ADVISORY PANEL ON CONSUMER PRICES – TECHNICAL

Minutes

08 April 2022
Teleconference
10:30 – 13:00

Members in attendance

Ms Corinne Becker-Vermeulen
Prof. Bert Balk
Prof. Ian Crawford
Mr Grant Fitzner (ONS, Chair)
Mr Mike Hardie (ONS)
Dr Jens Mehrhoff
Prof. Paul Smith
Mr Rupert de Vincent-Humphreys
Dr Martin Weale

Secretariat
Mr Chris Payne (ONS)

Presenters

Mr Liam Greenhough
Mr Ben Hillman
Ms Natalie Jones
Mr Andy King

Apologies

Dr Antonio Chessa (resigned)
Prof. Guy Nason
Mr Huw Pierce (ONS)

1. Introductions and apologies

1.1. Mr Fitzner began by welcoming Panel members, and passing on apologies for Dr Nason and Dr Chessa. Dr Chessa has chosen to step down from the Technical Panel due to other work commitments. Mr Fitzner and other Panel members expressed their appreciation to Dr Chessa for his contribution to the Panel over the last few years.

1.2. In March 2022, a draft version of the Price Index of Private Rents (PIPR) intended methodology article was shared with Panel members for comment. The final version of PIPR's intended methodology was published on ONS' website on 25 March 2022 and was later updated on 1 December 2023.

2. Index number methods

2.1. Mr Greenhough outlined the topic, referencing the challenges with constructing a price index for scanner and web-scraped data. This led ONS to construct a scoring framework to inform a decision on the choice of index number method. This framework pointed to the Geary-Khamis (GK) method with a fixed-base expanding window as the most appropriate choice. However, ONS subsequently commissioned an independent ESCOE review of the framework, which concluded that subjectivity involved in assigning weights and scores was having a large impact on ranking of methods. The review proposed and performed an empirical examination of the methods which led to a different method, the GEKS-Tornqvist (also known as the CCDI) being preferred.

> ACTION 1: Mr Greenhough to circulate a link to the ESCOE review on multilateral methods for consumer price statistics (Fox, Levell and O'Connell, 2022)

2.2. The Panel first discussed whether ONS should continue to develop the framework or whether they thought that empirical evidence should be the driver of the decision. There were varying views with some Panel members preferring a framework or theoretical approach, since empirical evidence is not always decisive. Others felt that the framework was also ambiguous given the arbitrary way in which weightings are applied and that it was to supplement the framework with empirical evidence and on the basis of what works well in practice. It was generally felt that it was important to have one preferred method applied across the basket and so the ultimate choice should be robust across a range of scenarios.

2.3. The Panel was next asked to consider the ideal window length, with reference to the Fox et al recommendation of 25 months. Dr Balk stated that the longer the time window is, the better the results. However, Dr Mehrhoff referenced biases that could be introduced if the window were too long.

> ACTION 2: Dr Mehrhoff to circulate his slides from the upcoming Eurostat task force on multilateral methods

2.4. Mr Greenhough and Mr Hillman next led Panel members through ONS analysis replicating the Fox et al approach with ONS's own scanner data. Panel members then provided several points of feedback on the analysis:-
   - Prof Balk suggested that choosing a single splicing month was an arbitrary choice and, in the absence of any particular rationale for choice of month, it would be preferable to take the mean across months
   - Mr Levell was interested in what a bilateral Tornqvist would look like
   - Dr Mehrhoff enquired whether the multiperiod identity test had been considered. He noted that a transitive benchmark may not be ideal as it has less characteristicity. He also pointed out that comparisons could not be made across methods as they each compare to a unique benchmark.
   - He also suggested plotting the GK quality adjustment factors over time

2.5. Mr Levell explained that Fox et al focussed on chocolate given that there was greater churn in this category, and found that the half splice method did well; however, general conclusions could not be formed from this analysis. They had also experimented with end-period tests; however, it was again difficult to form a more general conclusion on this basis. He also clarified that imputation was used to deal with a loss of characteristicity and the subsequent down-weighting of transitory movements.

2.6. The final part of the index number methods presentation focussed on substitution effects. Mr Greenhough noted that the relationship between GK and GEKS-T in the spatial domain differed from the time domain. ONS has observed that empirically the differences were driven by more dynamic items where greater substitution is observed. Dr Balk noted that substitution was a longer-term behaviour and caution should be used in interpreting monthly changes in consumption. Dr Crawford suggested that the ONS examples of substitution bias violated the weak axiom of revealed preference, and the approach taken in Fox et al was preferred. Dr Mehrhoff referenced academic literature that showed that superlative index number methods were biased with regards to intertemporal substitution behaviour; for example, stockpiling.

> ACTION 3: Dr Mehrhoff to provide links to the referenced research

2.7. The Panel then discussed the Fox et al recommendation that the GEKS-T should be used with a 25-month window more generally. The Tornqvist was preferred as an input into the GEKS process compared to the Fisher which, while potentially simpler to explain, gave similar results and produced some odd and unexplainable results in the Fox et al analysis.

2.8. Drs Balk and Mehrhoff supported the recommendation of a 25-month window, with Dr Mehrhoff noting that the EU is moving towards a similar 25 month half splice with a GEKS method. Mr Greenhough also noted that operational considerations rule out making the window too long, and the Fox et al analysis noted that chain drift was limited at the 25-month window point.

2.9. On the other hand, Dr Crawford expressed a preference for the GK method which he felt was simpler to explain as it uses a fixed basket of reference prices as well as having the useful property of additive decomposability. The invariance of this method to imputation should be seen as a feature rather than an issue. He also noted that there is a lack of principle underpinning the GEKS approach, as it is based on averaging across possible indexes due to the lack of a clear preferred option (a similar approach to that suggested by the principle of insufficient reason).

2.10. Prof Smith noted that he was unable to advise the ONS on the basis of the evidence seen, as more background would be needed in order to make a firm judgement.

2.11. In summary, Mr Greenhough explained that ONS would be making the final decision in the next few weeks. ONS are keen to hear from Panel members if there are any significant issues with the Fox et al recommendations that would suggest that the ONS should not accept them. Prof Crawford noted that the choice was finely balanced. Mr Greenhough noted that the Fox et al paper had concerned ONS as regards substitution bias in the GK. The GK's invariance to imputation could also be an issue if there were a lack of product availability. Both methods are highly ranked on the ONS framework.

2.12. Finally, some Panel members noted that the indexes based on scanner and web scraped data would show higher volatility than current indices, given the change in data source.

> ACTION 4: Panel members to provide further feedback on the Fox et al recommendations ideally within the week, but if this is not possible, at the earliest opportunity.

3. Future plans for population subgroup indices

3.1. Ms Jones presented ONS plans for the publication of population subgroup inflation measures. ONS are considering next steps for development, including academic research into the assumption of using the same price changes for each subgroup, using synthetic data to understand how the variance between groups would impact on overall price indices, and how to exploit alternative data sources.

3.2. There was some discussion around the assumption of using the same price changes for each subgroup. ONS clarified that each subgroup's spending basket was distinct given the way that the weights are produced. However, the price indexes used to show the change in price of the basket components do not differ from the national measures.

3.3. ONS also clarified the role of the Household Costs Indices, as set out in [Measuring changing prices and costs for consumers and households](#). Dr Weale added that they were suitable as a

measure for deflating the geometric mean of incomes to show the average of real growth in consumption.

4. Update on Prices' work to support understanding of the impact of inflation on UK households

4.1. Mr King presented on recent ONS work to support understanding of the impact of inflation on UK households. He outlined the recent publication of a [Personal Inflation Calculator](#) on the ONS website, and the development of a least cost index. Mr King also confirmed that this was intended to be a one-off piece of analysis.

4.2. Ms Becker-Vermeulen offered to share similar work on a personal inflation calculator that had been developed in Switzerland. For the least cost index, it was suggested that ONS should avoid the use of terminology such as 'essentials' given the ambiguity in what different households may perceive as essential.

> ACTION 5: Ms Becker-Vermeulen to share Switzerland's work on a personal inflation calculator with ONS

4.3. Mr King also noted that substitution reflected the main conceptual difference between the CPIH/CPI and the least cost index. Mr DeVincent-Humphries was interested in how often forced substitutions occurred in reality. Mr King responded that, in the ONS web scraped data, which are based on the available online product catalogue, there did seem to be a relatively consistent level of availability; however, it is likely that this may be different to consumer's experience in stores.

5. Date of next meeting

5.1. The next meeting will be held on 8 July 2022.

6. Actions

No.	Action	Person Responsible
1	Mr Greenhough to circulate a link to the ESCOE review on [multilateral methods for consumer price statistics](#) (Fox, Levell and O'Connell, 2022)	Mr Greenhough
2	Dr Mehrhoff to circulate his slides from the upcoming Eurostat task force on multilateral methods	Dr Mehrhoff
3	Dr Mehrhoff to provide links to the referenced research	Dr Mehrhoff
4	Panel members to provide further feedback on the Fox et al recommendations ideally within the week, but if this is not possible, at the earliest opportunity.	Technical Advisory Panel members
5	Ms Becker-Vermeulen to share Switzerland's work on a personal inflation calculator with ONS	Ms Becker-Vermeulen