Advisory Panel on Consumer Prices Technical Panel

17 April 2026

Agenda

Time	Item	Presenter & Paper	Description
14:00	Introductions, apologies, and actions	Grant Fitzner	Make introductions if necessary. Inform Panel members of any apologies. Update on outstanding actions.
14:05 – 14:45	CPI Variances update	Paul Smith APCP-T(26)02	Update on CPI variance estimate work since April 2024
14:45 – 15:15	Proposals & options to produce and publish seasonally adjusted CPI & CPIH	Kevin Sharp	Further update on ONS' progress with seasonal adjustment of CPI
15:15 – 16:00	Publication status of papers & AOB	Grant Fitzner	AOB •Reporting lines for Advisory Panels (Grant) •Name change for Advisory panels (Grant) •Travel guidance for panel members (Rifah) •Suggestions for future panel meeting topics (Rifah)
16:00	Meeting close		

Actions from previous meeting

Action No.	Date captured	Description	Person Responsible	Status
24	Jul-25	ONS to compile short note on how weights are determined in CPI/CPIH and in national accounts input-output tables.	Secretariat	Rifah to circulate alongside minutes and slides
25	Jul-25	Professor Smith to investigate the relationship between high price variance and high weight variance as part of his team's work.	Paul Smith	Ongoing

CPI variances update – April 2026

Prof Paul Smith

S3RI and Department of Social Statistics & Demography
University of Southampton

University of Southampton

Outline

- Brief processing update
- Paradigms
  - design-based
  - model-based
- Questions

CPI calculation

- No explicit product weights in elementary aggregates
- Implicit through replicate weights
- No explicit sampling weights

- Paradigms
  - design based accounts for the sample design through selection probabilities
  - model based is variability of observations around assumed model
    - model dependent

Prices and weights

- Variance due to prices
  - depends on estimator which ignores (sampling) weights
  - closer to model-based paradigm
  - products with replicate weights regarded as included with certainty

- Variance due to weights
  - largely design-based
  - adjusted through supply-use (model?)

- Combining design- and model-based variance components?

Explaining variances to users

- Repeated sampling argument (variance under the design)
  - need “envisaged design” – approximation of actual probability sample
- Superpopulation argument (variance under the model)
  - dependent on model choice/fit

Questions for the panel

- Comment on the paradigms for variance estimation
- Comment on the treatment of prices with replication factors >1
- Consider how variance measures constructed under one or a combination of paradigms could be explained to both expert and lay users of the CPI.

University of Southampton

YOUR QUESTIONS

Proposals & options to produce and publish seasonally adjusted CPI & CPIH

Kevin Sharp

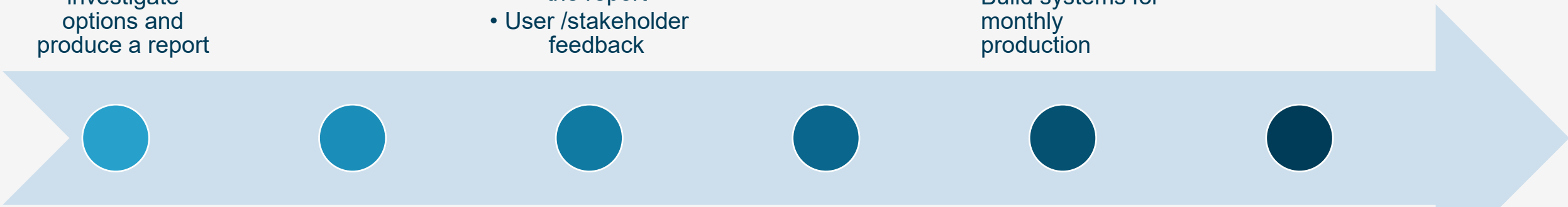
Meeting Purposes: We are asking the Panel to…

1. Note the timeline for publishing SA CPI and CPI

2. Note our high-level proposals on publishing a SA CPI and CPI

3. Provide any further feedback on technical areas of implementation:
   - Direct or Indirect method
   - Revision Policy
   - Policy driven prices
   - Timeseries break
   - Index Day impacts

Current timeline for seasonal adjustment project



2024
- Commissioned NIESR to investigate options and produce a report

Q2 2025
- NIESR report published
- Handover work to the ONS

H2 2025
- Internal review of the report
- User /stakeholder feedback

Q1 2026
- Decide proposals and options for ONS approach
- Initial modelling

Q2 2026
- Share proposals and options with stakeholders
- Finalise SA modelling
- Build systems for monthly production

H2 2026
- Publish communications and guides for SA CPI
- Start publishing of SA price data

Main Proposals

1. ONS to pursue the publishing of SA CPI and CPIH data in response to stakeholder demands

2. Seasonality to be modelled using the international standard of X-13 ARIMA–SEATS and publish SA price indices that strip modelled seasonality out

3. ONS use the latest software of JDemetra+ to model seasonality and RJDemetra+ to embed this into monthly production

4. To publish SA versions of price indices in Table 37 and 38 in the Consumer Price Inflation tables:
   - from the All Items level to COICOP class level 4-digit series and over 60 defined aggregates
   - from 1988 to current year

5. Seasonal models to be re-estimated annually

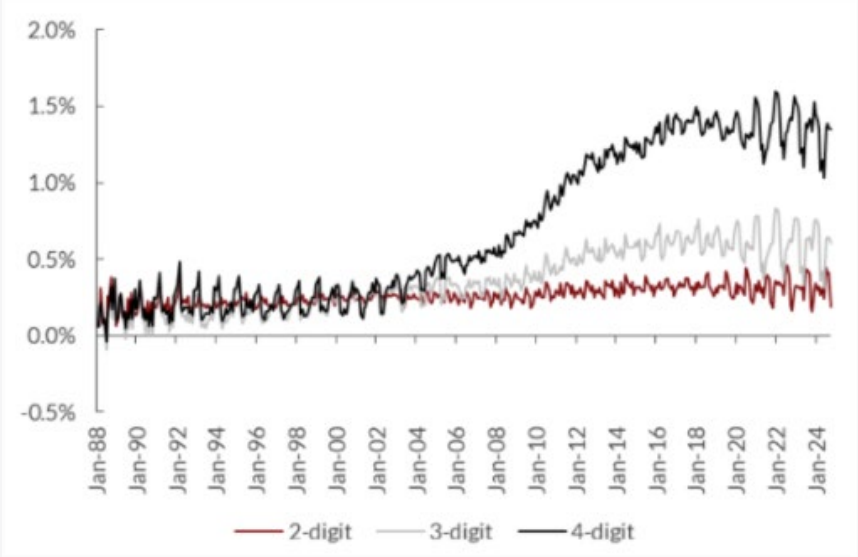
Direct or Indirect Estimation: Considerations

Stakeholder preference for Indirect and Indirect is used in most ONS outputs. We hope to pursue with Indirect if the data allow.

We still need to finalise our internal models and assess:

- To what extent is there residual seasonality? In particular at the “All items” level (or other aggregates)?
- How do the two approaches compare, % and absolute differences.
- NIESR have previously carried out this analysis (below) and found a relatively small deviation of 1.5% at the 4-digit level.
- In SA models developed by the Timeseries Analysis Branch, can we remove the “drift element” at the 4-digit level?

Deviation of the All items CPIH index Direct vs Indirect estimation as a percentage



Source: Seasonal Adjustment of CPI and CPIH, NIESR Policy Paper 4.5, May 2025

ONS would like additional stakeholder feedback to decide on revision frequency

Revisions occur naturally in SA data from:

1. Model Re-estimation

- Annually frequency with models fixed in between
- Annual approach matches most other SA outputs as achieves a good balance between accuracy and resources

2. New Monthly Data

- Previously published data can change each month as parameters get updated when realised data replaces forecasts
- Can choose to fix previously published data or revise each month.
- Trade off between: Data stability to users vs accuracy & ease of production

Option	Revisions	Seasonal models review	Data Stability	Real time accuracy	Ease of Implementation	ONS outputs
1. Monthly revisions	Monthly	Annual	Lower	Higher	Higher	RTI/SARPIY
2. Yearly revisions	Annual benchmark	Annual	Higher	Slightly Lower	Lower	NA

ONS propose to use a Revision Window

ONS proposed approach: A revisions window is being considered to fix historical data

- Small value for users for revising historic data from changing model specifications from annual re-estimation
- Fixed historical data means we can use a more recent (and rolling) model span.
- How far back should we publish revisions for?
  - Data can be revised in a 1-/2-/etc year window (1 year in UK HPI)
  - SARPIY usually had 12m of “significant” revisions.
- Would historical data ever be revised?
  - Special cases? “Open” periods
- Determining window length requires analysis to gauge nature and scale of revisions over time

Options for policy influenced prices

- **NIESR's recommendation:** leave unadjusted those series in COICOP Division 4 *"Housing, water, electricity, gas and other fuels"* which includes prices that are heavily influenced by seasonal policy decisions e.g energy prices / council tax.

- **ONS proposed approach:** Use user defined regressors for known policy timings (e.g VAT rises, tobacco duty, energy price caps) and statistical techniques such as outlier and level shift detection to statistically adjust individual series influenced by policy

Reasons for recommendation:

- Stakeholder feedback suggested exclusion of this division is both too board and too narrow:
  - Includes components in Division 4 that respond predominantly to market dynamics, such as like solid and liquid fuels
  - Excludes policy impact in other divisions, such as Division 2 "Alcohol and tobacco".
- Brings knowledge and reason to regressors in each model (would have this for all regressors in an "ideal world")
  - Initial models suggest including policy variables lead to better quality SA diagnostics
- Aligns with how most other NSIs treat policy
- Can we also account for policy regressors in monthly rounds when models are not being reestimated?
- We also rejected an option shared by Stakeholders where policy impacts were added back onto the adjusted data
  - Subjective, complex and we aim to have no residual seasonality in SA series
- Aggregates that exclude some policy series will be included in our defined aggregates
  - *E.g "CPI excluding Housing, Water, Electricity, Gas & Other Fuels"*

Timeseries Break

- **NIESR's recommendation:** splitting the 1988-2025 timeseries for seasonal adjustment into 3 modelling periods before chain linking the resulting series together

- **ONS proposed approach:** Use continuous timeseries and:
  - Use revision window to fix historical data
  - assess whether the drift from direct vs indirect can be improved and residual seasonality can be managed across aggregates

Reasons for recommendation:

- Stakeholder feedback suggested recent period was quite short and that proposed split years may mask patterns of economic activity in certain indices
- A continuous timeseries is considered best practice and used across other SA series in ONS (e.g GDP, employment, etc.) and for SA CPI in other NSIs
- Greater sample for improved seasonal pattern detection
- Different model frames and chain linking adds complications in method and in communication

- However… ESS Guidelines on SA suggest splitting very long series (1988 onwards would be considered long). We would therefore consider revision windows and rolling modelling frames after the backseries has been initially published

Adjusting Index Day Impacts

Investigation of index day: Additional internal investigation on whether price movements resulting from where the index day lies in the calendar month can be accounted for in the SA CPI models

- Add manual regressors for relative index day position each month e.g air fare price collection near Easter

Proposal: Would not be considered in scope of this SA work but rather considered for improving within our price collection design basket reviews. SA indices may still show index day effects and communications can be published to explain why

Reasons for recommendation:

- Stakeholders argued a case for improving collection methods before SA of these indices
  - This will feed into the annual basket reviews (considering more frequent collection/alternative datasets)
  - Suggested should remove as much noise as possible from Non-SA indices before adjusting
- No evidence of other NSI's do using index day regressors in their SA models
- A lot of additional complexity to likely affect only a small number of indices
  - Easter effect seen only in 19% of the 98 series, trading days 3% (**Source:** NIESR Policy Paper 4.5, May 2025)

#	High level proposals
1	ONS to pursue the publishing of SA CPI and CPIH data in response to stakeholder demands
2	Seasonality to be modelled using the international standard of X-13 ARIMA–SEATS and publish SA price indices that strip modelled seasonality out
3	ONS use the latest software of JDemetra+ to model seasonality and RJDemetra+ to embed this into monthly production
4	To publish SA versions of price indices in Table 37 and 38 in the Consumer Price Inflation tables: • from the All Items level to COICOP class level 4-digit series and over 60 defined aggregates • from 1988 to current year
5	Seasonal models to be re-estimated annually

Options for SA CPI/CPIH	Choose from option
Options for Revisions	Further stakeholder engagement required whether to revise monthly or annually. Recommend revision window with analysis required for length
Direct or Indirect	Further stakeholder engagement and analysis required here. Stakeholder preference for Indirect but need to assess residual seasonality and drift
Policy influenced prices	Use user regressors for outlier and level shift detection to account for known policy timings in SA models
Timeseries Break	Use continuous timeseries and use revision window to fix historical data with additional analysis required for impact on indirect
Index Day Impacts	Leave out of the SA framework and use alternative collection methods to alleviate their impact

Appendix

Direct or Indirect Estimation

Choice between applying best possible SA to each aggregate by modelling individually (direct) vs perfect “adding up” across COICOP hierarchy of aggregating components for create SA aggregate series (indirect)

	Direct	Indirect
Benefits	• Individual SA of each aggregate price index, (inc. All Items series) likely means higher quality adjustment • Simpler to communicate and implement	• Maintains the “adding up” feature that occurs in non-adjusted data • A general stakeholder preference for additivity
Risks	• Lose out on perfect additivity, especially if quality gains are small	• Risk of residual seasonality across aggregates - to be monitored and adjusted (experience here in GDP) • Potential impact from lower quality component series on higher aggregates • Higher complexity in build: requiring weights data and inherent interconnectivity across components and aggregates
ONS Outputs	• Some real time indicators	• National Accounts: GDP, Retail Sales, Construction, Trade, etc (all additive hierarchies) • Some real time indicators • Discontinued SARPIY
NSI using approach	• Canada, France, Germany, Mexico, Norway	• Australia, Russian Fed, US, ECB (aggregating member states)

Publication status of papers & AOB

Publication status of papers & AOB

- Publication status of papers presented today
- Reporting lines for Advisory Panels (Grant)
- Name change for Advisory panels (Grant)
- Travel guidance for panel members (Rifah)
- Suggestions for future panel meeting topics (Rifah)