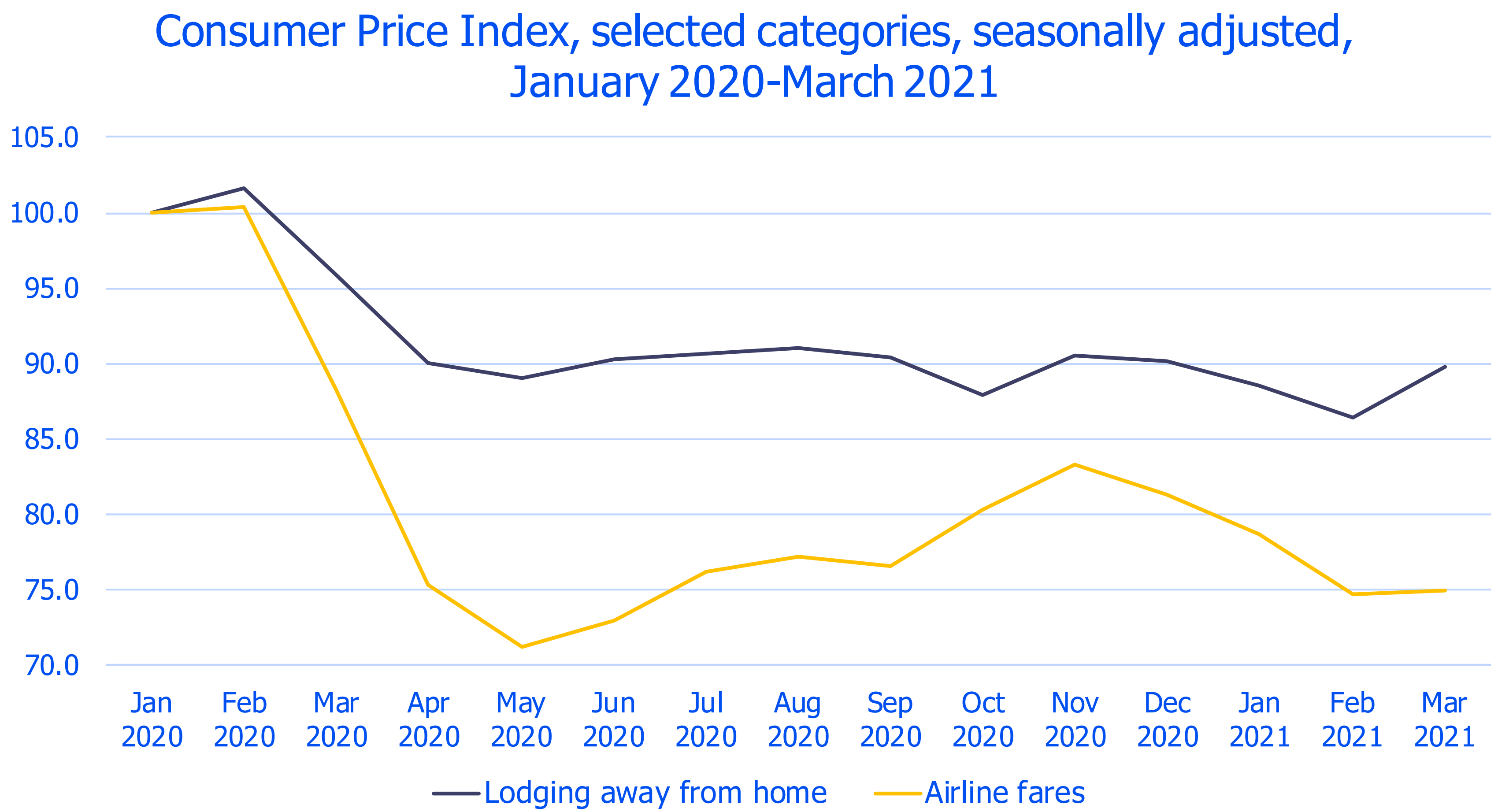
CPI gasoline prices during COVID-19



CPI categories with supply disruptions



CPI categories with demand disruptions



Impact of data collection changes

- In-person data collection stopped March 16, 2020
- Data collectors attempt to collect data through other means (mostly online)
- Lower response rates, more imputation, though most prices still collected

Impact of data collection changes and altered economic conditions

- Some outlets in the sample have no online presence
- CPI avoided contact when it would cause respondents undue burden
- Some outlets closed, or specific sampled items unavailable for pricing

Impact of data collection changes and altered economic conditions (cont.)

- Lower response rate in most indexes
  - Modest decline across the board
  - Larger declines in certain indexes
- Minor increase in indexes failing data quality standards and being unpublished
  - No major indexes at the U.S. city average level failed publication standards

CPI response rates

Response rates for the commodities and services price survey, percent

Month	2019		2020		2021	
	Collected prices	Uncollected prices	Collected prices	Uncollected prices	Collected prices	Uncollected prices
January	85	15	86	14	77	23
February	85	15	87	13	79	21
March	87	13	76	25	78	22
April	86	14	65	35		
May	87	13	68	32		
June	86	14	70	30		
July	86	14	70	30		
August	86	14	72	28		
September	86	14	73	27		
October	86	14	74	26		
November	87	13	75	25		
December	86	14	77	23		

Rent and Owners’ Equivalent Rent

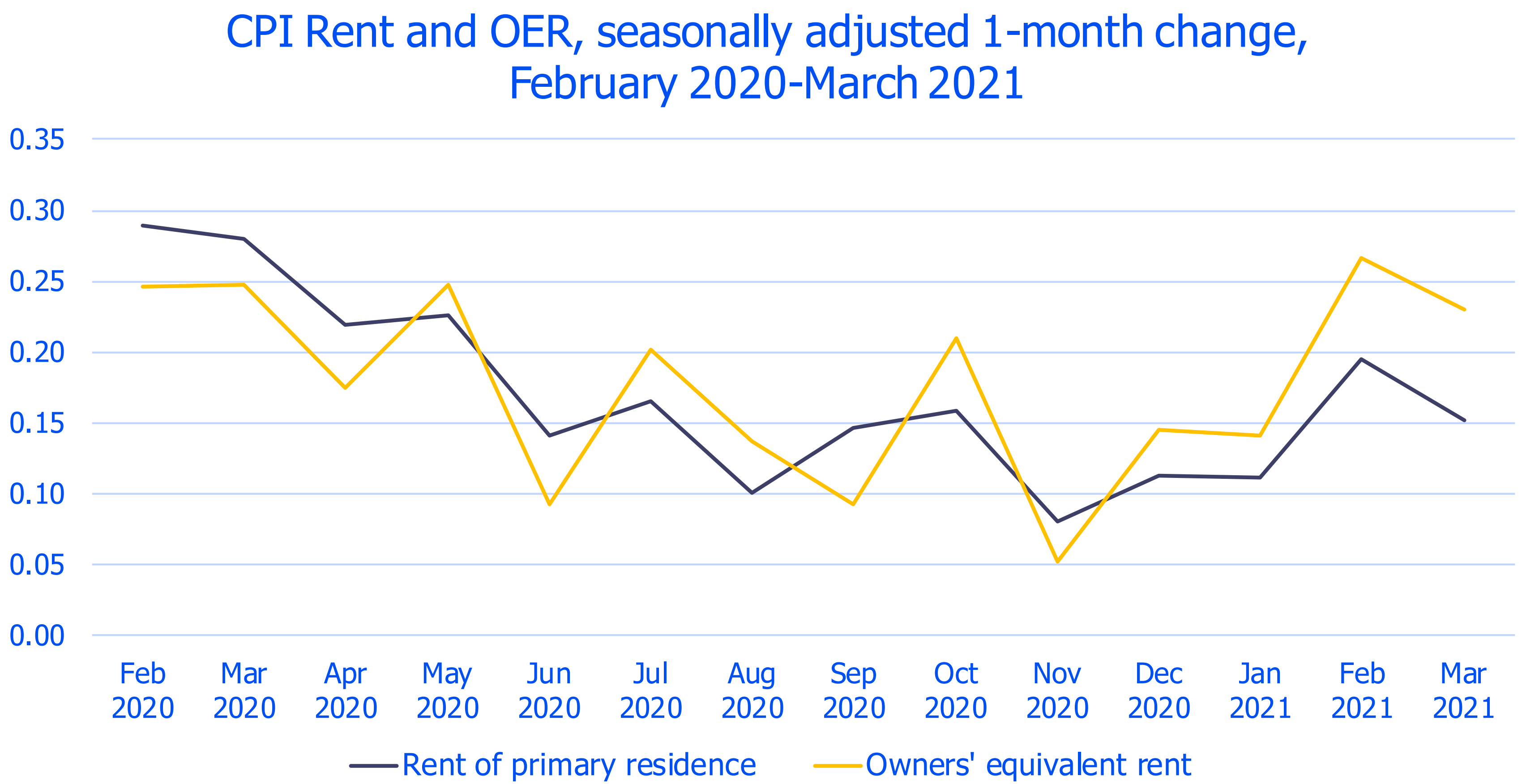
- Reduced response rate in rent sample
- Concerns about handling of rent forgiveness, non-payment
- Some deceleration in rent and Owners’ Equivalent Rent (OER) increases

Rent and OER: response rates

Response rates for the housing survey, percent

Month	2019			2020			2021		
	Collected rents	Vacant units	Uncollected rents	Collected rents	Vacant units	Uncollected rents	Collected rents	Vacant units	Uncollected rents
January	68	6	26	70	5	25	58	4	38
February	67	5	28	69	6	25	61	4	35
March	67	6	27	63	5	32	62	4	34
April	68	6	26	61	4	35			
May	69	6	25	61	4	35			
June	68	6	26	62	4	34			
July	69	6	25	60	4	36			
August	67	6	27	62	4	34			
September	65	6	29	60	4	36			
October	69	5	26	59	4	37			
November	69	6	25	60	4	36			
December	67	6	27	62	4	34			

Rent and OER: 1-month change



Interpreting the CPI during COVID-19

- Reduced response rates mean more imputation, additional noise in short term index movements
- Some indexes have substantially reduced data quality

Interpreting the CPI during COVID-19: seasonal adjustment

- Seasonal adjustment
  - Disruption of normal seasonal patterns mean seasonally adjusted movements should be interpreted cautiously
    - During pandemic
    - Going forward

Interpreting the CPI during COVID-19: weights

- Weights
  - CPI-U and CPI-W weights do not adjust in real time
    - Airline fares
    - Food away from home
    - Lodging away from home

Indexes with interpretation issues

- Food at home
- Food away from home
- Airline fares
- Lodging away from home
- Motor vehicle insurance
- Admissions

Contact information

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