ADVISORY PANEL ON CONSUMER PRICES – TECHNICAL

Experimental methodology for regional CPI for Northern Ireland

Expected publication: Alongside minutes.

Purpose

1. The Office for National Statistics (ONS) is working in collaboration with the Department for the Economy (DfE), Consumer Council for Northern Ireland (CCNI) and Northern Ireland Statistics and Research Agency (NISRA) to produce experimental consumer price inflation estimates for Northern Ireland (NI), by boosting the local price collection sample and creating regional specific weights. The aim of this paper is to get the panels input on the methods chosen for creating a regional CPI for Northern Ireland.

Actions

2. Members of the Panel are invited to provide initial thoughts on:
   a) Regional Weighting Methodology
   b) Next steps to take for the project

Background

3. Our last publication we produced initial results for a Northern Ireland Consumer Prices Index and detailed some improvements such as increasing the proportion of regional Northern Ireland specific prices.
4. For expenditure weights, Living Costs and Food Survey (LCF) data can be reconciled to Consumer Price Inflation spending totals to provide a regional breakdown. These spending totals are based on national accounts HFCE data rather than the survey estimates. However, disaggregating the LCF sample into 12 regions means that regional sample sizes are much smaller than the national sample size. The smaller sample sizes would lead to a much less accurate regional index. Therefore, we introduced experimental regional weighting as detailed in our 2nd publication. A five-year average of NI weights around 2015 was taken to give a fixed starting point and then these fixed weights were uplifted in line with UK changes each year.
5. We brought this methodology to the APCP-T panel in July 2024. This paper responds to feedback from the last panel and suggests new methods to be used for regional weighting.

Section 2: Regional Weighting Methodology

6. There are several issues with this 2015 based weight methodology. They key one being that Northern Ireland trends are ignored completely once imputation/uprating begins in 2015. If there are any differences between the UK and Northern Ireland economies reacting to events such as the withdrawal of the UK from the European Union or the covid pandemic, these will not be captured in the weights. There will be a need for a rebasing of the Northern Ireland series at a new fixed point in the future, this will lead to a sudden shift in weights.

7. In the previous methodology initial yearly weights (before the 5 year average was taken) were created by distributing national accounts totals to regions using equivalent region proportions in the Living Cost and Food (LCF) survey. This is the same method that is used in the Household Costs Indices (HCI's). This was brought to stakeholder panel in May 2017 where it "was generally agreed that due to the sample sizes it would be necessary to use 3 years of pooled data".
8. David Hearne is presenting his research at the Panel also as part of this agenda item. His research can be found here. Like David Hearne's work I have been focusing on the regional proportion of spending in the LCF data. The proportions give a more stable distribution of spending ratios which are not also muddied by changes in national account totals.
9. For example, for a COICOP like 1.1.4: milk, cheese and eggs in the LCF survey, NI accounts for around 2.7% of UK spending with little variation year on year. While for 4.5.3 Liquid Fuels NI typically accounts for over 20% of UK spending. For this COICOP there are much larger deviations year on year in these proportions. This variation is likely largely sample error due to this being a COICOP which is typically a larger but infrequent purchase.
10. While David Hearne has created a model for smoothing these proportions, I have investigated creating moving averages or pooling several years of LCF data together before creating proportions. These methods are more appropriate in a production environment where processes need to be built into a repeatable process. These result in varying degrees of smoothing variation in LCF proportions. They key question is what deviations are sample error and what are genuine trends.
11. An advantage of this method over the previous is that NI trends are still taken account of, particularly when they deviate from UK trends. For example, we can see in the LCF a steady rise in Gas spending in NI. This would be ignored in the previous method were weights for NI were fixed around 2015 and it was assumed changes were in line with UK changes.
12. Another advantage to using smoothed proportions compared to the fixed weights method is that it should lead to less COICOP classes needing to be proxied due to taking in multiple years of LCF data there will be less cases where low response rates are an issue.
13. Other data sources have also been looked at to collaborate. For example, Regional Accounts produce household expenditure estimates on a national and domestic basis. While these are also statistics in development and on a greater lag than the usual weights data they provide a useful comparison. For their national basis their key source is also the LCF survey, so results are similar to ours. For domestic, larger data sources such as VAT and Annual Business Survey are used. Looking at regional proportion of spending in this data there is typically less volatility year on year than there is in the unsmoothed LCF data. Although there are some strange behaviours among centrally collected items due to the domestic nature assigning spending to regions based on company locations, not where the spending takes place.
14. We would ask for the panel's initial thoughts on the approaches described in this paper and how we incorporate the findings of David Hearne's research into our

approach. We aim to present options and analysis for making improvements to the regional weighting methodology in September's Panel.

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