

Impact of high inflation on National Accounts

United Kingdom

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GDP measurement in the UK

- Monthly GDP since 2018
 - Output measure (Services, Production, Construction)
 - Published around 40 days after the reference month
- Quarterly GDP is Output led for most recent 2 quarters
 - First Quarterly Estimate, mainly Output content, but includes some expenditure and income components
 - Quarterly National Accounts updates all three approaches
- Double deflation also used

Deflation approach in the UK

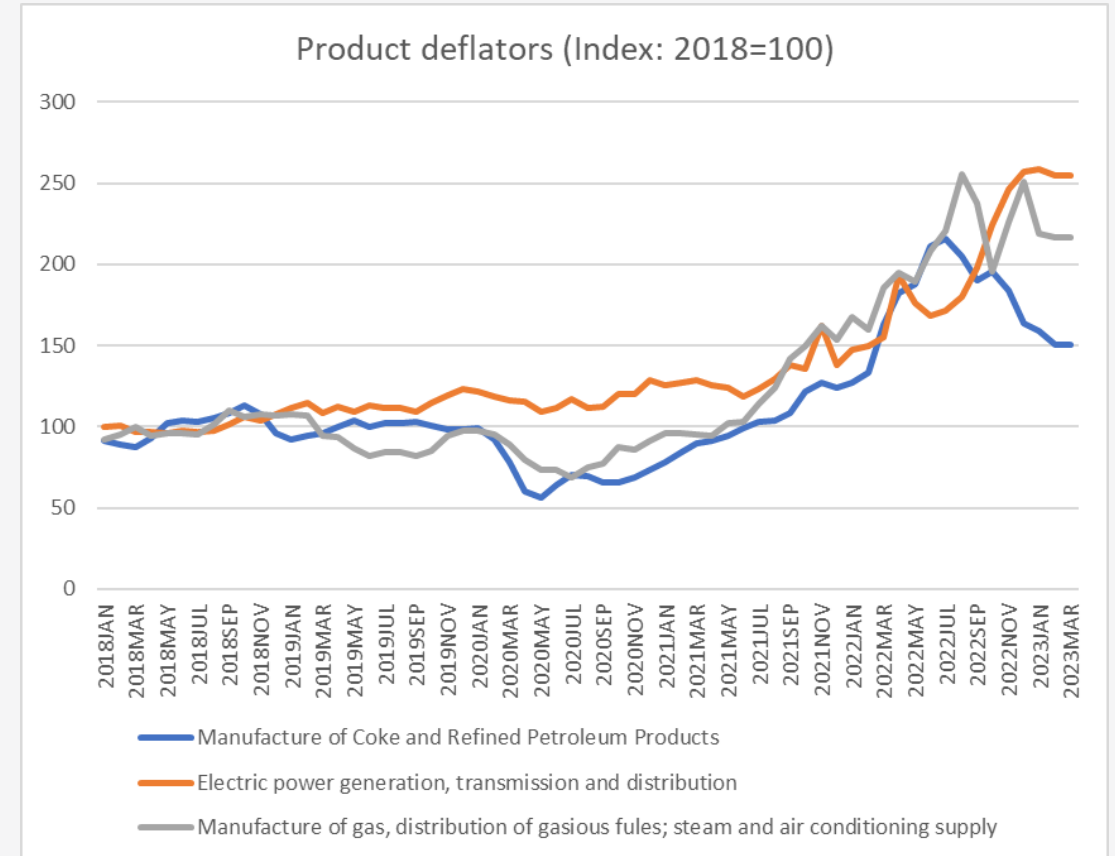
- Annual deflation is done via the supply and use framework with 112 products and 112 industries and balanced in current and constant prices
- For monthly and quarterly GDP, national accounts compilers use consistent set of deflators
- The deflator for each product is built up from lower-level price data for each transaction wherever data are available
- A deflator gateway has been introduced as an entry point for deflators into the national accounts production process to ensure consistent use of deflators
- We publish a [data sources catalogue](#) for all our monthly GDP data which also covers deflators used
- How much of each type of deflator is used in UK monthly GDP

PPI	SPPI	CPI	AWE	HHFCE	Other	Derived
18%	10%	21%	8%	12%	14%	18%

- Note that the PPI includes domestic and export prices weighted together

Energy example: Large price changes

- Energy products have seen large price changes in recent times
- ONS uses direct volume data in short term estimates real of GDP
- Nominal GDP for these industries is created by reflatting the volume
- Data are provided by Department for Energy Security and Net Zero (DESNZ)



Importance of direct volume measures

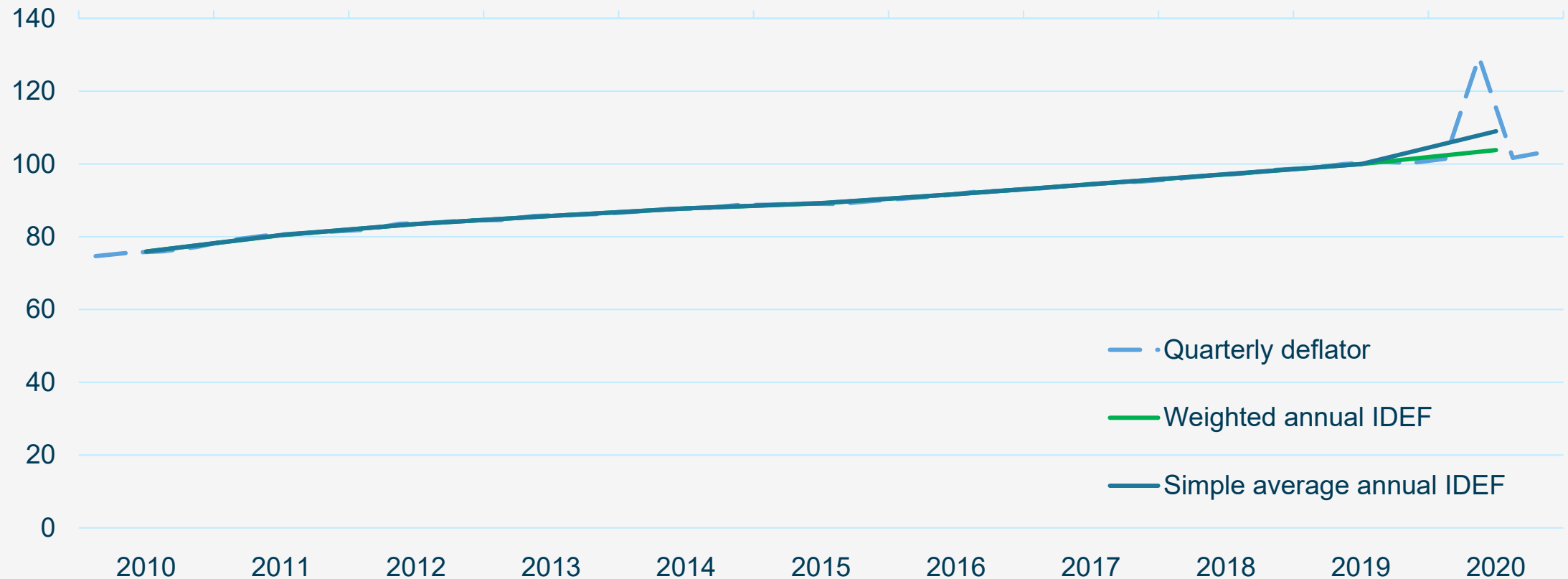
- The [Eurostat Price and Volume Handbook](#) refers to the issue of high inflation and notes (p33):
- *“The use of output volume indicators might also be necessary in cases of high inflation. When prices change very rapidly, price indices become increasingly unreliable. To describe the real economic developments in such situations volume indicators might give better results.”*
- They also reference "[Inflation Accounting: A Manual on National Accounting Under Conditions of High Inflation](#)", published by the OECD in 2003. The main gist of the OECD manual is that where the whole system is subject to high inflation (i.e. not just some products), transactions that are correctly valued as they take place, will be valued at much higher prices at the end of the period than at the beginning. The manual advocates use of inter-temporal indicators and benchmarking.
- In practice higher frequency measurement (i.e. monthly GDP) is a solution [although if you are benchmarking to a simple annual you are likely to need to adjust the annual volume] and the use of direct volume indicators can improve this issue
- For monthly UK GDP: Direct volume measures make up 44% of the volume estimate (about 50% of this comes from government and households)

Case study: Supply-Use and annual deflators

- Annual deflators for some series are formed using simple averages
- In normal times, and if the product to deflate is not highly seasonal, this is ok
- In 2020 prices and activity changed at the same time
- Example on next slide, for restaurants and catering household deflator, (Quarter 2 2020)
- Moral of the story: when inflation is changing rapidly, “short-cuts” such as simple annual averaging can be exposed if price and activity are changing at the same time.
- Methodological challenges for traditionally “safe” outputs

Price spike and change in activity can cause simple average deflators to behave erratically

Food and beverage serving activities (CPA_I56) household final consumption deflator

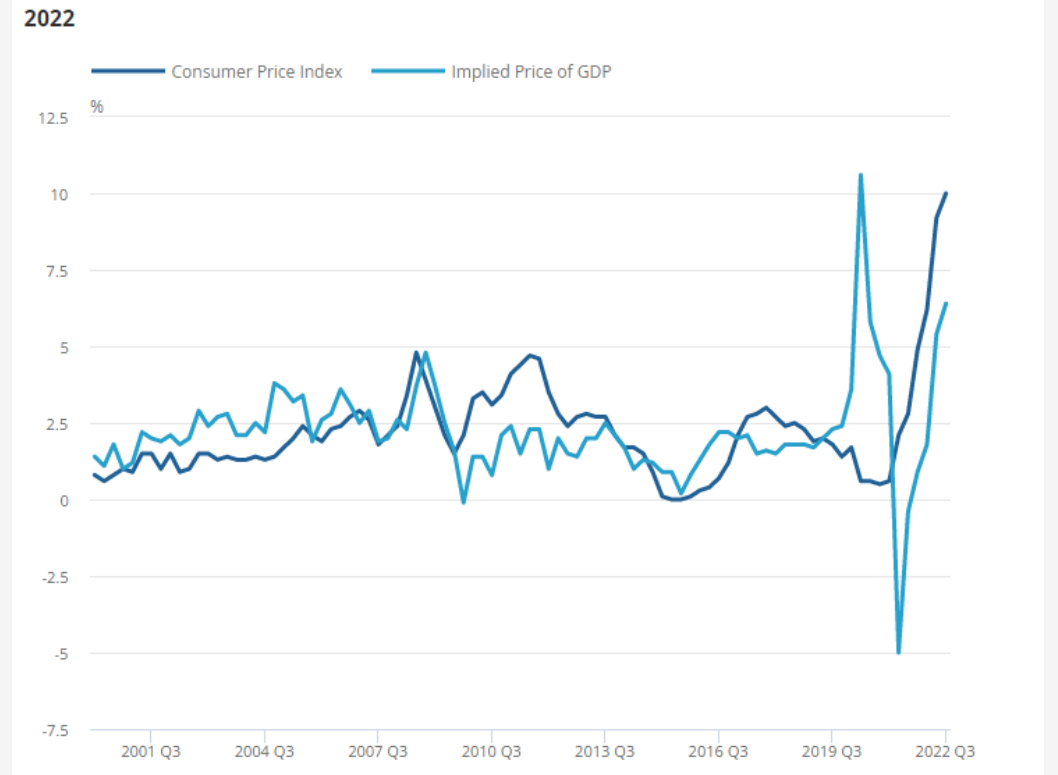


Case study: Movements of implied price of GDP

- The implied gross domestic product (GDP) deflator is the broadest measure of inflation in the domestic economy
- In the UK, the implied price of GDP has increased by 6.4% in the year to Quarter 3 (July to Sept) 2022, while UK CPI has been 10.0% over the same period, as the UK is a net importer of energy goods so these higher UK import prices bring down the change in the implied price of UK GDP.
- Higher import prices of energy and non-energy goods have pushed consumer prices higher over the last year.
- Implied price of GDP is a more appropriate proxy for broader domestic inflationary pressures, so changes in import prices have implications for the implied GDP deflator, particularly at times of large energy price movements or movements in the exchange rate.

UK CPI inflation has been running higher than the implied price of GDP over 2022

Annual movements in UK consumer price inflation (CPI) and the implied price of UK gross domestic product (GDP), Quarter 1 2000 to Quarter 3 2022



Office for National Statistics (ONS), released 8 February 2023, ONS website, article, [Measuring price changes of the UK national accounts](#)

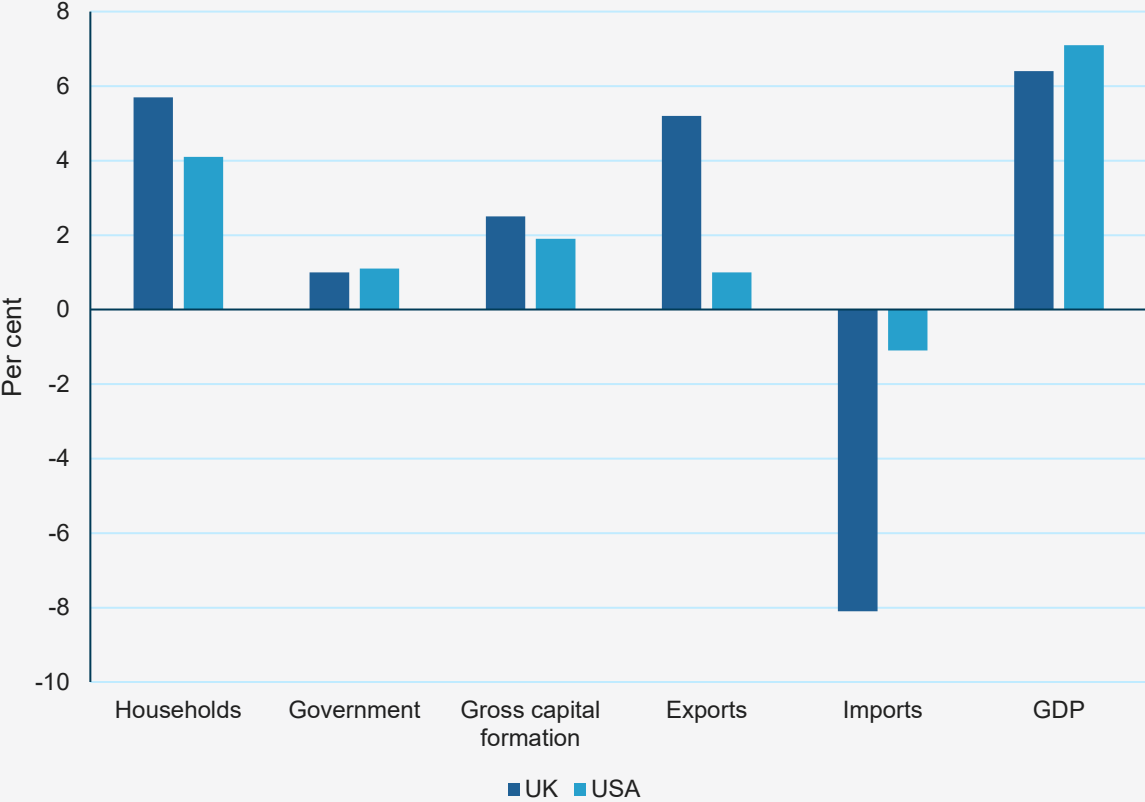
Case study: Movements of implied price of GDP

- The UK is a net energy importer
- There has been a lot of focus on price movements in household consumption, exports and imports over the last year – UK and internationally (comparison to USA on this chart)

We looked at our UK trade gas imports deflator to understand the extent that rising wholesale gas prices was being captured

- Changes in prices
- Changes in volumes

Contributions to the annual change in implied GDP deflator, Quarter 3 2022



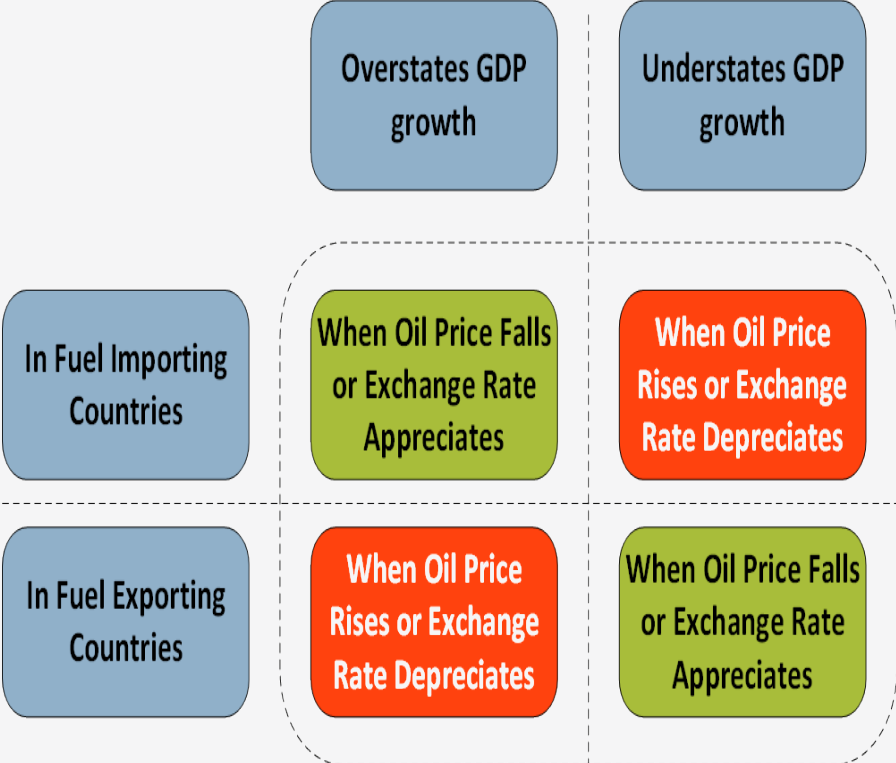
Office for National Statistics (ONS), released 16 February 2023, ONS website, article, [Measuring price changes of the UK national accounts](#)

Single extrapolation vs Double deflation

In the UK, early estimates of GVA produced on 'single extrapolation'

As data is revised with the move to 'double deflation' this can lead to some revisions

- Captures any change in the level and composition of production inputs to higher input prices
- Correction of single deflation bias in capturing price change of inputs



Conclusion

- Importance of understanding changes in the price and volume of goods and services – direct and indirect effects of higher energy prices
- Use of direct volume measures
- Improving public understanding of the cost-of-living, and its impacts, has been a priority for the UK
 - Dashboard:
<https://www.ons.gov.uk/economy/inflationandpriceindices/articles/costofliving/latestinsights>